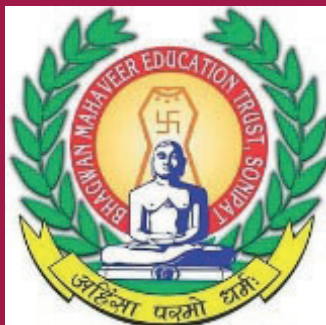# CICT 2018

Proceedings of Second International Conference on Computational Intelligence and Communication Technologies.

17th November, 2018

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B.M. INSTITUTE OF ENGINEERING & TECHNOLOGY, SONEPAT

Rajiv Jain
Chairman

MESSAGE

I am happy to note that B.M. Institute of Engineering & Technology, Sonepat is organizing its Second International Conference on Computational Intelligence & Communication Technologies (CICT-18) on 17th Nov. 2018.

The conference provides a stage for the academicians and researchers to discuss the latest developments in the field of Computational Intelligence & Communication.

My hearty greetings to the faculty members of the Institute, for organizing an International Conference on an important topic of academic interest. My best wishes for the successful conduct of the Conference.

Rajiv Jain

Bahalgarh Road, Behind Fazilpur Power Sub Station, Sonepat-131001 (HARYANA)

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B.M INSTITUTE OF ENGINEERING &   TECHNOLOGY, SONEPAT

Rakesh Kuchhal
FOUNDER-CEO

MESSAGE

I am immensely happy to learn that the Institute is organizing its Second International Conference on Computational Intelligence & Communication Technologies (CICT-18) on 17th Nov 2018 and a Proceedings Book is being brought to commemorate this occasion.

I sincerely hope that CICT-2018 is going to deliberate upon several important topics during the conference which will be of importance to the nation and will enhance the quality of academic and professional research. I am sure that the Institute will keep on contributing more effectively in order to promote academic research.

I convey my best wishes for the success of the Conference

.

Rakesh Kuchhal

B.M. INSTITUTE OF ENGINEERING & TECHNOLOGY, SONEPAT

Lt. Col Yogesh Jain
DEPUTY. DIRECTOR

MESSAGE

I am glad to note that B.M Institute of Engineering and Technology, Sonepat is organizing its Second International Conference on Computational Intelligence and Communication Technologies (CICT-2018) on 17th Nov 2018 on the Institute campus. Computational Intelligence is the thrust area of all sciences and has become an indispensable tool in solving the problems of Engineering and Technology. The Conference will bring like-minded individuals on one platform to discuss new challenges and trends in field of research. I am sure that the deliberations will enrich academic wisdom of the participants to enable exploration of new domains of applications in CICT-18. I hope that the delegates will have an enjoyable and fruitful stay in the BMIET campus.

Yogesh Jain

Bahalgarh Road, Behind Fazilpur Power Sub Station, Sonepat-131001 (HARYANA)

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B.M. INSTITUTE OF ENGINEERING & TECHNOLOGY, SONEPAT

Dr. Harish Mittal
PRINCIPAL

MESSAGE

I am indeed most delighted to be given the opportunity to chair our Second International Conference on Computational Intelligence and Communication Technologies (CICT-2018).

As Program chairman of this event, I hope to bring together a good programme that stimulates knowledge and scientific intellect. A holistic and interactive approach has been employed in planning the Conference in which we shall discuss the latest developments in the field of Computational Intelligence and Communication Technologies.

The review process was a daunting challenge for the Program Committee. Based on the received review reports, acceptance rate was around 33%. Specifically, the program covers important aspects of Wired and Wireless Communications, Simulation & Modeling of Communication Systems, Computer Vision & Image Processing, Cloud Computing, Artificial, Biological and Bio-Inspired Intelligence, Antennas and Propagation and Control Systems.

 On behalf of the organizing committee, I would like to extend a warm invitation to all the participants who have contributed in this Conference.

Dr. Harish Mittal

Bahalgarh Road, Behind Fazilpur Power Sub Station, Sonepat-131001 (HARYANA)
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VIRTUAL MOUSE FOR AMPUTEES

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[1,2]CSE, BM Institute of Engineering and Technology,Sonipat (Haryana) India
[3]CSE, Assistant professor, B.M. Institute of Engg. & Tech., Sonepat

Abstract

In this paper, we present a methodology for Human PC Connection (HCI), where we have endeavored to control the mouse cursor development and snap occasions of the mouse utilizing hand motions. A technique for continuous hand motion acknowledgment and highlight extraction utilizing web camera is been used. [1]

Keywords—MATLAB, Human Computer Interaction (HCI), Amputees, Picture Handling, Web Camera, Snap Occasions, Shading Detection

INTRODUCTION

We will outline a virtual mouse which distinguishes hand signals designs rather than physical mouse. Essentially we utilize hued tips for recognition which are caught by webcam. Here, the shaded fingertip goes about as a question which the web cam detects. The camera is situated to such an extent that it perceives the snapshot of fingertips and plays out the tasks of mouse. The use of virtual mouse shows up in space sparing circumstances or in development circumstance.

A. **About MATLAB (Matrix Laboratory):** MATLAB is a program that enables you to complete calculations in a straight forward way, evacuating a significant part of the repetitiveness engaged with programming. It is to a great degree valuable for making reproductions of neural systems, and also for general kinds of information examination and perception.[2]

B. **Human PC Association:** It is the investigation of how individuals connect with PCs and to what degree PCs are or are not produced for effective association with human beings. One vital HCI factor is that distinctive clients frame diverse originations or mental models about their cooperation and have diverse methods for learning and keeping information and abilities.

C. **Graphical User Interface (GUI):** It gives point-and-snap control of programming applications, taking out the need to take in a dialect or sort directions with the end goal to run the application. MATLAB applications are independent programs with GUI front closures that mechanize an undertaking or estimation. The GUI ordinarily contains controls, for example, menus, toolbars, catches, and sliders. Numerous MATLAB items, for example, Curve Fitting Toolbox, Signal Processing Toolbox, and Control System Toolbox incorporate applications with custom UIs.

D. **Picture Handling with MATLAB:** Pictures are all over the place, from regular gadgets like cameras and PDAs to particular gadgets for medicinal imaging, car wellbeing, modern robotization, and that's just the beginning. Each of these utilizations for picture handling has special difficulties.
MATLAB and Picture Preparing Tool kit give adaptable condition to investigate outline thoughts and make novel answers for MATLAB tool kit utilized in our venture is as per the following:

   • Image procurement Tool compartment

   • Image handling tool compartment

1) **Picture Procurement Tool compartment**: The Picture Obtaining Tool stash is an accumulation of capacities that expand the ability of the MATLAB numeric registering condition. The tool compartment bolsters an extensive variety of picture securing activities, including. Getting pictures through numerous kinds of picture obtaining gadgets, from proficient review outline grabbers to USB- based Webcam.[3]

2) **Picture Handling Tool compartment**: Picture Preparing Tool stash gives an extensive arrangement of reference-standard calculations, capacities and applications for picture handling, examination, perception and calculation advancement. You can perform picture improvement, picture division, geometric changes and picture enrolment.

E. **Amputees:** People who lose their arm in an accident.

F. **Web Camera:** This Webcam is utilized to catch and perceives a question in view and tracks the client's hand signals utilizing PC vision based strategies. In our work, we have attempted to control mouse cursor development and snap occasions utilizing a camera dependent on shading discovery system. Here continuous video has been caught utilizing an Internet Camera. The clientwears hued tapes to give data to the framework. Person edges of the video are independently prepared. The handling strategies include a picture subtraction calculation to recognize hues. When the hues are recognized the framework performs different tasks to track the cursor furthermore, performs control activities, the points of interest of which are given beneath. No extra equipment is required by the framework other than the standard webcam which is given in each workstation phone. [4]

FRAMEWORK APPROACH
- Catching continuous picture utilizing Web-Camera.
- Preparing the individual picture outline.
- Extraction of various hues from the picture
- Following the mouse pointer utilizing the directions acquired from the centroid.
- Re-enacting the left snap, right snap and scrolling occasions of the mouse by doling out various shading pointers
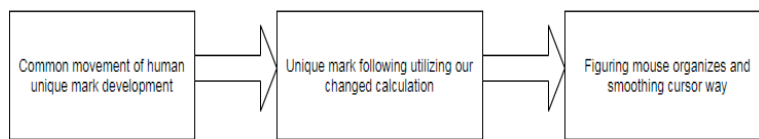

Fig- I

G. **Shading Detection**: This plays an important role in the entire process. The red, green and blue shading object is distinguished through web camera.

Cloud computing is based on service oriented As the PC innovation is grow up, the significance of human PC connection is quickly expanding. Most of the cell phones and workstations are utilizing contact screen innovation.[5]Yet, this innovation is as yet not sufficiently modest to be utilized on work area frameworks. Making a virtual human PC intelligent module, for example, mouse or console, can be an elective path for the touch screen. The inspiration is to make a protest following application to connect with the PC, and build up a virtual human PC collaboration gadget. A virtual mouse is programming that enables clients to give mouse contributions to a framework without utilizing a genuine mouse. To the outrageous it can likewise be called as equipment since it utilizes a customary web camera. A virtual mouse can for the most part be worked with various information gadgets, which may incorporate a genuine mouse or a PC console. A shading pointer has been utilized for the question acknowledgment furthermore, following. Left and the correct snap occasions of the mouse have been accomplished by identifying the quantity of pointers on the pictures. The hand developments of a client are mapped into mouse inputs. A web camera is set to take pictures consistently. The client must have a specific shading in his hand with the goal that when the web camera takes picture it must be obvious in the obtained picture. This shading is distinguished from the picture pixel and the pixel position is mapped into mouse input. Contingent on the extent of the picture taken by camera, different scaling procedures are utilized in light of the fact that the pixel position in the picture won't have a correspondence with screen goals. In this paper, the mouse cursor development and snap occasions are controlled utilizing a camera dependent on shading location method. Here constant video has been caught utilizing an Internet Camera. The client wears hued tapes to give data to the

framework. Person edges of the video are independently handled. The preparing methods include a picture subtraction calculation to identify hues. When the hues are distinguished, the framework performs different tasks to track the cursor furthermore, performs control activities. No extra equipment is required by the framework other than the standard webcam or, in other words each workstation phone.

RELATED WORK.

2.1 **Mouse Free:** Vision-Based Human-Computer Interaction through Real-Time Hand tracking and Gesture Recognition Vision-based association is a drawing in decision for supplanting crude human-PC interaction (HCI) using a mouse or touchpad. We propose a structure for using a webcam to track a customer's hand and see movements to begin specific associations. The duties of our work will be to realize a system for hand following and direct movement affirmation consistently.

2.2 **Method to control mouse movement using a Real-Time camera**: This is another methodology for controlling mouse advancement using a consistent camera. Our procedure is to use a camera and PC vision advancement, for instance, picture division and flag affirmation, to control mouse endeavors (left and right clicking, scrolling, and investigating) and we show how it can perform everything current mouse contraptions can. This paper exhibits to develop this mouse control structure.[6]

2.3**Mouse less**: It is a subtle PC mouse that gives the acknowledgment of relationship of a physical mouse without truly requiring a honest to goodness gear mouse. This development ousts the essential of having a physical mouse absolute yet in the meantime gives the normal collaboration of a physical mouse that we think about. It contains an Infrared (IR) laser bar (with line top) and an Infrared camera. Both IR laser and IR camera are introduced in the PC.

2.4**Real Time finger tracking for cooperation**: In this work, they delineated a methodology for human finger development and flag disclosure using two cameras. The goal of demonstrating on a level screen or screen is recognized using picture dealing with and line union.

PROPOSED WORK

In this fig, we capture the frame to track the colors.
If the color shown detects the position of the hand by finding the midpoint of that captured area then the web camera will trace that color and emulate mouse movement and its function respectively.[7]
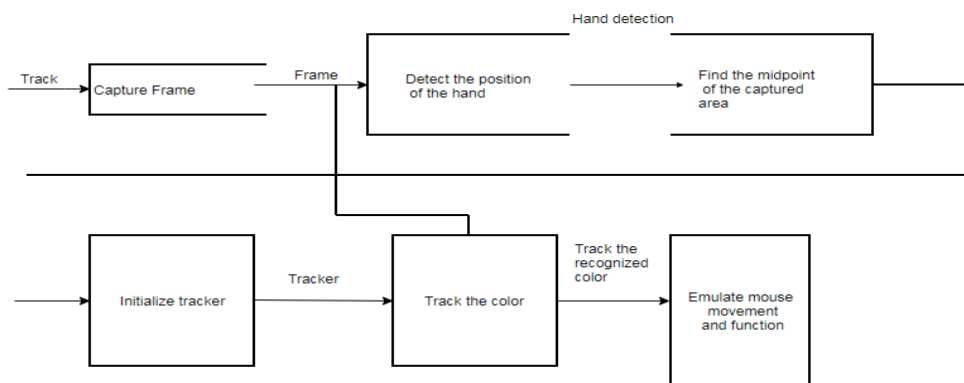

Fig-II

3.1 Software Requirements

Working System: The working platform for this can be Windows XP, Windows 7, Windows Vista

3.2 **Requirements for internal interface:** Swings, vlcj(open source platform)

3.4 Results

From our usage and execution of our program we found that the mouse pointer can be made to move and its capacities can be actualized without the utilization of a touchpad or mouse .The pointer is moved with the assistance of our finger motions by putting the particular shading substance in our grasp (any hued top or any hued little substance) making us simple to utilize our framework works. The execution of the product has been progressed.

3.5 Limitations and Problems

Since the framework depends on picture catch through a webcam, it is subject to enlightenment to a certain degree. Moreover the presence of other hued objects out of sight may make the framework give a mistaken reaction. In spite of the fact that by designing the limit esteems and different parameters of the framework this issue can be diminished yet at the same time it is exhorted that the working foundation be light and no splendid hued objects be available. The framework may run slower on specific PCs with low computational capacities since it includes a great deal of complex counts in a little measure of time. Anyway a standard pc or PC has the required computational power for ideal execution of the framework. Another reality is that if the goal of the camera is as well high then the framework may run moderate. Anyway this issue can be fathomed by diminishing the goals of the picture by rolling out improvements in the framework.

CONCLUSION

We developed a system to control the mouse cursor and execute its ability using a consistent camera. We executed mouse advancement, decision of the images and its abilities like right, left, twofold tap and scrolling. This structure relies upon picture examination and development disclosure advancement to do mouse pointer improvements and decision of image. Regardless, it is difficult to get unfaltering results because of the combination of lighting and revelation of comparable shading in whatever other territory outside of anyone's ability to see. Most calculations used have lighting up issues. From the results, we can expect that if the calculations can work in all conditions then our structure will work simply more profitably. This system could be important in acquaintances and with reduce work space.

FUTURE SCOPE

There are as yet various changes that can be made to our structure like upgrading the execution of the present system and including segments, for instance, widening and contracting windows, closing window by using the palm and diverse fingers. The present system is variety to reflection and scale changes and requires real hand signals, incredible illumination development and serious camera for the execution of mouse limits. We present an image seeing application for example of where this development could incite a more characteristic UI.

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PERSONAL ASSISTANCE A.I

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Abstract— In this project, with the help of Python programming language, we can build personal assistance based on voice recognition that can help in performing tasks on the desktop via the user's voice commands.

Keywords - Artificial Intelligence, Python, Personal Assistant, Operating System, PyCharm, Packages, Syntax, and Semantics.

I. INTRODUCTION

In the cutting-edge period of PCs, we are moving towards the future where we can make machines or programming that can just do work like people. We are making machines that can work like any ordinary individuals with the goal that remaining task at hand gets less on us and help in our everyday work and that too at our directions. Today people are making robots and a few keen programming to keep running on existing machines to do everyday work and make the life of people all the simpler and more profitable. The quick development of this plan to have machines or programming like people brings forth the innovation known as "**Artificial intelligence**".

A. Artificial Intelligence
"**Artificial intelligence** (**AI**), sometimes called **machine intelligence**, is intelligence demonstrated by machines, in contrast to the **natural intelligence** displayed by humans and other animals. In computer science, AI research is defined as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals.[1] Colloquially, the term "artificial intelligence" is applied when a machine mimics "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving".[2]

B. Python
"**Python** is an interpreted high-level programming language for general purpose programming. Created by Guido van Rossum and first released in 1991, Python has a design philosophy that emphasizes code readability, notably using significant whitespace. It provides constructs that enable clear programming on both small and large scales. [2]"

C. Personal Assistant
A personal assistant likewise alluded to as Personal aid (PA) or personal secretary (PS), is an occupation title depicting a person who helps a particular individual with their day by day business or individual tasks. Assistants (As) frequently go about as the administrator's first purpose of contact with individuals from both inside and outside the association. This implies their errands and abilities can frequently be partitioned into two fields of specialized aptitudes and individual aptitudes.

D. Operating System
An operating system (OS) is framework programming that oversees PC equipment and programming assets and gives basic administrations to PC programs.
The most used operating system in the world is Microsoft's windows as it is very user friendly and can easily be understood by any individual. Due to this, it's market share is around 82.7 percent.

E. Pycharm
PyCharm is an Integrated development environment (IDE) used in computer programming, specifically for the Python language. It is developed by the Czech company JetBrains.[3]

F. Packages
These are the prewritten codes that are available in the python for further use.
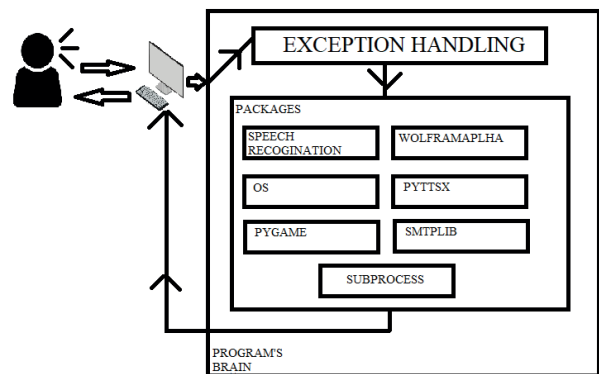
Fig 1: Working Of Program

Fig.1 explains the working of the program. In FIG. 1 what happening is that user speaks commands to the program like search Taj Mahal etc, and then the command gets processed in the program's brain which tells the program how to react to that particular program and respond accordingly with the help of the packages mentioned in the FIG.1. If the program is unable to process the user's command or if any exception occurs like sound not recognised then the program will respond that it is unable to fulfil the user's commands because of the appropriate reason just like human do when we don't know what to respond to something which we don't know. The works of the packages are mentioned below:

- **PYTTSX**

Pyttsx for python [Offline text to speech for python 3]
Pyttsx is a decent content to discourse transformation library in python

- **SPEECH_RECOGNITION**

Speech Recognition is a critical element in a few applications utilized, for example, home mechanization, computerized reasoning, and so forth. This is valuable as it very well may be utilized on microcontrollers, for example, Raspberry Pi with the assistance of an outside mouthpiece.

- **WOLFRAMALPHA**

The presentation of WolframAlpha laid out a fundamentally new worldview for acquiring information and answers—not by watching out the net, anyway by doing dynamic calculations upheld an enormous combination of vital learning, calculations, and systems

- **PYGAME**

pygame (the library) is a Free and Open Source python programming language library for making interactive media applications like recreations based over the phenomenal SDL library. Like SDL, pygame is profoundly convenient and keeps running on almost every stage and working framework.

- **SMTPLIB**

The smtplib module characterizes an SMTP client session object that can be utilized to send mail to any Internet machine with an SMTP or ESMTP audience daemon.

- **OS**

The OS module in python furnishes capacities for interfacing with the working framework. OS goes under Python's standard utility modules. This module gives a convenient method for utilizing working framework subordinate usefulness.

- **SUBPROCESS**

The subprocess module gives a steady interface to making and working with extra procedures. It offers a larger amount interface than a portion of the other accessible modules, and is proposed to supplant capacities, for example, os.system(), os.spawn*(), os.popen*(), popen2.*() and commands.*().

G. Syntax And Semantics

Python is intended to be an effectively comprehensible dialect. Its organizing is outwardly uncluttered, and it regularly utilizes English watchwords where different dialects utilize accentuation. In contrast to numerous different dialects, it doesn't utilize wavy sections to delimit squares, and semicolons after articulations are discretionary. It has less syntactic exemptions and unique cases than C or Pascal.

INDENTATION- Python utilizes whitespace space, as opposed to wavy sections or catchphrases, to delimit squares. An expansion in space comes after specific articulations; a lessening in space means the finish of the current block. Thus, the program's visual structure precisely speaks to the program's semantic structure.

.

II. MOTIVATION

In this venture, we make the program that can impersonate people and go about as an individual right hand for the client utilizing the work area (especially Windows). The essential work of this undertaking is to recognize what the client is stating and pursue the directions as needs are. These days a considerable measure of computerized reasoning project is being produced and, in each area, we see its development sought after and improvement. Our undertaking can open the

program and hunt about anything client needs to by simply tuning in to the client's voice and furthermore ready to play out a few assignments like playing tunes, shutting programs, bolting yours Windows working framework, tell your area in wording as longitude and latitudes and so on.

Our World is developing with the speed faster than light, every minute, some new technology and smart gadgets are launched for the people to use and to make their life easy. The most famous technology nowadays is Artificial Intelligence, from home gadgets to the television to your phone everything is using Artificial intelligence in one way or another. The most famous work of the A.I is the personal assistance program that can help people in day to day life with their work. The most used function of the A.I is the auto spell check program that almost everyone uses on a daily bases. After that comes the personal assistance program. This program helps us to manage our electronics items easily. The first company that manages to implement the A.I as personal assistance is the Apple in its iPhone named SIRI, this was the instant hit among the people because it can do a lot of work in their phones with just their voice command. Then came the google assistance and now we see the market flooded with A.I personal assistance like Amazon Alexa, Google home etc. But these personal assistances are only available for the iOS and the Android platform and not for the desktop which still used in every field like business, science etc. One reason is that it is very complicated to create it for the desktop, this is the reason why we are selecting this challenge as our project. Personal assistance not only saves your time but also save the human effort to make their lives easy and also this feels like the futuristic technology. We are using python for the development of this project and the reason is that python is supported by the tech. giant Google and also it is compatible for handling the A.I tasks easily.

A. Why Python?
- Popular in artificial intelligence
- One of the best compatibilities with machine learning.
- Provides google packages support.
- Every personal computer operating system support python.
- Easy to learn new things and implement them.

III. OBJECTIVE

The core objective of the project is,

1. **Converses:** It is going to be able to reply to the user and also greats the user whenever the user uses word hello/hey etc. greeting words to the personal assistance.

2. **Play Music:** It can play music just by the user's command.

3. **Open YouTube:** It can open and close the world most popular video platform.

4. **Open web browser:** If a user needs to use the internet then it can open a web browser for the same.

5. **Current time:** If the user is doing some work and need to know the time then it can tell the current time without interfering in user work.

6. **Shut down pc:** It is even powerful enough to shut down the computer with the user's command.

7. **Close application:** any application that is running on the screen can be closed

8. **Current position:** It is even powerful enough to tell you your location in terms of longitude and latitude.

9. **Talk casually:** Use can ask the program "How are you" and the program will reply like a real person.

10. **Open Facebook:** It can open and close the most popular social media i.e. Facebook.

11. **Search Data:** It can search for anything that is available on the internet according to the user.

12. **Shut down itself:** It can even terminate itself if the user wants to.

IV. TERMINOLOGIES: ABSTRACT BASE CLASS, ENGINE

a. Abstarct Base Class

Abstract base classes complement duck-typing by providing a way to define interfaces when other techniques like hassattr() would be clumsy or subtly wrong (for example with magic methods). ABCs introduce virtual subclasses, which are classes that don't inherit from a class but are still recognized by isinstance() and issubclass() Seethe abc module documentation. Python comes with many built-in ABCs for data structures (inthe collections.abc module), numbers (in the numbers module), streams (in the io module), import finders and loaders (in the importlib.abc module). You can create your own ABCs with the abc module.[4]

b. Engine

The engine is only a robotized type of a "shop counter person". You approach him for an item. He demonstrates that item, as well as the related ones which you could purchase. They are all around prepared in strategically pitching and up offering. In this way, does our proposal engine.

V. DATA FLOW DIAGRAM

In FIG.2 the basic data flow of the program is shown, here when the program starts the speech input is taken and the with the help of the speech recognition the input is verified after which the HTTP request is sent to the exception handling if any and also for the syntax analysis after which the appropriate respond is sent to the user via voice .
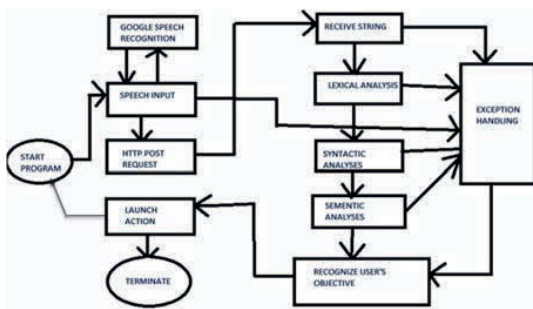

Fig 2:DFD

VI. SOFTWARE DEVELOPMENT LIFE CYCLE

SPIRAL MODEL: we are using the spiral model as it suits our project perfectly. First, we do is planning in which we decided what to do next or what feature to add. Then after this, the risk analysis is considered like whether it will or will not affect the code that is already coded and what might go wrong by doing some particular thing. After that we designed the program and its structures then after finishing thus we evaluate the final product and perform testing on that particular module and then we again plan for the next feature and so on until it is completely done.

The spiral model can cost a lot when it comes to big projects but in our case since all the work is done by us only so the cost factor didn't affect in this case.

FIG. 3 SPIRAL MODEL

VII. FUTURE SCOPE

It's a well-known fact that A.I is the future and this sort of close to home help will be intensely in administration in future in light of their flawless work and fewer expenses when contrasted with human help. This kind of help can even be adjusted to do work for a few different professionals if there should be an occurrence of specialists it can oversee understanding records, and even help patients in their sickness when a genuine specialist isn't accessible subsequently sparing life sometimes.

Likewise, it adheres to the guidance with no inquiry which is something we as a whole need from our representative/help. Not just that it will make the lives less demanding and more practical.

VIII. CONCLUSION

As we know researches on AI system vastly increase since the last decade. Everyday new AI model/prototype has been introduced by the people around the globe. By following the same flow this project comes into play. This project is only one of its kinds since various features

of different categories will be installed. We have seen that these types of system are dedicated to a specific task, but this system also functions other tasks too.

This program can work on the basis of user commands via voice hence it can help a lot of brilliant people who are a

handicap or are unable to use computers and able to explore and increase their knowledge. This program can help them to take advantage of the technology irrespective of their physical disability.

- Chat-bot
- queries from a search engine over Providing answers to the user about his/her in the internet
- Personal assistant

Above are the main features on which this system will function. So basically, this project will act as the real personal assistant for personal computers. There are several projects like this are available like Microsoft's Cortana but they are not well developed and our project can perform several tasks like mentioned above very easily and can be used at any personal computer which supports python.

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Test Effort Estimation Based Upon Neural Fuzzy Model

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ABSTRACT

Estimating test development effort is an important task in the management of large software projects. The task is challenging and it has been receiving the attentions of researchers ever since software was developed for commercial purpose. A number of estimation models exist for effort prediction. However, there is a need for neural model to obtain more accurate estimations. The primary purpose of this study is to propose a precise method of estimation by selecting the most popular models in order to improve accuracy. In this paper, we explore the use of Soft Computing Techniques to build a suitable model structure to utilize improved estimation of software effort. A comparison between neural Network (NN) and Neural Fuzzy Model. The evaluation criteria are based upon MRE and MMRE. Consequently, the final results are very precise and reliable when they are applied to a real dataset in a software project. The results show that NF is effective in effort estimation.

1. INTRODUCTION

In the last three decades, many quantitative software cost estimation models have been developed. According to Marco, Reliable prediction of size and effort in software development projects is a necessary prerequisite to developing reliable cost and schedule estimates. The size and development effort measures, such as function points or lines of code developed per person-month; act as technical productivity and performance indicators that facilitate the tracking and control of software developments. The size and advancement exertion measures, for example, work focuses or lines of code created per individual month, go about as specialized profitability and execution pointers that encourage the following and control of programming improvements. An exact model uses information from past undertakings to assess the present task and gets the essential formulae from examination of the specific database accessible. An explanatory model, then again, utilizes formulae in light of worldwide presumptions, for example, the rate at which engineer take care of issues and the quantity of issues accessible. Assessment of numerous product models were displayed in numerous models were investigated to give better exertion estimation creators gave an overview on the exertion and cost estimation models. This paper is created as takes after: Section 2 consolidates the item dependability work analyzed. Area 3 demonstrates the proposed factors impacting programming unwavering quality. Fuzzy model is proposed in Section 4. Segment 5 presents NN strategy used as a piece of paper. A Neuro-Fuzzy Based approach is spoken to in Section 6 and end are shown in Section 7.

2. LITERATURE REVIEW

Programming program enduring quality can assess the level of highlights that are reused in regulating application. Reusing presented programming sections is a key part in developing adequacy. The estimation of programming reuse can be speedily seen by the expanding of the open source social event of organizers and reusers of programming. The general reuse of present subprogram requirements to be kept up by instruments that would commitment have the capacity to the two creators who make reusable subprogram and customers who reuse existing subprogram. Measures are customary to meet the basic needs of the two organizers and clients of the delicate thing to check the progression of programming for reuse can outfit the two get-togethers with steady help that watches out for the issues of the two social events. Entire events live required so every mix will evaluate programming system, at various thoughts every through it change, to settle on a decision degree to that the stock is set up for utilize. Challenge facilitated undertaking and [6] advancement has considered again a general approach of programming structure change. Here square measure amounts of sums accessible for preparing the reliableness of test arranged assents [7, 13]. Aggarwal et al. proposed set of two inquiry orchestrated code metric. These metric are overviewed on the start of weyuker's properties [3]. From the contingent outcomes, metric showed have been seen to be sensible in finding the level of immovable quality related with the code in the procedure for class and limit outlines. Sandhu and Singh proposed neuro-fleecy model for subprogram resolute quality figuring with upgraded manage choice. The made resolute quality assessment framework has passed on high accuracy comes result. Therefore, the influenced structure to can be utilized for indisputable affirmation and departure of OO based reusable portion

from inheritance system and evaluation of set up or making reusable fragment. Poulin et al. exhibited an arrangement of estimations utilized by IBM to evaluate the fights saved by reuse. The examination recommends the potential inclinations against the livelihoods of time and assets required to perceive and meld reusable programming into a segment. Schach and Yang proposed estimations for focusing on believability for reuse. Test comes to fruition developed that a guess of resolute quality is conceivable anyway it contains more than the plan of estimations that are nearness used. Gill[14] dissected differing issues concerning part faithful quality and its purposes of intrigue like cost and profitable. Dissected assorted issues concerning part steady quality and its purposes of intrigue like cost and capable. It gives two or three rules to extend the level of subprogram steadfast quality in section base headway. Washizaki et al. learned an estimations suite for choosing the unflinching nature of disclosure portion made on kept information That can be obtained from the external of part with no source code. Because of estimation tests, it was found that proposed estimations [14] can adequately perceive revelation sections with high trustworthiness. Rotaru et al. pondered adaptability, impact cutoff and capriciousness of part to depict its resolute quality. Mili et al. considered two points of view, ease of use and solace while REBOT (Reuse Based on Object Oriented Techniques) saw factors as specific transportability, adaptability, understandability and confirmation to evaluate the constancy. Sandhu et al. proposed woolen, Neuro-cushioned and soft GA based ways to deal with oversee assess the immovable nature of programming areas. Fleecy GA mutt estimation is ended up being best when showed up diversely in connection to trade checks. From the beguilement and result acquired, it has been demonstrated that the percent-age common blunder is minimum by excellence of Fuzzy-GA figuring and most imperative on account of feathery estimations. The made unfaltering quality show has passed on high precision works out as intended as anybody may expect by the human experts. Sharma et al. proposed Artificial Neural Network (ANN) to survey the unfaltering nature of programming part. Results picked up displays that neural system can foresee the reliability of programming part with hurt for accuracy.

3. ELEMENT DISTRESSING SOFTWARE RELIABILITY

In perspective of the investigators see, we have proposed four properties: Changeability (CH), Interface Complexity (IC), Understandability of Subprogram (UOS) and Documentation Quality (DQ) to envision subprogram relentless quality level thus using sensitive figuring frameworks. Their purposes of intrigue are according to the accompany:

3.1. Changeability
Variability is described as the capacity to adjust a section as demonstrated by the application require. Better changeability will actuate a section with better trustworthiness in applications and along these lines help in keeping up the portion. Change-cutoff of a section may shift from 0 to 1. In our examination we sort it from low to high.

3.2. Complexity
Presence the environments state of the segment, the source code isn't accessible. Application may interrelate through these fragments simply whole their especially portrayed interface. Interface goes about as basic hotspot for perception, use and execution finally upkeep for the portion. For better constancy, interface disperse quality ought to be as low as could be permitted. In our work we compose it as Low, Medium and High.

3.3. Portability
The farthest point of a portion to be exchanged start with one condition then onto the accompanying with little change, if required. For better resolute quality, part should be reasonably and rapidly profitable to showed new conditions if and when key, with compelled porting tries and logbooks. On the off chance that the part are organize free, by then it is outstandingly useful and from now on its choice undertakings are low. The conservativeness of a segment partners effortlessly of use. The straightforwardness of transportability of an area can pick its level of reuse.

4. PREDICTABLE FUZZY LOGIC ILLUSTRATION

All In this area we have proposed Fuzzy model and master a Fuzzy Inference System (FIS) with these four components, to be specific variability, multifaceted nature, Portability and Coupling, Reliability as yield, as appeared in Figure 1.

showed up in figure 3.Defuzzification of the above yield can be gotten by finding the Center of Gravity of the above Fuzzy yield. The aftereffect of these frameworks was perceived by envisioning the model in MATLAB Fuzzy Tool Box. The proposed Fuzzy model is used for influencing the data to set with partitioned yield as a commitment to the Neural Net-work for support endorsement.

Fig. 1: *FIS With 3 Input, 1 Output, Among 27 Rules*

All data sources can be all around engineered into Fuzzy sets viz., Low, Medium and High. The yield subprogram faithful quality is delegated Low, Low, Medium, High and Very High. Remembering the ultimate objective to Fuzzy the information sources, triangular enlistment work (trimf) is supported specifically Low, Medium and High. Correspondingly the yield variable i.e. subprogram unfaltering quality eats up three enlistment limits (trimf) to be particular Low, Medium and High. The proposed show thinks each one of the four data sources and passes on a new estimation of subprogram steady quality using rule base. Each one of the twenty seven standards are inserted and a run base is made as showed up in figure 2, which addresses all possible blend of wellsprings of information which prompts 33 i.e. twenty seven sets.
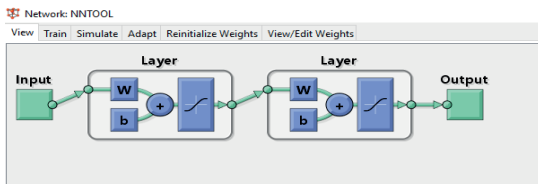
Fig. 3: *Considered Fuzzy Model Rule Viewer*

5. DESIGNED NEURAL NETWORK MODEL

Here we have explored the capacity of machine learning frameworks i.e. neural frameworks as they are flexible, have learning capacities and non-parametric. The enlightening accumulations created by the Fuzzy model presently go about as data datasets to our proposed Neural Network Model. It is seen that NN model can be used to show any self-assertive data yield mapping and are talented of approximating any quantifiable limit. So NN should have the ability to show the helpfulness of the subprogram reliability additionally. In a wide sense, the neural framework itself is a model in light of the fact that the topology and trade components of the centers are ordinarily figured to facilitate the present issue [16]. The NN show is moreover affirmed on the two endorsement sets delivered by the Fuzzy models. In our examination back spread coordinated estimation is used. Back spread is the most unmistakable getting ready computation for multilayer systems [5]. The model is set up with four wellsprings of data to be particular: Changeability, Interface Complexity, Understandability of Subprogram and Documentation Quality with one yield i.e. subprogram reliability. Trainbr, getting ready limit is used to set up the framework. We have reused the straight transmission limits Tansig for the testing. The framework is best arranged with four data sources, one yield and 4 neurons at the covered layer as showed up in figure 4.

Fig. 2: *Rule Support for Predictable Fuzzy Model*

Mamdani style of induction is used as showed up in figure 1. Using the run watcher, yield i.e. subprogram resolute quality is looked for particular game plan of data sources using MATLAB Fuzzy Tool Box as

Fig 4 :Prepare Neural System Model by 03 Input and 1 Output and 3 Neurons at the Hidden level

5.1. Tentative Design

The preliminary is coordinated to examine the potential results of utilization NN for reviewing subprogram steadfast quality level. The framework used as a piece of this work has a place with multilayer maintain forward frameworks and is implied as M-H-Q arrange with M source centers, H center points in hid sanctum layer and Q centers in the yield layer [4]. The once-over of ANN

Table 1:Neural Network Model Review

Structural Design	
Number. of Neurons at Layer 1	03
Number. of Neurons at Layer 2	01
Input unit	03
Output Unit	01
Training	
Used Algorithm	Back Propaga-tion
Function used for Training	Trainbr
Transfer Function	Tansig

used once-over of ANN used as a piece of this examination is showed up in Table 1. Around there we demonstrate the examination performed to find association send between self-sufficient components (changeability, interface flightiness, understandability of subprogram and documentation quality) and one time tested factor i.e. subprogram steadfast quality. The informational index contains 80 unique informational collections created by the control base of fuzzy rationale. The execution importance utilized here is Mean Absolute Error (MRE) and Mean Absolute Relative

Error (MARE) [12]. The model is prepared utilizing preparing informational collections and was assessed on two approval informational indexes. Table 2 shows the Mean Absolute Relative Error, and Mean Relative Error results of ANN demonstrate assessed on affirmation informational collection. Examination of the exploratory outcomes and estimated subprogram unwavering quality of the two approval sets is appeared in figure 6 and 7. From which it winds up plainly obvious that our proposed show produces unwavering quality levels that are practically identical to the deliberate dependability levels as anticipated by the proposed fuzzy model.

Comparison of the experimental results and measured software reliability of the two validation sets is shown in figure 6 and 7. From which it becomes evident that our proposed model produces reliability levels that are comparable to the measured reliability levels as predicted by the proposed fuzzy model.

6. DELIBERATE NEURO-FUZZY SYSTEM

Fluffy rationale approach is profitable for assessing the immovable nature of subprogram fragments as the conventional model based strategies are difficult to be realized. Disastrously, with the extension in the disperse nature of the issue being shown distinctive comprises for assessing the unfaltering quality, has incited rely upon another framework which, and a short time later through yield enrolment limits is by and large known as neuro-fluffy approach. The neuro-fluffy cross breed structure joins the benefits of fluffy rationale system, which deal through express data that can be illuminated and appreciated, and neural frameworks, which oversees comprehended data, which can be acquired by learning. Neuro-Fuzzy Inference structure using given information/yield dataset has been assembled a Fuzzy Inference System (FIS) whose interest work parameters are tuned (adjusted) using either a back inciting computation alone or in mix with the base squares kind of strategy. The parameters related with the support work (trimf is used here) will change through the learning system. The estimation of these parameters (or their change) is supported by an edge vector, which gives a proportion of how well the fluffy construing system is exhibiting the data/yield for a given game plan of parameters. Sugeno compose Neuro-Fluffy finding system is used for the preliminary purposes, as Sugeno yield part works are either predictable or coordinate.

6.1. Neuro-Fuzzy Inference System Training

To prepare an ANFIS, preparing informational collection (informational collections produced by fuzzy model) is stacked from the heap information choice of ANFIS editorial manager as appeared in figure 8.
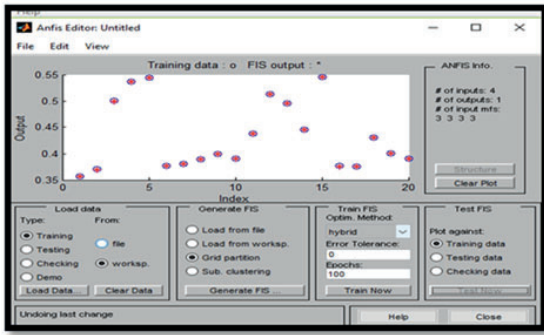
Fig. 8: *Training Statistics Set For Artificial Neural Fuzzy Inference System*

In the fluffy induction system semantic variables are then named to the data parameters in light of their regards. The assignment of the semantics factors

Table 2: *Authentication Conclusion of Neural Network Model*

Performance Measures	Verification Set 1	Verification Set 2
Mean absolute Relative Error	0.20	0.40
Mean Relative Error	0.25	0.90

depends upon the extent of the data estimation. CH, IC, UOS and DQ are assigned three phonetic factors Low, Medium and High. The yield i.e. steady quality is consigned five etymological factors Low, Medium and High as inspected in the proposed fluffy model of this paper. A framework composes structure like that of a neural framework (as demonstrated figure 9) which maps commitment through data enlistment work and related parameters and related parameters to yield, is used to unravel the data/yield layout. After viably stacking the data, FIS structure will be delivered using cross section overseeing as showed up in figure 9.The slip-up strength is used to make planning ending criteria, which is related to the goof gauge. The readiness will stop after the arrangement data botch remains inside this flexibility. In our examination we have kept screw up protection from a regard 0.0044. To start getting ready, cross breed change (the default, mixed scarcest squares and back causing) procedure is used.

Fig. 9: *NN integrating the FIS*

The quantities of preparing ages is set to 10 and the preparation blunder diminishes after every age as appeared by the figure 10 and balances out at the mistake estimation of 0.0374, so now the system is said to be focalized.

Fig. 10: *Design of instruction Error V/s Epochs*

6.2. Extent Fuzzy Inference Structure

Through the trouble some stage, when made structure is attempted against the endorsement enlightening accumulations and a typical testing botch 0.0374 is gotten. The execution work used here is Mean Relative Error (MRE) and Mean Absolute Relative Error (MARE) [12]. The model is readied using getting ready enlightening lists and is surveyed on two endorsement instructive accumulations. Table 3 shows the Mean Absolute Relative Error and MRE delayed consequences of Neuro-fluffy model evaluated on two endorsement enlightening accumulations. The table in like manner demonstrates that the proposed exhibit arranged and predicts well using Neuro-Fuzzy approach.

Table 3: Substantiation Results of NF Model

Performance Measures	Verification Set 1	Verification Set 2
Mean Absolute Relative Error	0.19	0.29
Mean Relative Error	0.18	0.34

7. CONCLUSIONS

The presentation of the Neural Network based effort estimation system and the other Model, The results show that the Neural fuzzy has the lowest MRE and MARE values i.e. 0.19 and 0.18 respectively. The second best performance is shown by software estimation system with 0.20 and 0.25 as MRE and MARE values. Hence, the proposed Neuro based system is able to provide good estimation capabilities. It is suggested to use of Neuro based technique to build suitable generalized type of model that can be used for the software effort estimation of all types of the projects.

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Object Avoidance Car

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Abstract

Computerization is the formation of innovation and its application with the end goal to control and screen the generation and conveyance of different products and enterprises. It performs undertakings that were already performed by people. Robotization is being utilized in various zones, for example, fabricating, transport, utilities, protection, offices, tasks and of late, data innovation. Robotization is developing quickly which additionally pulls in the group. A hearty vehicle following framework with obstruction shirking capacities for task in regular habitats is depicted in this paper.
With this new methodology, vehicle following execution is upgraded and vehicle wellbeing guaranteed. Field preliminaries performed inlabs have exhibited the legitimacy of theapproach; results from the lab works are incorporated and examined in this paper.

INTRODUCTION

Several potential applications for vehicle following capabilities exist for Intelligent Transportation Systems (ITS) and defense [1, 2, 3]. These include autonomous driving in motorways whereby convoys of trucks or commuter vehicles move in a convoy-like manner at high speeds thus improving the efficiency of road networks. Another application is the "go " function when driving in congested traffic, where the follower vehicle maintains a constant follow-up behavior assisting drivers on a very frustrating operation.

Fig 1

A.   Controller

Raspberry Pi controls the engine driver. The ultrasonic sensor on the front is associated with Raspberry Pi which controls the engine. The left and right IR and ultrasonic sensors are associated

with Raspberry Pi which controls the development of car. Car likewise recognize stop sign and movement light and act as needs be.

Sensors

The left and right IRs recognize white lines and makes the auto to move to one side if there is a white line on the left and the other way around. Ultrasonic sensor recognizes whether there is an impediment ahead. The auto stops if there is a snag ahead. Pi camera for recognizing stop signs and movement light flags.

Infrared Sensor

The infrared sensor, otherwise called IR sensor, is a gadget that distinguishes reflected light and produces infrared light. It can in this manner separate among highly contrasting or dim and light. There are numerous sorts of infrared sensor, for example, the ones found in TV remote controls, question discovery or notwithstanding to gauge a man's pulse. The infrared sensor that we will utilize is advanced and will return 1 at whatever point white is distinguished, and 0 when dark is recognized.
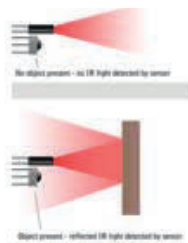

Fig 2

B. Ultrasonic Sensor

A Ultrasonic sensor is a gadget that can quantify the separation to a protest by utilizing sound waves. It allots separate by sending a sound wave at a particular recurrence and tuning in for that sound wave to bob back. By chronicle the slipped by time between the sound wave being created and the sound wave bobbing back, it is conceivable to ascertain the separation between the sensor and the question. it is realized that sound goes through air at around 344 m/s (1129 ft/s), you can set aside the ideal opportunity for the sound wave to return and increase it by 344 meters (or 1129 feet) to locate the aggregate round-trip separation of the sound wave.

Fig 3

C. L293D Motor Driver

L293D is a double H-connect engine driver coordinated circuit (IC). Engine drivers go about as momentum enhancers since they take a low-flow control flag and give a higher-ebb and flow flag. This higher current flag is utilized to drive the engines.

L293D contains two inbuilt H-connect driver circuits. In its basic method of activity, two DC engines can be driven all the while, both in forward and turn around course. The engine tasks of two engines can be controlled by info rationale at pins 2 and 7 and 10 and 15. Information rationale 00 or 11 will

stop the relating engine. Rationale 01 and 10 will turn it in clockwise and anticlockwise bearings, individually.

Empower pins 1 and 9 (comparing to the two engines) must be high for engines to begin working. At the point when an empower input is high, the related driver gets empowered. Accordingly, the yields end up dynamic and work in stage with their sources of info. Additionally, when the empower input is low, that driver is debilitated, and their yields are off and in the high-impedance state.
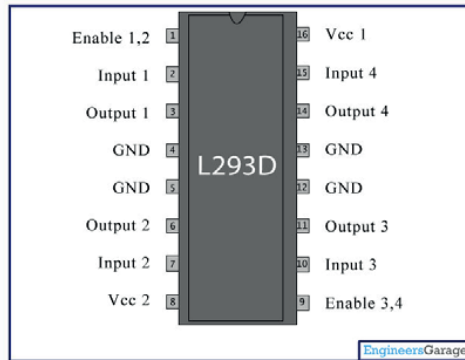
Fig 4

Fig 5

D.   Raspberry PI 3

The Raspberry Pi is a progression of little single-board PCs created in the United Kingdom by the Raspberry Pi Foundation to advance the educating of fundamental software engineering in schools and in creating. The Raspberry Pi 3 Model B expands upon the highlights of its forerunners with another, quicker processor on board to build its speed. It additionally includes WiFi and Bluetooth Low Energy capacities to improve the usefulness and the capacity to control all the more great gadgets over the USB ports.

The quad-center Raspberry Pi 3 is both quicker and more skilled than its antecedent, the Raspberry Pi 2. For those intrigued by benchmarks, the Pi 3's CPU- - the board's primary processor- - has around 50-60 percent better execution in 32-bit mode than that of the Pi 2, and is 10x quicker than the first single-center Raspberry Pi (in view of a multi-strung CPU benchmark in SysBench). Contrasted with the first Pi, true applications will see an execution increment of between 2.5x- - for single-strung applications- - and more than 20x- - when video playback is quickened by the chip's NEON motor.

In contrast to its forerunner, the new board is fit for playing 1080p MP4 video at 60 outlines for each second (with a bitrate of around 5400Kbps), boosting the Pi's media focus qualifications. Saying this doesn't imply that, nonetheless, that all video will playback this easily, with execution subject to the source video, the player utilized and bitrate.

E.   Motor

Engine is associated with raspberry pi which is associated with the sensors on left and right and one pi camera. Sensors send data to Pi and thusly Pi offers directions to the engine driver. Pi camera likewise gives picture and raspberry pi utilize python and open CV to distinguish the stop sign and movement light and send signs to engine driver. Engine driver controls the wheels of the auto as indicated by the data sent by Pi.

BRIEF DESCRIPTION

A.   About this project

Self-propelled car(also known as driverless auto) is a vehicle that is equipped for detecting its condition and exploring without human info. Self-governing autos utilize an assortment of procedures to identify their surroundings, for example, radar, laser light, GPS and PC vision. These autos have control framework that are fit for breaking down tactile information to stay away from any snag of street. The joined methodology of vehicle following and hindrance evasion is depicted in this paper. It incorporates exploratory outcomes acquired from tests in lab.

B.   Proposal

In the Era of innovation ,everything depends on twofold counts i.e. Everything is programmed hence with the end goal to contribute in this field our point is to make a driverless car..At little scale this auto can be utilized for youngsters for little age gatherings And for bigger scale it very well may be utilized the extent that it can go. The auto which is running on the innovation of Raspberry Pi 3 ,can keep running on a way which is dark in shading and is encompassed by white limits which causes it to remain in the path. The way is additionally containing snags , which can be identified and afterward overwhelmed by utilizing ultrasonic beams which are radiated from the auto.

C.   Why Raspberry?

●   It's accessible anyplace on the planet, and can work as an appropriate personal computer or be utilized to construct brilliant gadgets
●   It is shoddy. It is conservative in six.
●   It has GPIO pins. So it can interface with genuine gadgets, hardware, transfer units, water pumps, sensors and so forth.
●   It is exceedingly adjustable
●   The Raspberry Pi is slower than a cutting edge workstation or work area however is as yet an entire Linux PC and can give all the normal capacities that suggests, at a low-control utilization level.
●   Raspberry Pi is open equipment, except for the essential chip on the Raspberry Pi, the Broadcomm SoC (System on a Chip), which runs a large number of the primary parts of the board–CPU, designs, memory, the USB controller, and so on. A considerable lot of the tasks made with a Raspberry Pi are open and very much archived too and are things you can manufacture and alter itself.

Fig 6
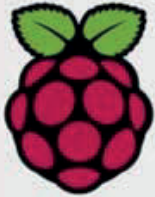
	Raspberry Pi 3
Introduction Date	2/29/2016
SoC	BCM2837
CPU	Quad Cortex A53 @ 1.2GHz
Instruction set	ARMv8-A
GPU	400MHz VideoCore IV
RAM	1GB SDRAM
Storage	micro-SD
Ethernet	10/100
Wireless	802.11n / Bluetooth 4.0
Video Output	HDMI / Composite
Audio Output	HDMI / Headphone
GPIO	40
Price	$35

Fig 7

D.   Future Scope

As we are developing quickly in the field of innovation. In mechanization, where predications are made up by some IEEE individuals that in 2040 there will be driverless autos out and about. The Future extent of this venture is that it is altogether founded on innovation which can be demonstrated more secure than people. Human impedance in any field drives a few mistakes and mischances. Programmed autos will diminish the danger of Human life, and are route exact than people, which makes this auto a decent alternative in not so distant future.

E.   Problem Statement

Human drivers will probably get in accidents that hurt or slaughter different people. Around 70 percent of all self-driving auto accidents happened while the autos were ceased or going under 5mph. No human has been truly stung. What's more, self-driving autos have never been to blame in any detailed occurrence—up until this point. Mechanization likewise spares time. Movement standards will be really trailed by these self-sufficient autos and which prompts less mishaps and less activity. Every one of the disadvantages of the human driving can be repaid with this.

F.   Data Flow Diagram
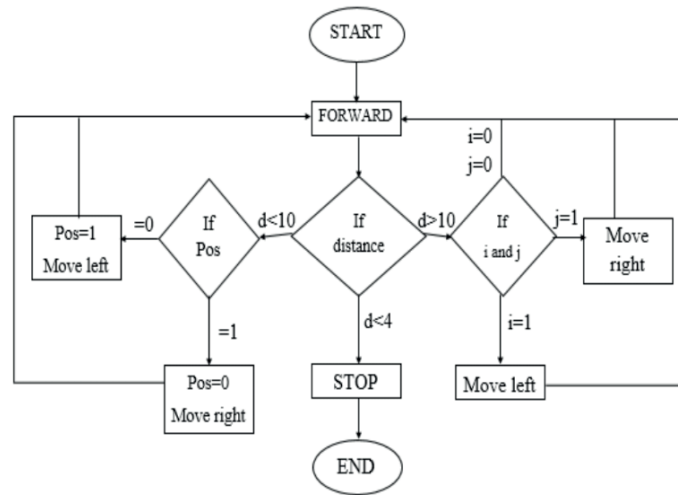
CONCLUSIONS

An epic way to deal with take care of the vehicle following issue has been created and tried in a lab. By joining our way following strategy for self-sufficient route. In this advanced Era where everything depends on innovation and computerization ,such kind of self-ruling autos are competent to grow their field territory quickly .The Car is skilled to pursue the dark track which has white shading limits. Sensors are helping the auto to be in the path. At the point when the auto is 50 m far from the limit it consequently stops and moves itself inverse way. The fate of this auto is huge. It can help individuals in numerous angles.

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4.   https://www.modmypi.com/blog/hc-sr04-ultrasonic-range-sensor-on-the-raspberry-pi
5.   https://pythonprogramming.net/introduction-raspberry-pi-tutorials/
6.   https://www.raspberrypi.org/documentation/configuration/config-txt/
7.   https://www.raspberrypi.org/magpi/circuit-starter-guide/
8.   https://www.elprocus.com/infrared-ir-sensor-circuit-and-working/

Recent Advancements of Internet of things in Electric Power Industry

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Abstract:

Electric power Industry is undergoing a revolution to supply clean distributed energy for sustainable growth. Internet of Things (IoT) is playing a vital role in the development of power sector, which includes smart metering, intelligent control, real time monitoring and security. In addition the use of IoT enables significant improvement in power management and energy depletion. The use of IoT ensures trivial growth and development opportunities in the electric power Industry. The recent progress in the field of computational Intelligence and communication technologies can develop an intelligent IoT system for Electric power sector. This paper provides a review on the recent challenges of IoT in building an efficient and dependable power system.

INTRODUCTION:

The Internet of Things (IoT) is a rising paradigm of the web connecting the physical objects or things to co-relate and communicate with each other in the way humans do [1-5]. IoT is transforming the industrial sector with a rapid pace. In general IoT has three components:-

1. Digital transformation of resources.
2. Data collection
3. Control of the interconnected resources using computational algorithms

The scope and applications of IoT is extensive and is not limited to a specific field, such as, Industries, Power Systems, Automation, logistics, health, and so on [6-7].

I IOT APPLICATIONS IN THE POWER SECTOR:

Automation of the Industrial processes using SCADA started during the early 90s in the power sector. It can be thought of as a primitive version of the IoT. It was responsible for the reliable operation of programmable logic controllers (PLCs) by process, planning and control of the data. Smart metering proves to be a classical example of IoT, which is able to deliver real-time utilization data of the customers remotely with an ease to connect and/or disconnect them. Generally SCADA and smart meters have to synchronize with technologies like geographic information systems (GIS), information and communication technology (ICT) and enterprise resource planning (ERP) systems for an efficient IoT solution. The Fig.1 shows the implementation model of IoT which starts from monitoring, followed by control and optimization of processes. Finally the process runs autonomously adjusting to various environmental conditions.
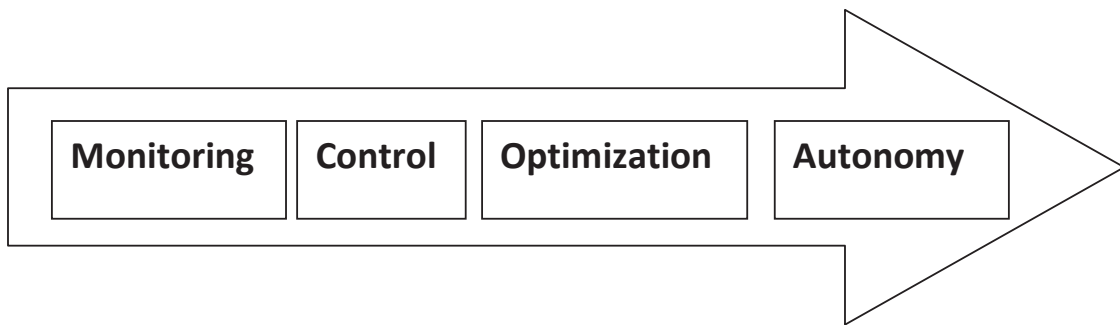
Fig1: The IoT Implementation model

In the existing model of the power system as shown in fig.2, SCADA is responsible for controlling the generation in the power plant which is a costly affair, since it requires an adequate amount of sensors, transmit and store the huge volume of data, perform data analytics for optimizing the performance. With the advent of IoT, these limitations are overcome, leading to a complete digitization of the process [8].
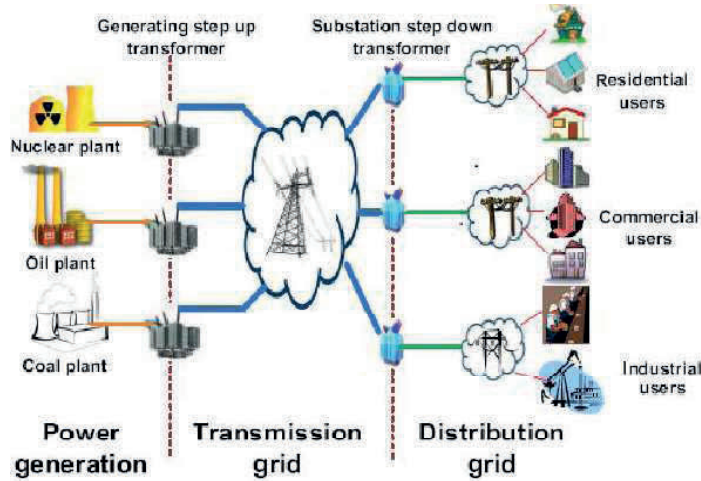
Fig. 2: Power system framework

Advantage of using IoT in generation to consumption process of power system:

a) The generation process can be made flexible by IoT, thus making the operations possible at a wide variety of capacity factors in comparison to the base load mode.

b) IoT with highly developed analytics can precisely forecast solar and wind generation, thus allowing the conventional generating stations to ramp up or down.

c) In case of a generator breakdown, the affected customer data can be provided by ICT through a GIS. The estimate of the energy to be bought from neighboring utilities can me made using IoT.

Furthermore IoT has multi objective and can lead to reduction in lossesand lower the operational cost

(i) Automatic generation control to maintain the nominal frequency and economic dispatch.

(ii) Active voltage management, thereby reduction in transmission and distribution losses, use of smart transformers with installed actuators

(iii) Maintenance of assets through condition monitoring and predictive analysis.

II   Role of IoT in Smart Grid Technology

Smart grid technology has the potential to prepare today's cities for tomorrow's needs. The Smart grid is wedge of an IoT framework, which can be used to remotely monitor traffic congestion, road

warnings, parking spaces and early detection of things like power influxes as the result of earthquakes. With evolving advancements, IoT technologies are entering into smart grid ecosystem.

From artificial intelligent automation to improved two-way communication and other advanced applications, the smart grid will become dapper. Smart grid technologies all accord to efficient IoT energy management solutions that are currently lacking in the existing framework. As a result the smart grid will be stronger and less costly as compared to the current power infrastructure. Fig.2 depicts the utility of IoT monitoring and regulation in the smart grid.
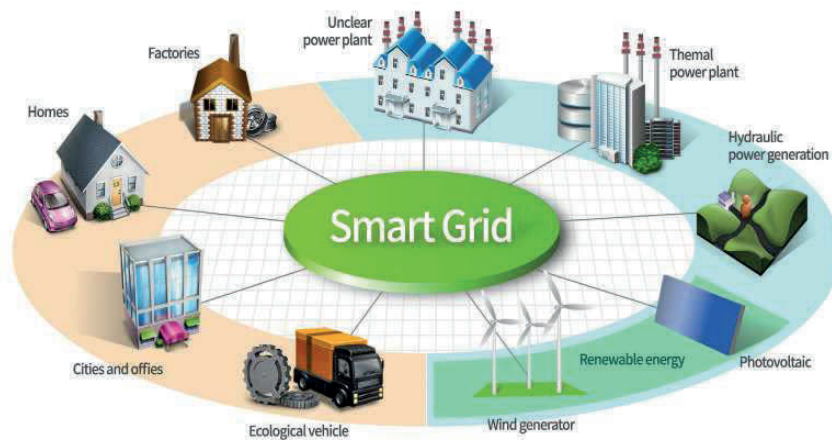
Fig: 3 Smart Grid: Utility of IoT Monitoring and Regulation

The Current power grids have a limitation to manage resources and the need to transmit data for billions of people across the globe. The Smart Grid can detect energy spikes and equipment failure, prevent power outage and route power to those in need more quickly.

A   **Utilities of transitioning to IoT Smart Grid technology**

1. Dapper Energy Use: Smart Grid technologies will help to minimize energy consumption and costs through usage and data maintenance. For example, intelligent lighting through smart city technology will be able to monitor usage across different areas, immediately adapt to settings like rain or fog, adjust output to meet the time of day or to meet traffic conditions, detect and address lighting outages instantly [9].

2. Virtuous Energy Use: Smart Grid technologies are less demanding on batteries, carbon efficient and designed to reduce the peak load on distribution feeders. The research is going on currently to integrate green technology into their IoT smart management for more sustainable solutions.

Optimized wind turbines, solar cells, micro grid technologies and feeder automation systems have the potential to benefit all levels of the distribution chain [10].

3. Enhanced Transportation and Parking: IoT smart sensors can collect data in real time to relay information to drivers and authorities. This will ultimately reduce traffic congestion, provide better parking solutions, alert drivers to traffic incidents and structural damage to city landscapes and allow for automatic payments at road tolls and parking meters. In the future, IoT technology is even expected to be able to wirelessly charge electric vehicles.

4. Help with Waste and Water Management: Smart cities improve efficiency and reduce costs in their waste and water management solutions. IoT applications can provide real-time data to track inventory and reduce theft. Cloud-based analytics and traffic control can improve scheduling and time spent on truck routes. Smart energy analytics can gather data on water flow, temperature and more to help consumers keep track of their usage habits. Timers and infrastructure modules can help regulate usage and reduce waste.

B   Making smart grids 'smarter' with the IoT

1. Meeting data Accessibility and inter-operation challenges

Smart grids involve integrating different IoT sensors within the infrastructure [11-12]. With the bilateral communication among the devices, the challenges of data accessibility and interoperability increase.

2. Managing load and demand response on a smart grid

Human involvement, electricity consumption and costs are lowered through IoT. This is done by embedding the wireless sensors within the devices in the smart grid that responds optimally to environmental changes. For example various wireless sensors are utilized to operate devices remotely, which include switching operations of air-conditioning and other similar devices.

C   Challenges in Implementing IoT in Smart Grids

There are various challenges in the implementation of the IoT in smart grids. It opens up new opportunities forIT solution providers

i)   Data Theft: Data collected by smart grids from the appliance usage are stored in central servers which have an access to employees and regulators whichincreaseliability to threats.

For example thieves can estimate the availability of a resident from the air-conditioning usage data of a home.

ii) Cyber-threats: Cyber-intruders can maneuver the data transferred in a grid, thereby manipulating the sensors to make faulty decisions, causing major damage to the equipments and economiclosses [13].

iii) Poor internet connectivity: Fast connectivity and uninterrupted internet for utilities are required for smooth smart grid operations, incurring high capital costs

iv) Data management capability: With the increasing number of smart meters globally, data storing, transferring, and analyzing large amounts of data will require data management center and data analytics capabilities [14].

III   Enable consumers to be energy-efficient.

IoT can contribute significantly in improving efficient use of electricity. This can be done without hampering the level of comfort, by providing customers access to local real-time data on usage and peak events; and, using artificial intelligence and machine learning to make smart decisions. A customer can manage the day consumption in his home, switch on or off devices; and make decisions about buying, selling, or storing energy.

CONCLUSION:

In this paper advances, opportunities and challenges of IoT in the field of Electric Power System is presented. The IoT offers exponential technologies that utilities can deploy and leverage to find new ways to explore, and hence effectively used in the building of a smart power system. Internet of things, is the next step towards a globally and pervasive connection to any communication enabled objects/devices, regardless their access technology, available resources and location. IoT technology provides connectivity anywhere and anytime resulting in an intelligent system.

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Block Cipher Nth Iteration Information Containment

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Abstract

A block cipher is the establishment stone of symmetric-key cryptography. Because of its effortlessness and high performance, usually the workhorse for giving confidentiality - one of the essential objectives of cryptography. Therefore, the security of block cipher is of basic significance in the whole framework of cryptography, and in this manner, it will be investigated and assessed. This practice is called block cipher cryptanalysis.

Our hypothesis deals with the statement, "Data Integrity is not maintained when the message is passed through the block cipher that means 100% information is lost when infinite number of iterations are required to encrypt a message and with the increase in number of iterations information content reduces."

Keywords: AES-Advanced Encryption Standard
DES-Data Encryption Standard
KP-Known Plaintext
NIST- National Institute of Standards and Technology
SAM-Sequence Alignment Map

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INTRODUCTION

[1] Cryptography maybe one of the most established controls that are much the same as arithmetic, since there was the need of secure data trade in old occasions, while the communication channels were primitive and largely open to all adversaries. The utilization of cryptography began with techniques for sending private message by methods for secret writing in the ancient age. In present day times, the interest for cryptography developed for the most part with the need of exceptionally secure and dependable correspondence for mission basic events, e.g., warfare and diplomacy. The subject has progressed extraordinarily since the rise of PCs. In the ongoing years, different correspondence systems have turned out to be unavoidable. Regular citizen interest for cryptography over the Internet and the media transmission alone presents complex application situations for organizations and people. Modern cryptography has advanced to an express that efficient techniques for giving privacy, information honesty, legitimacy and more are promptly accessible from the scholarly world, and can be connected in the business. The most widely recognized cryptographic systems are strategies for encryption and decoding, each constantly finished with a key. Symmetric-key cryptography alludes to the situation when the encryption and decoding keys are the equivalent or they can be gotten from one another effortlessly. Then again, public key cryptography is set up on the computational hardness supposition that deriving the private key from public key is to a great degree troublesome. Block ciphers and stream ciphers are the most vital symmetric-key primitives in use, surely understood for their elite and regularly very much considered security. In general, the security of a block cipher is established after extensive analysis of its resistance against various cryptanalytic attacks, usually by the means of heuristic study of its mathematical properties, in the hope to find short-cut attacks that demonstrate weakness of the design. This study is usually called block cipher cryptanalysis. A block cipher is seen and acknowledged as "secure" by the cryptology network, on the off chance that it indicates protection from all known cryptanalytic assaults. The trust in its security increments when it demonstrates great opposition over a stretch of time (usually in years), even against advances in cryptanalysis that were not already considered

.II.   LITERATURE REVIEW

[3]Cryptology is a youthful science. Despite the fact that it has been utilized for a huge number of years to shroud mystery messages, precise investigation of cryptology as a science just began around one hundred years back.

1.The originally known proof of the utilization of cryptography was found in an inscription carved around 1900 BC, in the fundamental load of the tomb of the nobleman Khnumhotep II, in Egypt. The scribe used some unusual hieroglyphic symbols here and there in place of more ordinary ones.

2."Arthshashtra", an exemplary work on statecraft composed by Kautalya, portrays the espionage service in India.

3.Around 100 BC, Julius Caesar was known to utilize a type of encryption to pass on mystery messages to his armed force commanders posted in the war front. This substitution cipher, known as Caesar cipher, is , maybe the most specified historic cipher in scholarly writing. Each character of the plain text is substituted by another character to form the cipher text.The variation utilized by Caesar was a move by 3 cipher. Each character was moved by 3 places, so the character 'A' was replaced by 'D', 'B' was replaced by 'E', and so on.

4.During the sixteenth century, Vigenere planned a cipher that was supposedly the first cipher which use an encryption key. In one of his cipher, the encryption key was was repeated multiple times spanning the entire message, and then the cipher text was produced by adding the message character with the key character modulo 26.

5.At the beginning of the nineteenth century while everything wound up electric, Hebern composed an electro-mechanical contraption which was known as the Hebern rotor machine. It utilizes a solitary rotor, in which the secret key is inserted in a rotating disc. The key encoded a substitution table and each key press from the keyboard resulted in the output of cipher text. This also rotated the disc by one notch and a different table would then be used for the next plain text character. This was again broken by utilizing letter frequencies.

6.In the mid 1970's, IBM understood that their clients were requesting some type of encryption, so they framed a "crypto group" headed by Horst-Feistel. They designed a cipher known as Lucifer.

7. In 1973, the Nation Bureau of Standards in the US put out a demand for proposal for a block cipher which would turn into a national standard. They had obviously realized that they were buying a lot of commercial products without any good crypto support. Lucifer was accepted and was called DES or the Data Encryption Standard. [11]

8.In 1997, NIST again put out a demand for proposition for new block cipher. It got 50 entries. In 2000, it accepted Rijndael , and christened it as AES or the Advanced Encryption Standard..

To conclude, history teaches us:

1.The mystery of your message ought to dependably rely upon the secrecy of the key, and not on the secrecy of the encryption framework. (This is known as Kerckhoffs' principle.)

2. Related to the above mentioned, always use ciphers which have been publicly reviewed and have been built up as a standard. Using "secret crypto" is bad just like the Caesar cipher, once the system is known, all messages can be decrypted.
.

III. CRYPTANALYSIS

Cryptanalysis as the name suggests it is the term that is used to describe the decryption and analysis of some sort of codes and ciphers and convert them back into the form such that human can read them. With the help of cryptographic key someone can breach into some sort of security system and can take some of the useful information that we are transferring to some other person.

Cryptanalysis is the major field to find some flaws that can occur in cryptographic algorithms and then these results generated from that can be used by cryptanalysts to improve the algorithm in order to remove those certain flaws.

For instance, a cipher with a 128 bits encryption key can have 264 (or 18,446,744,073,709,551,616) keys that can be different; due to this brute force attack against cipher will succeed simply after attempting half of those one of a kind keys. If any attack reduces number of trials needed to be 240 (or only 1,099,511,627,776) different keys it will weaken our algorithm and which enables brute force attack to be possible.

IV. CRYPTANALYSIS TECHNIQUES AND ATTACKS

[18]There are different cryptanalysis assaults which relies upon how much data the investigator break down around the ciphertext.

Some cryptanalytic methods includes:-

1. Ciphertext-only attack – In this we just have the data about a portion of the encoded messages however knows nothing about the plaintext information, encryption calculation or any information about the cryptographic key is being utilized.

2.Known plaintext attack- In this the examiner approach a few or all plaintext of ciphertext yet the investigator objective is to find the key used to unscramble the message Once that key is found an attacker can decode every one of the messages that had been encoded utilizing that key. Straight cryptanalysis is a kind of known plaintext attack that uses a direct estimation to portray how a block figure Known plaintext attacks rely upon the attacker having the capacity to find or figure a few or the majority of a scrambled message, or even the arrangement of the first plaintext.

3. In a chosen plaintext attack, the examiner either knows the encryption calculation or approaches the device used to do the encryption. The investigator can encode the chosen plaintext with the focused on calculation to determine data about the key.

4. Differential cryptanalysis attack is a kind of chosen plaintext attack on block figures that dissects sets of plaintexts instead of single plaintexts, so the examiner can decide how the focused on calculation functions when it experiences diverse sorts of information.

5. Integral cryptanalysis attacks are like differential cryptanalysis attacks, yet rather than sets of plaintexts, it utilizes sets of plaintexts in which part of the plaintext is kept steady however whatever is left of the plaintext is adjusted.

6. A side-channel attack relies upon data gathered from the physical framework being utilized to scramble or decode. Fruitful side-channel attacks utilize information that is neither the ciphertext coming about because of the encryption procedure nor the plaintext to be scrambled, yet rather might be identified with the measure of time it takes for a framework to react to particular questions, the measure of intensity devoured by the encoding framework, or electromagnetic radiation transmitted by the scrambling framework.

7. A dictionary attack is a procedure commonly utilized against secret phrase records and adventures the human inclination to utilize passwords dependent on characteristic words or effectively speculated successions of letters or numbers. The dictionary attack works by encoding every one of the words in a dictionary and afterward checking whether the subsequent hash coordinates a scrambled secret phrase put away in the SAM document design or other secret phrase record.

8. Man-in-the-middle attacks happen when cryptanalysts find approaches to insert themselves into the correspondence channel between two gatherings who wish to trade their keys for secure correspondence by means of deviated or open key infrastructure The attacker then plays out a key trade with each gathering, with the original gatherings believing they are exchanging keys with one another. The two gatherings then wind up using keys that are known to the attacker.

V. STREAM CIPHER

[17]It is the strategy for encrypting content in which cryptographic key and calculation are connected to every binary digit in an information stream it implies one piece at any given moment.

Fig.1Stream Cipher

Fig 1.   Stream Cipher

VI. BLOCK CIPHER

[16]A block cipher is the strategy for encrypting content in which cryptographic key and calculation are connected to the block of information on the double rather than one piece at any given moment and the quantities of bits in a block is settled DES and AES are of 64 and 128 bit sizes. With the goal that indistinguishable blocks of the content don't get scrambled a similar route in the message usually to apply the ciphertext from the past encoded block to the following block in an arrangement. So indistinguishable messages scrambled around the same time don't deliver indistinguishable ciphertext, an initialization vector got from an random number generator is combined with the content in the main block and the key. This guarantees every single consequent block result in ciphertext that doesn't coordinate that of the principal encrypting.
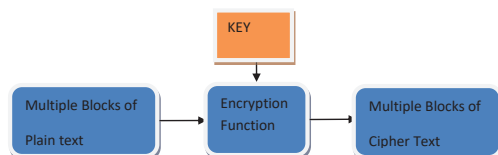

Fig.2 Block Cipher

VII. HYPOTHESIS AND PROOF

A NEW APPROACH TO CRYPTANALYSIS

Our hypothesis deals with the statement

"Data Integrity is not maintained when the message is passed through the block cipher that means 100% information is lost when infinite number of iterations are required to encrypt a message and with the increase in number of iterations information content reduces"

PROOF

Let us consider several blocks consisting of several data streams. So let 'l' be the length of the block 'n' be the total number of blocks which consists of the data to be transmitted through the connection and 'L' be the total length of the blocks. So due to the following observation

$$L = nl$$

From the above equation length of the single block is

$$l = \frac{L}{n}$$

So length of each block will be :-

$$l = \frac{L}{n} |2|$$

So as we generalize this common result * be considered as some operation between two operands and R can be considered as some result obtained from modulus operation so we got the following result as:-

$$a * b = \frac{L}{n} R$$

Where a and b are the two operand which when applied through certain operation general equation will be created.

Now if any message is encrypted that is if we perform n iterations to encrypt it so we take summation for 'i' iterations that means it takes i iterations for a block cipher to encrypt the message

$$a * b = \sum_{i=0}^{\infty} i \frac{L}{n} R_{enc}$$

So the above encrypted message should be same as the decrypted message in order to maintain data integrity

$$b * a = \sum_{i=0}^{\infty} i \frac{n}{L} R_{dec}$$

So from the above two decryption and encryption equation by multiplying above 2 equations we get :-

$$(a * b)X(b * a) = \sum_{i=0}^{\infty} i \frac{L}{n} R_{enc} i \frac{n}{L} R_{dec}$$

So we obtain the following result after encryption as :-

For original message

Now to find out how much the information is changed from the original signal we will divide our original message by the new message obtained after concurrent encryption and Decryption

$$\frac{(a * b)_{after}}{(a * b)_{ori}} = \frac{\sum_{i=0}^{\infty} R_{enc} R_{dec} i^2}{\sum_{i=0}^{\infty} i \frac{L}{n} R_{ori}}$$

So now the data for the information ratio can be written as:

$$\frac{(a * b)_{ori}}{(a * b)_{after}} = \frac{1}{i} \sum_{i=0}^{\infty} \frac{\frac{L}{n} R_{ori}}{R_{enc} R_{dec}}$$

Now, putting limits of i to ∞ that means for the nth iteration

$$\frac{(a * b)_{ori}}{(a * b)_{after}} = \lim_{i \to \infty} \frac{1}{i} \sum_{i=0}^{\infty} \frac{\frac{L}{n} R_{ori}}{R_{enc} R_{dec}} = 0$$

VIII. CONCLUSION

From the above analysis, we conclude that for the nth iteration the value for the information remained will be zero that is there will be no information left when the block cipher limits approaches to infinity which reduces the data integrity inside our block cipher encryption which is reciprocal to the values of iterations that are needed to encrypt and then decrypt data in block cipher so this means as with increase in number of iterations of the block cipher information will be reduced by the inverse value of i. So the conclusion thereby determines that with the increase in number of iterations of the block cipher information content reduces and for the more complex operations information remained will be approximately equal to zero.

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A Suite of Security Mechanisms for Security and Privacy in MANET

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Professor SPGOI,Rohtak

ABSTRACT

Reputation of mobile strategies and wireless networks significantly increased, wireless mobile networks has become popular and vigorous field of message and link ages from many the years. MANET is the novel advance invention which allows clients to connect without any bodily infrastructure irrespective of their location, that's why it is quantified as an "infrastructure-less" network. In the past few years, we have seen the huge amount of wireless infrastructures technologies. Wireless skills are usually used today across the globe to support the communications needs of very huge numbers of end users. Simulation of black hole and gray hole attack implemented in network simulator (ns2) show that the performance of AODV is severely exaggerated due to presence of black hole and gray hole attacks in Wireless Ad-Hoc environment. The security schemes such as WATCHDOG AODV govern trust among communicating entities are together known as trust management. Here we evaluate the outcome of numerous black hole and gray hole attacker nodes on the performance of whole network and compared two potential trust management and cryptography grounded resolution that attempts to eradicate the black hole and gray hole through watching arrangement to separate malicious node from the network. We can conclude that Watchdog AODV trust management solution for preventing black hole attack is much improved than other proposed IDS AODV solution and IDS-AODV solution for gray hole attacker nodes is much improved than other WATCHDOG AODV scheme.

Keywords: *Packet Delivery Ratio, Intrusion Detection System, Mobile Adhoc Network, Wireless Sensor Network, Adhoc On-Demand Distance Vector*

1. INTRODUCTION

Security is an essential service for wired as well as wireless network communications. In the coming time, sensor set-ups are recognized to be a share of normal life. Traffic monitoring, military tracking, building safety, contamination monitoring, environment monitoring are some of the uses in sensor networks [2,5]. Sensor networks differ in dimensions and can contain of hundred to thousand sensor nodes. However, the features of WSN pose together are and prospects in attaining safety goals, such as authentication, admission control, integrity, availability, confidentiality and non-repudiation. Solitary of the challenges in emergent sensor networks is to deliver high-security topographies through restricted resources. Sensor networks must manage several kinds of data chunks, including chunks of direction-finding procedures and chunks of important supervision procedures [3]. The key establishing measures implemented in an assumed sensor network should meet numerous requirements to be efficient. These requirements may contain supportive in easing self-organization of broadcast and network processing, between others. However, the key establishing procedure for an safe request must negligibly include authenticity, integrity, scalability, confidentiality and flexibility [4,8]. Sensor networks cannot be pricey created as there's perpetually a good likelihood that they'll be deployed in hostile environments and captured for key data or just destroyed by an individual, which, in turn, will cause vast losses. A part of these value restrictions includes an incapability to form sensing element networks whole tamper-proof. When compared to a wired network, it's easier to attack a wireless network because of its structure and also the attack may come in any direction and any node can be attacked at any point of time [6].

2. RELATED WORK

In [1], Satoshi K. Hidehisa N., N.Kato, Abbas J and Yoshiaki N. practice an irregularity discovery scheme. It uses dynamic training method which updates training data at regular time intervals. Multidimensional feature course is well-defined to precise state of the system at every node. Every measurement is calculated on each

spell slot. It uses destination sequence number to detect attack. The feature course comprise number of directed out RREQ messages, amount of acknowledged RREP messages, the middling of variance of endpoint sequence number in all time slot among sequence number of RREP message and the one believed in the list. Finally a mean vector is computed by calculating some precise scheming. In [7], Tarun Varshney et al. investigate further present mechanisms to avoid black hole attack and recommend a minor amendment to AODV, termed Watchdog –AODV (WAODV) that identifies black hole attack and too effort to reduce additional rise in standardized direction-finding overhead. This mechanism firstly detects a black hole node and provides a new route to source node. This procedure seriously raises consistency of discovery and separation of several malicious black hole nodes in route finding procedure and determines a small and safe route to destination without presenting extra control packets. In [9], Sharma et al. A technique is being planned for identification of the black hole or malicious node. In this, additional method a type of trap strategy is included AODV convention for the identification of malicious hubs. At the point when a black hole node is predictable then an alarming policy is triggered to make different nodes aware of malicious nodes. In [10], Houda Moudni et al. It upgrades the security of the routing protocol Ad-hoc On-request Distance Vector (AODV) to experience the dark hole attack. Their replies maintain a strategic distance from the dark hole and the different black hole attack. The simulation outcomes about utilizing the Network Simulator NS2 demonstrates that this convention gives better security and better execution as far as the packet delivery ratio than the routing protocol AODV in the presence of one or different black hole attack with minor ascent in normal end-to-end postpone and standardized directing overhead.

3.   PROPOSED WORK

Mobile Ad hoc Networks (MANET) is novel prototype of wireless networks providing unrestricted mobility to nodes with no static or centralized infrastructure. Each node contributing into the network acts as router to route the packets from source to destination. This marks MANET further exposed to direction-finding attacks. This work attempts to give a generalized solution to the needs in security for Wireless ad hoc Networks. There are diverse safety imperfections and attacks on routing protocols in wireless ad -hoc networks. AODV (Ad-Hoc on Demand distance Vector), which has been explored extensively in MANETs does not deliver any safety features, but it has some security solution which provides security features like integrity and authentication. This work aims to implement IDSAODV and Watchdog-IDS systems and performance evaluation of AODV, IDS-AODV and Watchdog-AODV under black hole attack by performing simulation in the NS2 Simulator, to evaluate how SAODV could feasibly apply for securing WMN routing messages against security as well as performance.

4.   RESULTS AND ANALYSIS
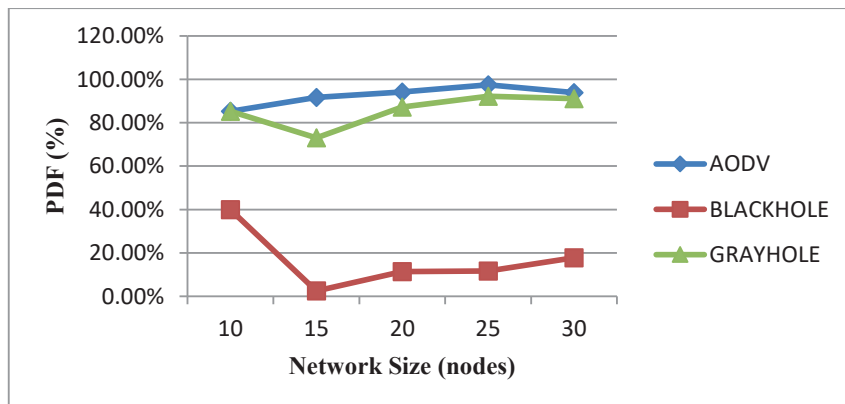
Figure 4.1: PDR of AODV with many Black Hole and Gray Hole Attacker nodes

Figure 4.2: PDR of AODV with multiple Black Hole nodes and its security assessing techniques IDS AODV and WATCHDOG AODV

Figure 4.3: PDR of AODV with multiple Gray Hole nodes and its security assessing techniques IDS AODV and WATCHDOG AODV

Figure 4.1 shows the packet transfer ratio after the network density is varied. The figure shows that PDR of AODV routing protocol is seriously affected by black hole attack. From figure 4.2, it has been witnessed that when the AODV protocols under attack of black hole nodes, Watchdog AODV has more packet delivery ratio as compared to other prevention mechanism namely IDS AODV. But it has been observed from figure 4.3 that in case of gray hole attack, watchdog-AODV has less packet delivery ratio as compared to IDS AODV.
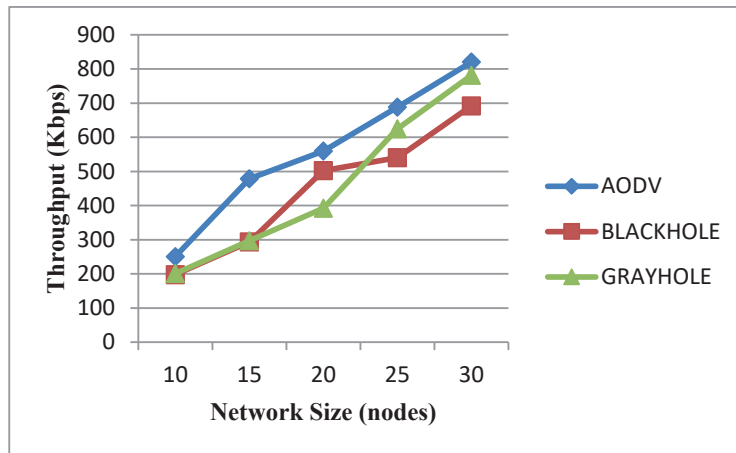
Figure 4.4: Throughput of AODV with multiple Black hole and Gray Hole attacker nodes

The figure 4.4 displays the throughput of AODV under blackhole and gray hole attack for variable network density. The figure 4.5 shows that throughput of AODV routing protocol is seriously affected by blackhole attack and its effect deeplycompact by trust mechanism that is watchdog AODV scheme as compared to IDS scheme. But it has been detected from figure 4.6 that in case of gray hole attack, Trust based mechanism that is watchdog-AODV having less throughput ratio as compared to IDS AODV
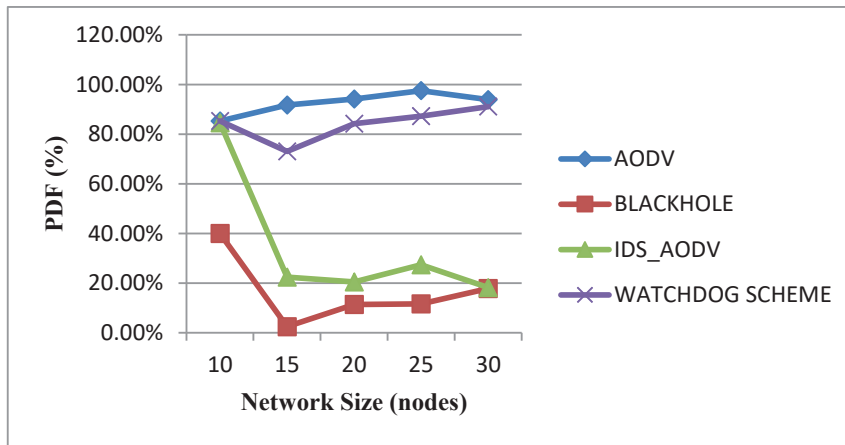

Figure 4.5: Throughput of AODV with multiple Black Hole nodes and its security assessing techniques IDS AODV and WATCHDOG AODV

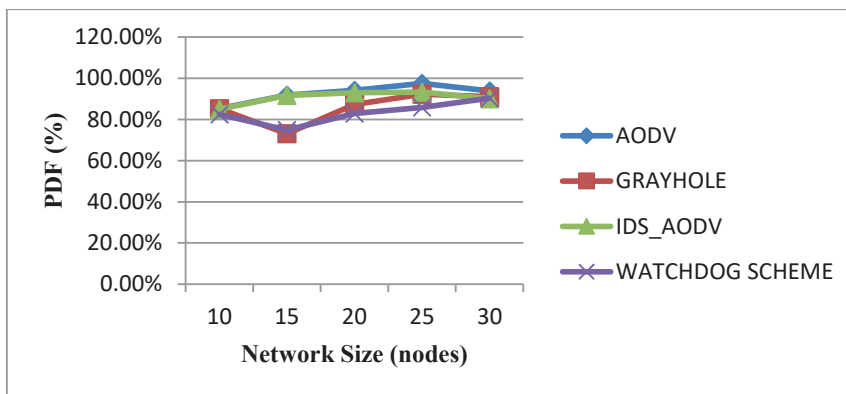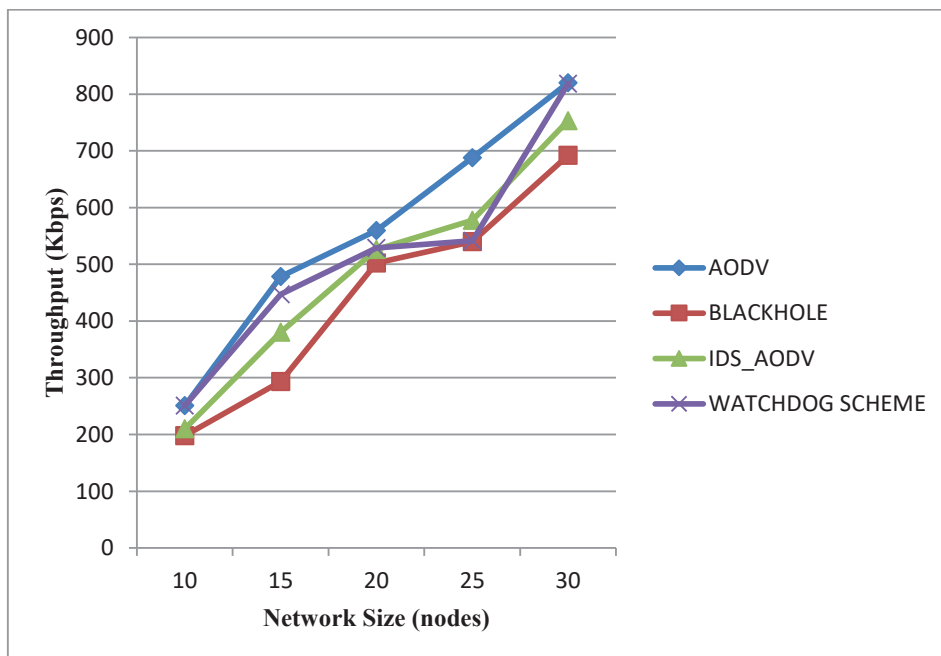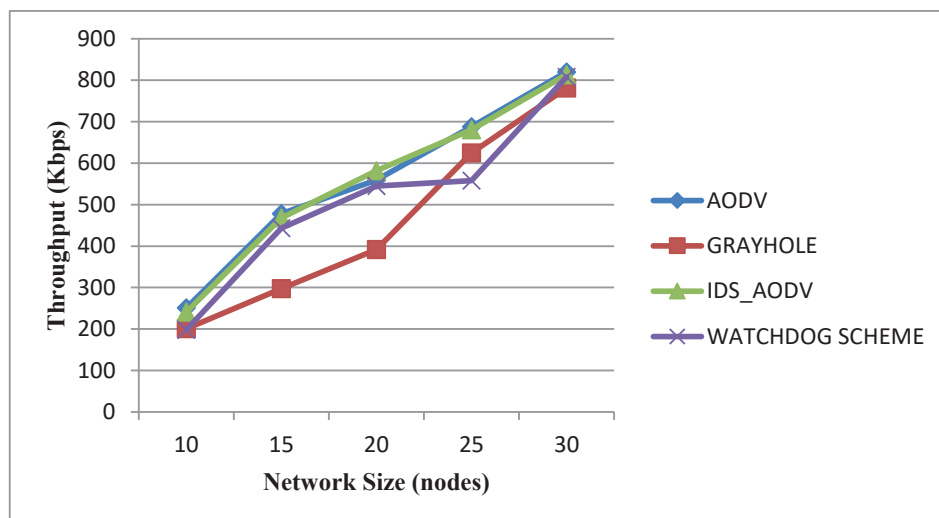**Figure 4.6:Throughput of AODV with multiple Gray Hole nodes   and its security assessing techniques IDS AODV and   WATCHDOG AODV**

5. CONCLUSION

The security schemes such as WATCHDOG AODV manage trust among communicating objects are jointly recognized as trust management. Here trust means the sureness of an entity on additional entity established on the belief that the other entity will accomplish a particular act vital to the one who trusts, regardless of the capability to monitor or control that other entity. Here we estimate the consequence of multiple black hole and gray hole attacker nodes on the performance of whole network and compared two potential trust administration and cryptography grounded resolution that attempts to eradicate the black hole and gray hole by watching arrangement to separate malicious node from the network. The watchdog prepares this by attending to all nodes inside communication range promiscuously. If a Watchdog notices that a packet is not progressed within a definite period or is progressed but transformed through its neighbor node it believes the neighbor node as misbehaving node and if some node only admit the node and does not forwarded, watchdog announce that node as a gray hole node and eliminate that node from the route of the distribution packets. Simulation outcomes determine that Watchdog IDS trust administration resolution for avoiding black hole attack is much superior than former proposed IDS AODV resolution and IDS-AODV resolution for gray hole attacker nodes is much superior than other WATCHDOG AODV scheme.

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A Research Paper on Web Application Development Using CMS (Xampp/PHP)

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ABSTRACT:

It is known that design patterns of object-oriented programming are used in the design of Web applications, but there is no sufficient information that which types of data patterns are used, how frequently they are used, and what the level of quality at which they are used. This research paper discusses the various useful tools and techniques that are used in a development of web applications [1].

In addition we discuss life cycle model of web application .This paper also tells about the tool (BRACKETS), CMS (Content management system) likewise Drupal which is used in this development with the functionality of PHP with XAMPP server screenshots.

Keywords: Navigation, Google chart, Xampp, CMS,API.

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1. INTRODUCTION

PHP is at the forefront of Web 2.0 and Service Oriented Architectures enabler technologies along with other open source projects MySQL, Apache or JBoss. With ten years of development behind it, PHP is a relatively young programming language. Nevertheless, millions of developers world-wide use PHP to develop systems that power over 20 million websites. PHP is ideal for Enterprise applications as it is easy to learn yet robust and flexible enough to power business critical applications.[1] Most necessary things for a website is selecting a programming language, mostly web design using HTML and CSS for web designing not necessary high level knowledge of HTML. We can say features like as webpage formatting, designing, page layout techniques, graphics, multimedia, images and functions of multipage website should be including [8]. All things must have to see in the website development requirement, designing, documentation, appropriate server and programming language etc.

The sole purpose of this paper is to build a complete Web Application for posting important information and Updates related to any organization by building our own CMS like Drupal, Concrete5 using PHP, Javascript and using MySQL as backend. This project is built on latest version of php (version 7.1.2.0). The Scope of this paper is that to develop CMS which will help new users in college or to see everyday updates. This CMS is very helpful for the college as we provide a Neighborhood map which is just like a GPS Admin. It will provide information of every activity held in the college to the users in a Good Manner .This project is developed on all of the fundamentals of Procedural PHP, Object Oriented PHP, MYSQL and by building our own CMS similar to Drupal and Joomla.

The role purpose of this project is to build a complete Web Application for the users to update any useful information regarding our College. It provides a frontend to the users for all the details. He/She can Add, Delete or edit and can perform other functions also. We will provide an Admin Panel which has its own authentication, Privacy and Password Security. Only the Admin and Authenticated users can have the details of the CMS/ admin panel and no one else. Admin can keep a track of how many users visited and performed some activity. Users are

not allowed to post any fake or irrelevant update on the Web App. If any user will update any news first the admin will see that news and then other people. Users have to first Sign up, should have an account on that Web App to access it.

CONTENT MANAGEMENT SYSTEM

A Content Management System is a system which is used to manage content of the website. It is a computer application that allows publishing, editing, modifying, and organizing, deleting, and maintaining content from a central interface.

The features of CMS system include Web-based publishing, indexing, search and retrieval. It serves as a central repository for content like textual data, documents, movies, pictures and scientific data. This application allows content manager and author to manage the creation, modification and removal of content from activity operators website. One can easily add content to website without having to be a developer. Main function is to present information on website.

Web application Development process:
● Analysis
● Specification
● Design & Development
● Content Writing
● Coding
● Testing& Security
● Promotion
● Maintenance & Update

Analysis:
For the Analysis of project, firstly we have to understand the requirements of website or web application creation, including various websites design, uses, content and different approaches.

Specification:
Predicated on Requisite, prepare a draft designation of Web pages to be developed include the sitemap and a flow of various process.

Design & Development:
Design and development plays a very significant role in web development and web application. Graphical looks and feel according to most impressive and efficient way, Graphical elements required for design are appearing more impressive, for this use colour and image. Design of web pages, computer graphic includes navigation mock-up, template content and placeholders [3].

Content Writing:
Writing of contents is a significant part of development of web pages and plays an important and necessary step in optimization Engine, a well-defined or easy content is utterly necessary to fall in internet site users. Content written by a more professional requires more pure, easy and accurate content [4].

Coding:
Coding start of a Web Pages in CSS, HTML, PHP, Java scripts and other technologies of WWW (world wide web), for drawing of the graphic and text contents, we look code of web page consistently like as webpage

design. Coding of a web page is loading fastly search engine and index give us rank very quickly. Every web page of a website takes a unique title, unique meta tags as keywords and descriptions.

We can create links of internal with keywords of website to explore the search engine ranking and navigation. In this way improve the website quality code by using techniques and tools according to website standards [1].

Testing & Security:

Testing as well play an important role in website development, testing is done for browser compatibility, broken links and can check the speed of loading pages, and loading speed of images. We can also check validation of HTML code, validation of CSS, checking of spelling and build alterations to rectification of mistakes and can perform test of functional on processes of websites like payment, postal services, registration, etc., these checks as per requirement. When testing done website hosted on a web server and uploaded.

Maintenance & Update:

For better operation of the world's cyber site, monitor the website time to time. We make update periodically needed as per the requisites. Even maintenance of website is required, when any visitors keep updated. Whatever changes in the information comes from contact, any additional articles added and other links added in the website added. We offer maintenance support on the website according to time [3].

2(a) Product Functions:

Our System has two types of accessing modes:

1. Admin - Admin has all the authentications of the web app. He can see what people are posting on the web app. There will be no issue of hacking and fake posting of news as there are four levels of authentication.

2. User - Users will only be able to see the posts, update any post etc.

There will be no issue of hacking and fake posting of news as there are 4 levels of authentication. First, the update will be seen by the Principal sir then if he'll approve then and then only it will be passed on to the HOD and after that he'll pass it to the class Incharge and class Representative.
The news and updates which are posted will be regarding our college like events managed by students, any cultural activities performed in the college, some tech fest organized by the college, etc. By this our users / students will get updated about our college and feel good to participate.

User Characteristics: This system gives access to two kinds of users:
Admin: Admin will have all the authentications of the web app. Admin will decide what Posts should be published.
.
Authorized User: Authorized users like students can register on web app and can send post which after approval of admin will publish on web [6].

2(b) Functional Requirements

User registration: First user has to visit to the web app and click on sign up/register on it, make an account on it.

Sending Posts: User will send his/her post to the Admin; admin will decide whether to publish it or not on web app.

Comments: User can comment on post via comment form given below the posts and Admin will manage all the comment section.

Admin: Admin will have all the authentication of the web app. There will be no issue of hacking and fake posting on the web app.

2(c) Performance Requirements: Easy tracking of posts and updating can be done. All the requirements relating to the performance characteristics are specified below. There are two types of requirements:

Static Requirement: This requirement does not impose any constraints on execution characteristics of system. [5][6]They are:

(A) Number of terminal: The system make use of an underlying DB that will reside at server, while the front end will be available online to Admin as well as Students and Teachers.

(B) Number of Users: Number of user many vary, as this System find application in almost every department of College.

3(a) Dynamic Requirements

These specify constraints on execution Characteristics of system. They typically include response time and throughout of the system. Since these factors are not applicable to proposed system, it will suffice if the response time is high and operations are carried out precisely and quickly.

3(b).Design Constraints

This software provides security. The login form prevents the system from being misused by the unauthorized user. Only the admin will be granted rights to publish and modify any post as per requirement. In this CMS the Admin can keep a track of the number of online users, can have a record of how many comments are there on a particular post and can search for a particular post in blog in blog-search option. This Goggle chart also show how many categories are there, how many comments are there and how many comments needs approval of admin to be published on site and how many users have registered in web application.

4. SDLC MODEL:

The SDLC Model used in this project is Agile Model. Agile model believes that every project needs to be handled differently and the existing methods need to be tailored to best suit the project requirements. In Agile, the tasks are divided to time boxes (small time frames) to deliver specific features for a release.
Iterative approach is taken and working software build is delivered after iteration. Each build is incremental in terms of features; the final build holds all the features required by the customer.

5. GENERAL APPROACH:

We will try to use the Xampp tool for local hosting of the website. Xampp is a free and open source cross platform web server solution stack packaged developed by Apache Friends consisting mainly of the Apache HHTP server for scripts written in PHP. It is simple, flexible and light weight tool that can makes very easy for developers to create a local web server for website testing and development process as shown in fig 1.
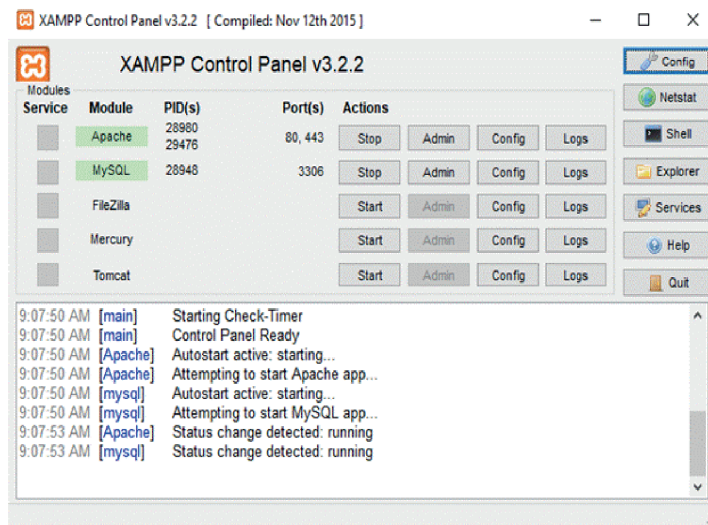
FIG. 1 Screen Shot For Xampp

6. CREATING CMS:

The features of CMS system include Web-based publishing, indexing, search and retrieval. It serves as a central repository for content like textual data, documents, movies, pictures and scientific data. In this we are creating different links with subcategories as shown in fig.2
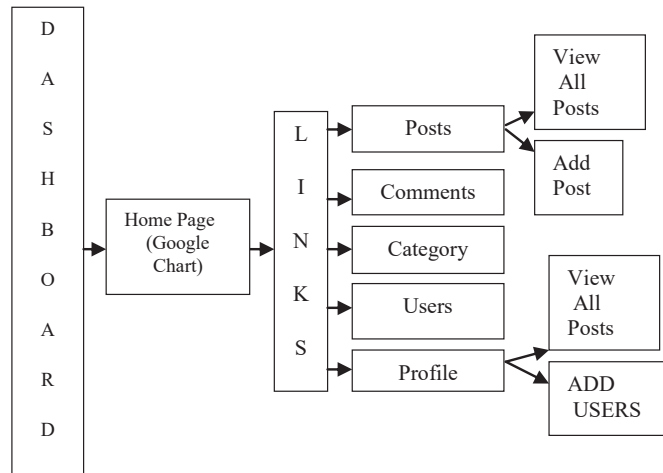
FIG. 2 Flow chart of Web Application

In this Paper we implement the CMS with the new updating given by authenticators for the new users, where CMS will be completely connected with the Navigation and Neighborhood Map by using Google API as shown in fig 3and fig 4.

```
Initialization → Environment Setup → Creating Database

Created Front-End ← Created Front-End ← Connecting it with PHP

Designing → Creating Category Table → Testing

Module
```

FIG. 3 Creating CMS

```
Host Web Application → Event Information → Forgot Password System

Neighbourhood Map ← Authentication ← Real Time Notification

Registration System → Testing
```
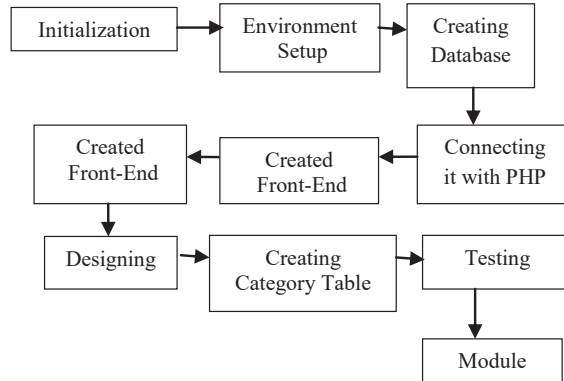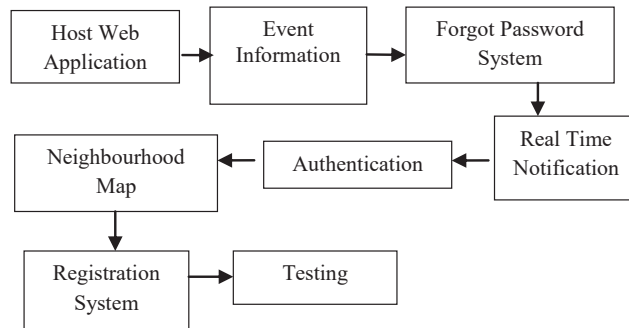
FIG. 4 CMS with Google API

7. <u>RESULT:</u>

CMS be can be used when the web application is especially going to be used for management of contents instead of any complex business logic. Maintenance of a web application dealing with vast amount of data is somewhat critical and also not economical. CMS suits in such cases which are concentrating on just maintenance of data.

CMS provides website authoring, collaboration and administration tools designed to allow users with little knowledge of web programming languages like HTML, CSS, and Bootstrap to create and manage websites content with ease. After using this amazing module (CMS) which is quick responsible things, we can able to pick out with all updates.

<u>Index Code:</u>

For web application design, we have written code into PHP language, each create index page that contains details and design of a website front look and every icon name with hyperlinks. These things we can see in Home page of a website and code stores in the index file for easily understanding of that code we can take view on the screenshot in Fig.5.

FIG.5. Index Code Outlook

Outlook of Index File

At index file, all labels that will be put, those all things will be reflect on the Home page of the website page. Firstly, server will go the "index. Php" file and will convert all code into CSS and HTML code after that provide to client result as an output of CSS and HTML format. The screenshot gives the result of same index PHP code in Fig.6.
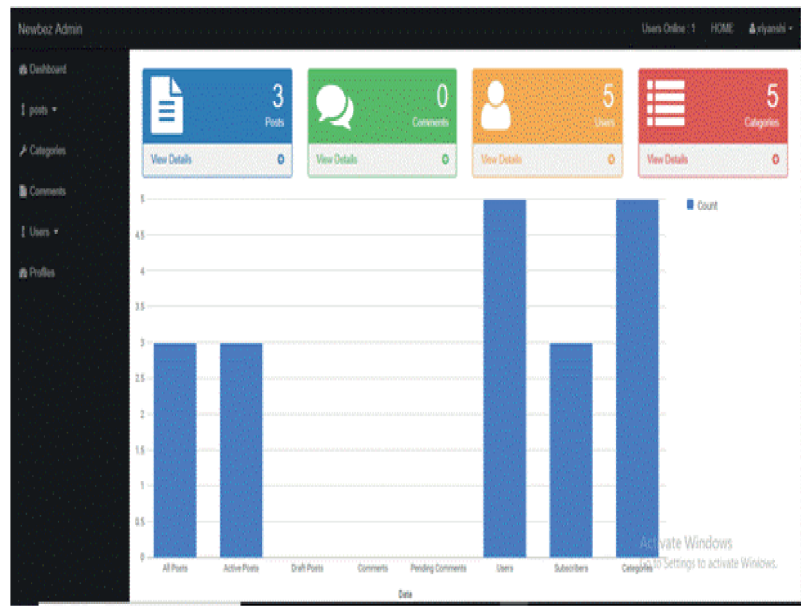
FIG.6 Outlook of Homepage

8. CONCLUSION:

We have developed CMS Module using XAMPP on Local Server which is used by new users to able to see new updating, various posts and search information related to any project which will be connected by neighborhood maps which is implemented by using Google API.

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"Work Pack" & "Fun Pack" – Hybrid App Suite

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Abstract

This document proposes the idea of building of Hybrid Applications based on the study of Ionic Framework and Firebase. This paper predicts the future scope of Mobile Application Development by introducing the concepts of Hybrid Application Development.
 Keywords: *Software Application, Node Package Manager, Java Development Kit, Command line Interface, Database.*

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INTRODUCTION

As the popularity and complexity of most Apps increase, new techniques must be developed to effectively design and create Apps quickly. For this project, a new type of Framework (IONIC 3) is used. This framework will be used to develop and design a "Hybrid App Suite" which is a combination of two modules (named "WorkPack" and "FunPack") which is suitable for running on various cross-platform devices such as Android, Windows, IOS and Web Browsers[1].

Unlike native applications which are built using a platform-specific programming language (Objective-C for iOS and Java for Android), Hybrid Applications can use all native functionalities of mobile devices and mobile operating systems, including the use of GPS, access to the file system, or common user interface elements. This Hybrid framework allows for an easy use native functions of each mobile platform using cross-platform APIs. Frameworks like IONIC require nothing more than a knowledge of HTML, CSS, and JavaScript, tools which are very familiar to all web developers[3].

Many IONIC Plugins and FIREBASE based CLI (Command Line Interface) Plugins will be integrated. Designing Apps for various Platforms require plethora of knowledge of the Platform, take months of time in development and is not cost efficient. With the help of this IONIC based Hybrid App Suite, any user (Android or IOS or Windows or Web Browser) can install and use it.

ANALYSIS

The point of comparing the Work Pack and Fun Pack Apps with the Apps already present on the App Store is to get into notice the hidden benefits of opting the Hybrid App Development using the IONIC Framework[2].

Considering Apps with similar functionality,

Corp Talk share similarities with **Slack** (Team Messaging App)[10]

Divide and Work share similarities with **To Do List** (Task Manager)[6]

Git Search share similarities with **FastHub for Github** (Github Profile Searcher)[7]

Wander share similarities with **Be-On-Road** (GPS Locator)[8]

Pin It share similarities with **Daily Quote** (Inspiring App)

Talking about reasons to choose Work Pack and Fun Pack Apps over any other similar looking and functioning Apps is that the other Apps are Native in nature, i.e., they are made only for a particular platform, whereas Work Pack and Fun Pack contains Hybrid Apps, i.e., made for and accessible to all platforms.
Secondly, as the Apps are hybrid in nature, they are easier and faster to build because IONIC FRAMEWORK is used. This consequently results in less wastage of time and money.
As Hybrid Apps are more cost efficient than Native Apps, the cost saved could then be utilized in up gradation and improvements in the already built Hybrid Apps[2].

PROPOSED SYSTEM

1. Initialization
Setting Up the Development Environment by installing NodeJS (version 6.11.5), NPM (Node Package Manager – version 3.10.10)[19], IONIC (version 4.1.1), IONIC CLI (Command Line Interface)[5], Cordova Wrapper and VSCode Editor[12].
H/w Specifications: Intel Core i5 and 7th Gen Powered Windows 10 Platform, 1 TB Hard Disk, 8 GB RAM.

2. Prerequisites
Knowledge of Web Technologies such as HTML 5, CSS 3 and JavaScript.
Familiarity with Front-End Framework Angular-JS[17].
Basics of Typescript[16], which is used to define the Functionality of the Applications.

3. Design
"Work Pack" module will be divided into 3 fully working individual Applications described as below:
The First Application (Corp Talk) will focus on Authentication and Validation of User Credentials, Logging In directly to the App using a Third Party Authentication Plugin Giving access to Real Time
Chat among the users. All these features will be achieved by integrating the application using Authentication and Real Time Database features of the FIREBASE[13].

The Second Application (Divide and Work) will focus on Authentication and Validation of User Credentials, Saving the data input by the user and Retrieving the last saved Data by the user from the database feature from the FIREBASE. The user will be able to Sign-up and Sign-in, Create a task list with the title and duration of the task, generate an inventory containing list of projects with their description, Adding and Omitting of tasks and projects.

The Third Application (GIT Search) will emphasis on Creation of Profile Search Page, Retrieving user data from an online third-party application (GitHub). The User has to enter his/her username assigned to them by GitHub on creation of their profiles. On entering the username, the user will be navigated to a Result Page where he/she will be able to see the GitHub profile page.

"Fun Pack" module will be divided into 2 fully working individual Applications described as below:

The First Application (Wander) will implement one native feature of GPS to locate and save a place on the Google Map and another native feature of accessing the device Camera to click and save the image. The user can also add the description about the located place using Database Feature of FIREBASE.

The Second Application (Pin It) will proxy a Content App where the user will be to pin (bookmark) and unpin (remove bookmark) the content from his/her favourite topics.

The pinned content will be stored and displayed on the Home Page from where the user can access his/her favourite post.

ARCHITECTURE
Our Hybrid Apps shares a common Architecture which includes following components:

Mobile App
The User Interface (UI) and Interaction of the Apps are built using HTML-5, SCSS (Sassy CSS) and JavaScript Framework (Angular JS). Allows re-use of existing components, including UI and services using Typescript functionality.

Web View
Browser Component with a HTML rendering engine and JavaScript engine run in full-screen mode with mobile with the help of IONIC Serve which boots up a development server on all network interfaces and prints the external address(s) on which your app is being served. It also broadcasts your app to the Ionic Dev. App on your network. In simple terms it easily spins up a development server which launches in your browser. It watches for changes in your source files and automatically reloads with the updated build.

Cordova Plugins
It allows access to native components of the devices such as camera, geo-location, local storage, contacts and many more. All these features are implemented using Cordova plugins[15] and API.

Installer
Cordova Tools like Cordova Wrapper allows implementation of the Apps on cross-platforms such as Android, IOS, Windows and Web.
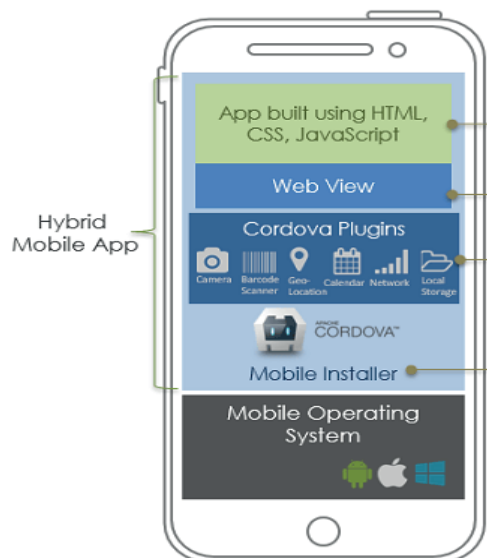
Fig1:Hybrid Architecture[19]

Sdlc Model
SDLC (Software Development Life Cycle) Model is fully explained and planned cycle which is responsible for the initialization, development, maintainability, testing and implementation of the project.

Iteration Model is proposed for this study.

Iteration 1 (Mocking Version)
1. Requirements: Meeting the H/w and S/w requirements.
2. Design: Creating the design of pages of the app.
3. Implementation: Running the app on localhost server.
4. Testing: Mocking and testing the app on ionic lab.
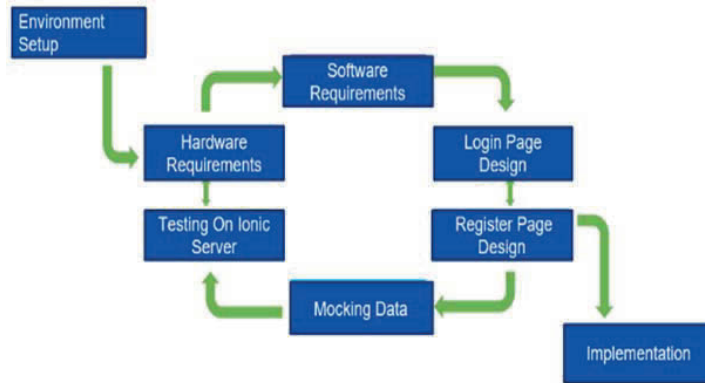
Fig2: Iteration 1 Diagram

Iteration 2 (Real Time Version)

1. Initialization: Setting up the development environment.

2. Requirements: Meeting the hardware and software requirements.
    a. Design: Creating the design of pages of the app.
    b. Creating and authentication of user accounts using 'firebase'.
c. Displaying and editing profile form showing online users adding featured plugins.
3. Implementation: Running the app on localhost server.
4. Testing: Mocking and testing the app on ionic lab.
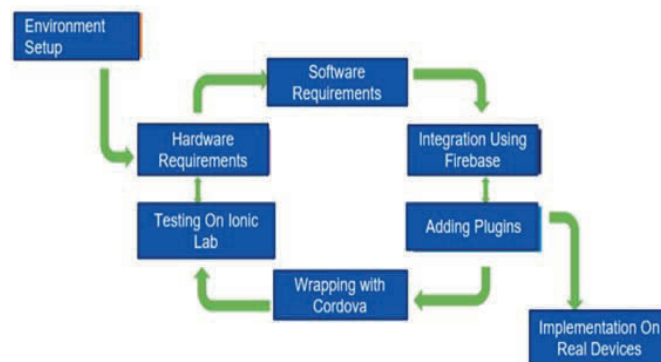
Fig 3: Iteration 2 Diagram

Use Case

1. User lands on the "Log-In" Page after initialization of the App on their Devices.
2. If the User is New to the App Database, he/she is provided with the "Sign-Up" button on the bottom of Login Page which directs them to the "Sign-Up" Page.
    a. If the User is already fed into the Database then he/she can directly login into the App.
    b. User is also provided with the feature of directly logging into the App (without signing up) with their Gmail Id.
3. After being directed to the "Home" Page, User need to enter their Username to gain access to the "Project Room" Inbox.
4. Once the user is allotted access to the "ProjectRoom" Inbox, the user can create a New Room by clicking the "Add" button on the top-right corner of the Page.
5. Or the user can choose from the available Rooms on the Page which are retrieved from the Database.
6. After selecting the required Room, the user is directed to "ProjectRoom Chat" Page where he/she can chat with their Team Members in Real Time.
7. User is also provided with two more tabs in the Menu named "About Us" and "Help".
    a. "About Us" informs the User about the Designer and Developers of the App.
    b. "Help" consists of a set of slides which tells all the instructions to use the App.
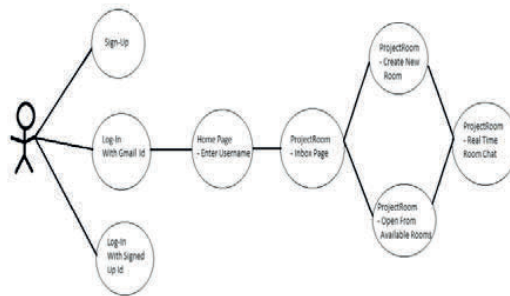
Fig4:Use Case Diagram

CONCLUSION

The purpose of building a set of Apps that are Hybrid in nature (Hybrid App Suite) using IONIC Framework to overcome the platform dependency of the Apps and making Apps which are suitable for running on various cross-platform devices such as Android, Windows, IOS and Web Browsers, shall be fulfilled by the end of the course of this project.

This Hybrid App Suite shall not only be providing the functionalities like that of a Native App, but shall also be faster to build, easier to develop, more pocket friendly to the developers and provide full functionalities to the users.

FUTURE SCOPE

The scope of this study is to design and develop a set of hybrid applications which shares native features of traditional native applications. Consequently, these developments will be less time consuming and more cost efficient. The study will also help to ease the workload of the developers and allows them to make up gradations and improvements to the apps within the same time period and cost range.

The study will allow developers to build mobile applications using web technologies such as HTML, SCSS, JavaScript, AngularJS and Typescript which are less complex than core programming languages like Java, C and Swift.

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A SURVEY : CLOUD COMPUTING TECHNOLOGY

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Abstract

Cloud can be defined as place at remote location and by remote location it means a place that is far away from us having all the data we need ,i.e. photos, documents, databases, contacts or anything that we use in our daily lives. Computing means to access , modify or manipulate any kind of information or data by using COMPUTING TECHNOLOGY ,i.e. computing may involve computer's hardware/software but it must involve some kind of computer system. Therefore by summing up , cloud computing is technology which gives us the way to access and manipulate our data/information which is stored somewhere at a remote location by using internet.

Keywords—Cloud Computing, Public Cloud, Private Cloud ,Service Model,Security.

INTRODUCTION

Technically, cloud computing provides us the ease to access servers, storage, databases and broad set of application over the internet. This technology is not only limited to give us access to our data/information but even when we are in a need of powerful hardware requirements then rather than spending money on buying hardware ,by cloud computing, we can rent someone's computer system having the hardware components we need. Cloud computing has two models deployment model and service model.

Deployment Model

Deployment model of cloud deals with a specific environment of cloud ,i.e. in which environment it will be provided and how will one cloud environment characteristics will be different from the other cloud environment. There are four different types of deployment model

- Public,
- Private,
- Community
- Hybrid.

- **Public cloud** , as the name suggests , everything present in this cloud would be publically available on a free or pay-per-use basis. These type of cloud are maintained and provided by a third-party cloud provider which doesn't impose any limitation on accessing data/information or anything that is present in the cloud ,i.e, any random person by using internet can grant access to it. Common examples of public cloud which are well known to us : yahoo, Google , sales force , etc . The cloud vendor becomes the cloud provider and the general public becomes the cloud consumer.

- **Private cloud ,** as the name suggests, there will be limitations and boundaries for accessing the cloud which will be imposed by a single organization, who has developed the cloud. When a private cloud exists in a controlled environment, the problems which includes risk of data leakage and threat of hacks tends to minimize. In a private cloud, the same organization is technically both the cloud consumer and cloud provider. So in order to

differentiate between the cloud provider and consumer a separate organizational department typically assumes its responsibility for provisioning the cloud (and therefore assumes the cloud provider role) and departments requiring access to the private cloud assume the cloud consumer role. This type of cloud commonly exists in companies which usually only allow their employees to access the cloud.

▪   A community cloud is similar to a public cloud except that its access is limited to a specific community of cloud consumers. The community cloud is jointly owned and maintained by the a group of communities having a same aim or aspects of business .The cloud consumers of the community typically share the responsibility for defining and evolving the community cloud.

Membership in the community does not necessarily guarantee access to or control of all the cloud's IT resources. Parties outside the community are generally not granted access unless allowed by the community. .

▪   **A hybrid cloud** ,is a cloud environment comprised of two or more above defined , different cloud deployment models. For example, if a cloud consumer may choose to deploy cloud services processing sensitive data to a private cloud and other, less sensitive cloud services to a public cloud then the result of this combination is a hybrid deployment model .Hybrid deployment architectures can be very complex and challenging to create and maintain due to its potential in disparity in cloud environments.

SERVICE MODEL

The other model of cloud is Service model which represents how the cloud will be delivered to people ,i.e. what type of services could people enjoy and how one service model differs from another model. There are basically 3 types of cloud service models ,

- ▪ Infrastructure as a service
- ▪ platform as a service
- ▪ software as a service.

In, **Infrastructure as a service (IAAS),** the cloud provider allows the consumers to specify their hardware, network, connectivity, operating systems, and other "raw" IT resources needs. The general purpose of an IAAS environment is to provide cloud consumers with a high level of control and responsibility over its configuration and utilization. The IT resources provided by IAAS are generally not pre-configured, i.e. providing the consumer the freedom to configure the resources as required by them. This model is therefore used by cloud consumers that require a high level of control over the cloud-based environment they intend to create. Cloud consumers are provided with a wide range of guarantees by the cloud provider, such as capacity, performance, and availability of IT resources. The cloud provider before providing its resources deals with the cloud consumer about how much time the consumer will use the resources and depending on that time the amount to be paid by the consumer is decided.

In, **Platform as a service (PAAS),** the cloud consumer gets a pre defined and well maintained platform which is "ready-to-use" comprising of already deployed and configured IT resources. PAAS usually allows its consumers to develop new application or extend an existing app on the provided the platform by the cloud provider. PAAS contains a set of pre-packaged products and tools used to support the entire delivery lifecycle of customer applications. A very common reasons that a cloud consumer would use and invest in a PAAS environment is when he would want to become a cloud provider and deploys its own cloud services to be made available to other external cloud -made platform, the cloud consumer is spared the administrative burden of setting up and maintaining the bare infrastructure IT resources provided via the IAAS model. Conversely, the cloud consumer is granted a lower level of control over the underlying IT resources that host and provision the platform. PAAS products are available with different development stacks. For example, Microsoft Azure provides a .NET-based environment, while Google App Engine offers a Java and Python-based environment.

In, **Software as a service (SAAS),** the cloud provider gives its consumers the ability to deploy its pre-defined and developed applications on provider owned cloud environment. So, SAAS is basically software distribution model in which a third-party cloud provider allows its users to hosts applications and makes them available to customers over

the Internet. This service is not as complex as the other two just because a limited functionality and access is provided by the cloud provider to its consumers.

For example : Google Play Store has many applications developed and deployed by different developers , which are available to common people on free or pay-per-use basis like Gmail, Face book comes under free basis and NPAV an android based anti-virus comes under pay-per-use basis.

Advantages of Cloud Computing
1) Time and Location Independency :
 From one of the main advantages and strengths of cloud computing technology is its availability independent of time and location of the cloud consumers. The only requirement for accessing the IT resources provided by a cloud is availability of high speed internet. Most of the cloud providers are truly reliable in offering their services, with most of them maintaining an uptime of 99.9% and also the   advantage of working from anywhere across the globe, as long as we have an internet connection gives the cloud consumers great flexibility for anytime and anywhere usage of IT Resources.

2)   Flexibility in Capacity:
Cloud computing offers flexible facility which could be upgraded or downgraded as per the circumstances of the consumers. For instance, if a promotion of sales is very popular, then capacity can be immediately and quickly added to it for the avoidance of losing sales and crashing servers. And when those sales are done, the capacity can also be shrunk for the reduction of costs. This flexibility in doing variations as per situation has helped and still helping many cloud consumers from all over the globe.

3)   Less Costs
The services are free from capital expenditure such that there are no huge costs of hardware in cloud computing. The cloud consumer has just have to pay as he operates it and enjoy the model based on your subscription plan. Many consumers not having a powerful computer specs, generally rather than buying them , believes in renting the services offered by a cloud provider having a powerful specs computer which will be used by giving the consumer access to a virtual server which is directly
or indirectly connected to the physical server owned and maintained by the cloud provider.

4)   Backup and Recovery
An another advantage of engrossing cloud computing technology is providing daily updated backups. As in today's market, even a small amount of unproductive downtime can have a resoundingly negative effect and downtime in services can lead to loss of productivity, revenue, and effect on brand reputation. But while there may be no way to prevent or even anticipate the disasters that could potentially harm organizations data over the internet ,then there is something that have to be done to help speed the recovery. Cloud-based services provide quick data recovery for all kinds of emergency scenarios from natural disasters to power outages. Depending on a recent survey 20 percent of cloud users claim disaster recovery in four hours or less and only 9 percent of non-cloud users could claim the same and 43 percent of IT executives said they plan to invest in or improve cloud-based disaster recovery solutions.

Disadvantages of Cloud Computing
1) Network Connection Dependency
Cloud computing makes even a small business dependent on the reliability and availability of present Internet connection. If consumer's internet service suffers from frequent outages or slow speeds, cloud computing may not be suitable for his/her business. Even if one need a network to use virtual machines even if he/she opt for an Infrastructure-as-a-Service and If there's lose in network connection because of a storm or an outage, it may result experience of some downtime. However, a good Hosted Services provider will help to develop a business continuity plan, as well as the promise to deliver an SLA(A **service-level agreement (SLA)** is a contract between a service

provider and its internal or external customers that documents what services the provider will furnish and defines the service standards the provider is obligated to meet. of more than 95% uptime.

Unfortunately, there is no way to get around this fact. You need a network in order to send files to the cloud and retrieve them.

2) Customer Care Support

In past days, when cloud computing was rising a common problem which every cloud customer faced, was lack of customer care support from their cloud providers. But by time many cloud vendors improved technical support over past few years. But this support which can't be ignored have very high costs. Cloud vendor's like Google provide customer care support at a price of $100/month and that too with a minimum of four hour response time. So, for industries requiring a rapid response for their customer satisfaction are facing such serious issues. Also vendors like Google, Microsoft doesn't provide phone support options in their customer support. Therefore, absence of options like live chat, phone, user forms ,etc. Increases one the main disadvantages of this technology.

3) Loss of Control

You are, essentially, trusting another party to take care of your data. You are trusting that they will maintain their data centers and servers with the same care as you would, if not more. You have to trust that your provider's data centers are compliant and secured both physically and online. Some find the lack of in-house control of the server unnerving.

Security Issues

According to recent research of Cloud Security Alliance (CSA), over 70 percent of the world's businesses now run on the cloud .With benefits offered like higher flexibility, automatic software updates, independeence of time and location, 70 percent isn't a big surprise But still the cloud has security issues. Some of the security issues associated with cloud computing are

1. **Data Breach**

   Cloud computing and services are new in the market, yet it has met scenarios of data breach many times. over 50 percent of the IT and security professionals believed and accepted their organization's security measures to protect data on cloud services are low.

2. **Hacking of accounts**:

   Methods of hacking / hijacking include scripting bugs and reused passwords, which allow attackers to easily steal credentials. Attackers now have the ability to use our login information to remotely access sensitive data stored on the cloud. The 2010 attack on Amazon left everyone with a shock when cross-site scripting bug affected their customer's credential. However, the most new threat known as the "Man In Cloud Attack" involves the stealing of user tokens which cloud platforms use to verify individual devices without requiring logins during each update and sync.

3. **Denial of Service Attacks**

   This doesn't involve any cyber attacks, which are typically launched to hack or hijack sensitive information. Rather ,attempt to make our website and servers unavailable for the use of users. In some cases, Do's is also used as a smokescreen for other malicious activities, and to take down security appliances.

4. **Data Loss:**

   Data on cloud services can be lost due to many reasons like malicious attack, natural disaster, or a data wipe by the service provider. Losing information leave a very long term loss to businesses that don't have a recovery plan. Big cloud vendors like Google suffered loss of data when its power grid was struck by lightning four times.

Conclusion

Cloud computing is recently a new technological development that has the potential to have a great impact on the world. It is a type of computing that relies on shared computing resources rather than having local servers or

personal devices to handle applications. It brings the user access to data, applications and storage that are not stored on their computer. This technology provides services in three types : software as a service, platform as a service and infrastructure as a service. Further this technology provides it services in 4 types : public , private , community and hybrid.

Cloud Computing simplifies accessibility, provides virtual storage space, addresses backup issues, it provides security against unauthorized access and loss of data. Key advantage is that users can pay only for the resources they have used on 'the cloud' and do away with the major investments for data storage, software licenses, servers and hardware. Cloud Technologies are mostly virtualization environments. Aspirants seeking to make good in the Cloud need to be adept in networking and virtualization and gain hands-on exposure with live deployments. Candidates can also experiment with their Cloud Technology Skills on few websites that offer lab infrastructure such as Azure, AWS and Google Cloud among others.

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Sentimental Analysis of Twitter Data

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Abstract
Today, the world is rapidly heading towards the digital lifestyle. The data volume is getting larger and larger day by day. The solution for this problem can be resolved with the help of latest technology called as "Hadoop". The data can be stored, processed, analyzed and later the results can be visualized. Here, in this paper, we are studying to fetch real time data from a social networking site, i.e. twitter and then store it in Hadoop distributed file system. Later the data can be analyzed and visualized in the form of bar graphs and pie charts. This data can be used by various organizations to predict the response of any product. Also storing the data in secure environment will be an easy approach.

Keywords: Big Data, Hadoop, Sentimental Analysis, Twitter Data, HDFS, Map-Reduce

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INTRODUCTION

In the time of PC innovation, today we have achieved a phase where the information worried about consistent schedule exercises is expanding quickly. The information volumes are detonating, the information made in most recent two years has surpassed the information which existed since the beginning of time. Information is expanding so quickly that following 2 years from today, 1.7 mb of information will be delivered each second for each person. Additionally, the information delivered should be put away some place for future references or basic leadership. This information all in all is named as "BIG DATA".[1]

Big Data

"**BIG DATA** is considered as extremely large data sets that may be analysed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions." [2] Here comes into action a new technology called as Hadoop.

Apache Hadoop

"**APACHE HADOOP** is a collection of open-source software utilities that facilitate using a network of many computers to solve problems involving massive amounts of data and computation." [3]

Sentiment Analysis

Sentimental Analysis is also known as opinion mining. As the name itself suggests, analysis of sentiments refers to classifying the sentiments of people which they express through the opinions they share on twitter and other such platforms, into the positive, negative or neutral opinions. These tweets when classified are helpful for arriving on many decisions in the particular field.[4]

Twitter Data:

Twitter, one of the biggest online networking web page gets tweets in millions consistently in the scope of Zettabyte every year. This colossal measure of crude information can be utilized for modern

or business reason by sorting out as per our necessity and handling. Likewise, it has less intricate information which makes it less demanding to be utilized.

HDFS:

Hadoop Distributed File System (HDFS) is a distributed record framework which keeps running on ware machines. It is exceedingly blame tolerant and is intended for minimal effort machines. HDFS has a high throughput access to application and is appropriate for applications with vast measure of information. HDFS has a 1 ace server design which has a solitary namenode which directs the filesystem get to. Datanodes handle read and compose demands from the filesystem's customers. They additionally perform block creation, deletion, and replication upon instruction from the Namenode. Replication of information in the filesystem adds to the information trustworthiness and the power of the framework. [5]
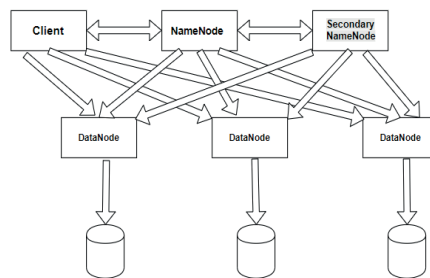
Figure i

Information replication improves the situation accomplishing adaptation to internal failure. The substantial information group is put away as an arrangement of blocks. Block size and the replication factor are configurable. Replication factor is set to 3 by default which implies 3 duplicates of similar information block will be kept up at once in the group. [6]

- **NAMENODE**

    It acts as **Master** in the cluster. Namenode stores the meta-data which includes blocks, number of replicas and other details. Meta-data exists in the memory space of master node. NameNode is also used to assign tasks to various slave nodes. As, it is the heart of the HDFS, therefore it must be deployed on some reliable hardware.

- **DATANODE**

    It acts as a **Slave** in Hadoop. In Hadoop HDFS, DataNode is used for storing and preserving the actual data. DataNode also performs all the operations like read and write as requested by the clients. DataNodes can also be deployed on commodity hardware.

- **SECONDARY NAMENODE**

    It is mainly responsible to accept the checkpoints of metadata of the Hadoop file system present on namenode. It is not exactly the backup of namenode, but it acts as a helping hand to the primary NameNode. It can not replace the primary namenode in general situations.

- **RESOURCE MANAGER**

    It is another component or process of cluster level which works on the Master machine. It manages all the resources and also it schedules the various applications which are running on the top of YARN. It has two components: Scheduler & Application Manager.

- **NODE MANAGER**

It is a node level component. Node Manager works on each and every slave node and maintains a communication with resource manager to manage the working taking place in slave nodes. [7]

Hadoop Mapreduce:

It is the information handling layer. It is the structure for composing applications that procedure the immense measure of information put away in the HDFS. MapReduce forms a tremendous measure of information in parallel by partitioning the activity into an arrangement of autonomous assignments (sub-work). In Hadoop, MapReduce works by breaking the preparing into stages: Map and Reduce. [8]

MAP – It is the primary period of handling. In which we indicate all the complex logic code. The map takes an arrangement of information and changes over it into another arrangement of information. It likewise breaks singular components into tuples (key-value sets).

REDUCE – It is the second period of preparing. In which we determine light-weight handling like summation. The yield from the map is the contribution to Reducer. At that point, reducer consolidates tuples (key-esteem) based on the key. And after that, alters the value of the key as needs be. [9]

BRIEF DESCRIPTION

About This Paper

In this paper, we will execute a framework in Hadoop which investigates twitter information where cluster of nodes will be formed. Twitter information is in the form of comments which are only sentiments of individuals. This information will be gathered by utilizing Twitter API. The information stream will be overseen by a product called as NiFi. Further, the information is dispersed in different pieces and put away in Hadoop conveyed document framework i.e. HDFS. After the capacity of information happens, hive querries written in mysql can be actualized on the put away information to break down the information and get the outcomes. By examining this information, our framework will give yield as positive, negative and neutral tweets. This information can be utilized further as indicated by specific application. Also, this broke down information can be spoken to as pie-outlines or structured presentations and so on. [10]

Motivation

Today we are living on the planet which is encompassed by 99% of information. There are distinctive microblogging destinations where clients express their perspectives about various items. These perspectives are only suppositions of individuals and it will go squander in the event that it isn't utilized in legitimate route so there is a need to utilize sentiments of individuals in enhancing efficiency, convenience, usefulness of specific item or application or strategy or any amusement asset. Consequently, there is a need to build up an item which can dissect feelings of individuals. This item will be helpful in expanding market estimation of businesses and additionally fulfill necessities of clients.

Why Twitter?
- Popular microblogging site.
- Short Text Messages of 140 characters.
- 240+ million active users.
- Users discuss current affairs and share personal views on various subjects.
- Tweets are small in lengths and hence unambiguous. [11]

Future Scope

Right now, the code can deal with the investigation part with a decent precision. In any case, there are a couple of territories which have a considerable measure of extension in this angle. Sarcastic remarks are the ones which are extremely hard to recognize. Tweets containing mocking remarks give precisely inverse outcomes attributable to the mentality of the creator. These are relatively difficult to track. Likewise relying upon the setting in which a word is utilized, the understanding changes. For ex: the word 'unpredictable' in 'unpredictable plot' in setting of a land plot is negative while 'unpredictable plot' in setting of a film's plot is certain. In this way, it's critical to relate the interpretation with the setting of the tweets. Likewise, the utilization of local dialect joined with English use is hard to translate.

Need Of Sentiment Analysis

Sentiment analysis is of extreme use in social media handling as it enables one to gain an overview of the wider range of public opinion on crucial matters. These tools make the phenomenon faster and easier than ever before. The area of application of opinion mining are broad and powerful. The ability to extract out the thoughts from social data is a something that is being widely accepted by organizations all over the world.

General Modules

The basic modules of the paper are,
1. Content Retrieval: The data is collected using Twitter API.
2. Data Flow Management: A software called as NiFi is used to manage the data flow from twitter to the HDFS system.
3. Storage: This data is stored HDFS: Hadoop Distributed File system satisfying the constraints.
4. Data Analysis: The output obtained from the reducer phase is analysed.
5. Data Representation: Data is visualized in the form of pie charts or bar graphs etc.
6. At the end we will get the outcome in the form of classified tweets that is Positive, Negative and Neutral tweets. [12]

Terminologies: Tokenization, Sentiment Classifier

a. TOKENIZATION:
Every word is considered as token in the input. This is the tokenization process. For example, '@June This is a wonderful bike!' is broken down into individual tokens such as '@June', 'This', 'is', 'a', 'Wonderful', 'bike'. Hashtags, abbreviations, and emoticons are considered as individual tokens. Each token i.e. word in a comment or message is separated by a space. Thus, on detecting a space, token is identified.

b. SENTIMENT CLASSIFIER:
The tweets are then classified into three different categories based on the polarity from -1 to 1.

- Positive Tweets:
    Tweets which show some positive response towards some matter are considered as positive tweets. For example, tweets such as —It was an inspiring movie!!! or —Best movie ever.
- Negative Tweets:
    Tweets which show some negative response towards some matter are considered as negative tweets. For example, tweets such as —Waste of time or —Worst movie ever.
- Neutral Tweets:

Tweets which show some neutral response towards some matter are considered as neutral tweets. It also includes tweets which are facts or theories. For example tweets such as —Earth is round.

This helps in getting overall point of view of the people which are regular users of social platform. The response can be predicted easily and certain steps can be taken in benefit of the organisation.[13]

System Architecture

Figure ii
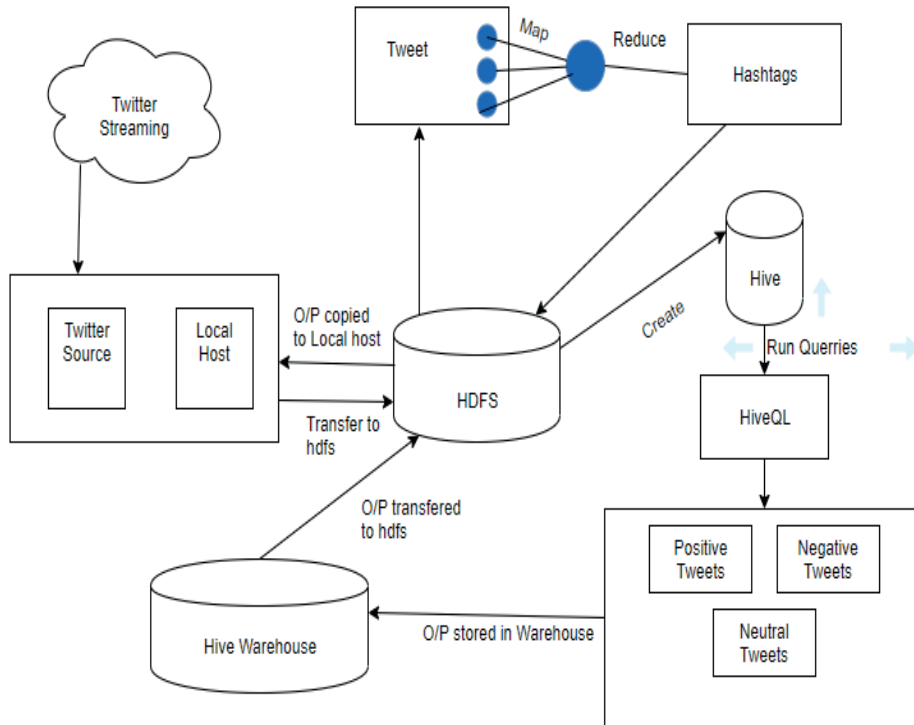
Software Development Life Cycle

AGILE MODEL is being followed for this paper .

In Agile, the tasks are divided to time boxes (small time frames) to deliver specific features for a release Iterative approach is taken and working software build is delivered after each iteration. Each build is incremental in terms of features; the final build holds all the features required by the customer.
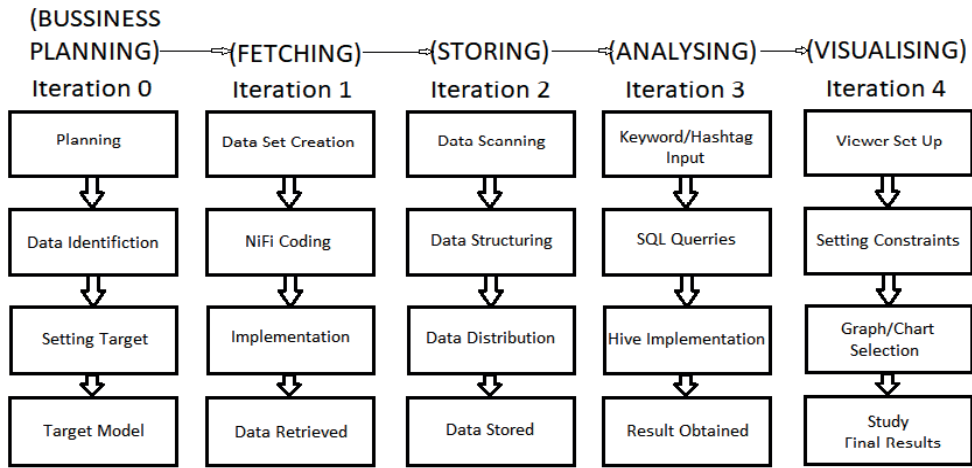
Figure iii

CONCLUSIONS

This undertaking will give us hands on involvement of taking care of and parallel preparing of colossal measure of information. Information accumulation process will acquaint us with twitter spilling API. We will motivate introduction to work with noticeable parallel information handling device: Hadoop. Apache Hadoop system is increasing huge energy from both industry and the scholarly world as the volume of information to break down development quickly. This task will help us not exclusively to pick up learning about establishment and arrangement of hadoop dispersed record framework yet in addition outline programming model. Among the numerous fields of examination, there is one field where people have commanded the machines more than any – the capacity to dissect feeling, or opinion investigation. The eventual fate of this information examination field is huge. This task investigations the estimations of the client as well as processes different outcomes like the client with most extreme companions/adherents, top tweets and so on. Henceforth, hadoop can likewise be successfully used to figure such outcomes with the end goal to decide the current patterns regarding specific subjects. This can be exceptionally valuable in the showcasing area.

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Green marketing - An innovative marketing tool

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Abstract

The concept of marketing started to dominate all business houses during 1950s and this domination continues till date. In initial phase of marketing the focus area was to produce the efficient goods for customers without analyzing their current need. The aim to do so was to attract more and more customers toward the product, but with passage of time a drastic change has been observed in concept of marketing. According to new marketing philosophy "a market should make what it can sell, instead of trying to sell what it has made". In simple words the new marketing concept is customer centered. The customer creating, keeping and satisfying has became the primary objective of every marketer as this help the organization in achieving the aim of persistent growth by attracting more customers. In order to achieve larger market area a new concept of marking is also introduced known as "Green Marketing".

Green marketing focus on producing eco-friendly product that are pollutant free and safe from ill hazardous effect and because of such trades it has become one of the most popular types of marketing from early 1990's to till date. Green marketing approach has become successful in attracting a lot of customers from various segments of society. This paper tries to explain the new innovative marketing concept known as Green marketing. Moreover paper also tries to highlight the opportunities and challenges that are associated with green marketing in current scenario.

Keywords: Green marketing, green product, Eco-friendly, pollutant free, opportunities and challenges .

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INTRODUCTION

In today's era of globalization the marketing environment is of dynamic nature as the result of which it become mandatory for every business houses to maintain competitive advantage of their products over the other companies' products. In order to do so a continuous research is needed to be done about the latest market trends and demand of customer so that the customer ever changing demand can be meet on time by production houses. A sudden change has been analyzed in today's customer buying behavior, as now customers are concern about the product's impact on environment and prefer to buy those products which are environment friendly. The basic reason behind this change is the customer's awareness towards environmental issues like rapid climatic changes, global warming and alarming increase in air and water pollution. As the result of this an encouragement is given to environment friendly innovations and schemes. Green marketing is one of such practice which is followed by most of the organization as it not only meet the customer's demand of environment friendly products but also help in earning a competitive edge to the company over its competitors with the support of huge customer base.[1]

Usually people consider the expression like "recyclable", "biodegradable", "organic", "environmental friendly" or "100 percent natural" as basic components of green marketing but in actual Green marketing comprises of number of exercises that are intended to encourage the production of goods and services which satisfy the necessities of the customer and along with it create least adverse effect on natural environment. In simple words green marketing refer to all those activities which causes least harmful effect on natural environment, the list of activities that are incorporated under this head are alteration in the product design, making changes in manufacturing and packaging process of goods, additionally altering promotions techniques and evacuating of any movement that effects nature adversely. It's not an easy task to define the term "Green marketing" as no exact meaning is coined till date which can give an accurate explanation of the term "green" in field of marketing. However there are certain trade of the goods and services which help in assuring whether the product should be listed under the head of green product or not. Once the product is termed as eco friendly or green product then the method used on marketing of such product is termed as Green Marketing.

ORIGIN OF GREEN MARKETING

The term green marketing came into existence in late 1980's and early 1990's. In 1975 The American Marketing Association (AMA) conducted the first workshop on "Ecological Marketing" and later on the proceeding of this workshop was published in a book and first books on green marketing was entitled as "Ecological Marketing" came in

to market. The AMA workshop attempted to fetch together the academics, practitioners, and public policy makers to inspect the impact of marketing practices on the natural environment. This workshop defined the ecological marketing as: the study of the positive and negative aspects of marketing activities on environment, like pollution, energy depletion and non-renewable sources depletion. [2]

DEFINITION

American Marketing Association defines green marketing as "marketing technique used for selling those products that are supposed to be environmentally safe." The term green marketing consist of wide range of activities which comprises of modification in production process, modification in product, changes in packaging, as well as up gradation in promotion techniques.

CHARACTERISTICS OF GREEN PRODUCTS

The products which are produced by using eco-friendly or green technology are termed as Green Products. The essential feature of green product is that, it does not create any negative impact on the environment. Other characteristics of green products have following:-

I. Products those are grown originally.
II. Products those are recyclable and reusable.
III. Products with natural ingredients.
IV. Products which are having recycled contents and non-toxic chemical elements.
V. Product content under approved chemical.
VI. Product that do not harm or pollute environment.
VII. Products that will not be tested on animals.
VIII. Products that have eco friendly packaging.

LITERATURE REVIEW

Sachdev (2011) analysed in his research that most of Indian customers were not clear about the benefits of green product and more over there is no legal authority that can certify environmental claims that are made by manufacturers is true or not. [3]

Mohanasundaram (2012) examined in his reseach that major reasons because of which an organization adopt green marketing philosophy were social responsibility, govt pressure, competitive pressure and cost reduction.[4]

Cherian & Jacob (2012) determined in their study that there is a significant relationship among the consumer attitudes and green marketing. [5]

Singh (2013) research shows that there is high need to bring awareness among Indian consumers about the green marketing. And this can only be done with the association of NGO's and govt. Researcher also focus on price concept and focus on developing an appropriate and affordable technologies to achieve wider acceptance of green products that will make a significant impact on the environment protection.[6]

OBJECTIVE OF STUDY

1. Paper explains the concept of green marketing.
2. Paper also explains the significance and everyday use of green marketing.
3. To study the opportunities and challenges of green marketing

RESEARCH METHODOLOGY

The research used in this paper is of exploratory nature. The secondary data is collected from review of various researchers' literature, books, journals, websites and other reliable sources.

SIGNIFICANCE OF GREEN MARKETING

The term Green Marketing simply means the marketing of those products which are environmentally safe. Green marketing not only on product but it focuses on entire process of product, starting from selection of raw material to promotion of product. The motive behind doing this is to see that the product is made of organic raw material and the process used to convert the product from its raw stage to finished must not include any such element that adversely affect the environment in any manner. In today's era the problems like environment pollution, contamination in

drinking water and use of artificial synthesizer in fruits, vegetables and milk are increasing at an alarming rate the only solution which can give a permanent solution to these problem are Green marketing. The basic reason behind these environmental problems like adulteration and deterioration of product an environment is having limited resources but unlimited human needs. Here, the words of nation's father Mahatma Gandhi can be rightly quoted, "There is enough on earth for everybody's need, but not for everyone's greed." Thus, this created an immediate need to switching over green products and serve quality to the consumers in the products.

GREEN MARKETING IN EVERYDAY LIFE

One of the basic assumptions of green marketing is that the potential consumers search for "greenness" concept in their desired product or services and sees it as an add-on benefit and base upon this they make their buying decision. Some of the examples are listed down from our day to day lives-

- Use of digital transactions in banking and financial services, and use of electronic printing media to save paper and save trees.
- Use of air conditioners with five star-rating and CFL/ LED lighting to reduce the power consumption
- Discouraging the use of plastic bags and using bio-degradable bags instead of it.
- Supporting Green plantation within the working place.
- Tata Consultancy Services (TCS) has a globally recognized Sustainability practice and has already topped in the World's as Greenest Company, due to their continuous initiative of creating technology for agricultural and community benefits.
- Indusund Bank is one of the first banks in India to discourage the use of paper for the counterfoils in ATMs, and instead sending electronic messages. It has contributed a lot towards saving paper and thereby reducing deforestation.

Today's consumers are more conscious about the safety and protection of environment and have turn up as socially responsible. Therefore, many companies are seeking responsibility to consumers' aspirations for environment friendly or neutral products. The companies also wish to have an early-mover advantage as they have to eventually move towards becoming green.

BENEFITS OF GREEN MARKETING

There is numerous advantage of green marketing some of them are listed below and they are.

- Green marketing helps companies to attract more customers and give access to company over new target markets and enjoy a competitive advantage over the companies which are not concerned about environment.
- It ensures sustainable long term growth and profitability with innovative and improved product and service.
- It saves money in the long run, although initial cost is more.
- It motivates the employees, by inculcating a sense of pride and sincerity to be working for an environment conscious company.
- It generates positive public relation with the community at large.
- It promotes corporate social responsibility, which is also a prime agenda of the Government

CHALLENGES IN THE FIELD OF GREEN MARKETING

1) **Need for standardization**: in actual there are only 5%of marketing messages are exclusively true and are from the 'Green' company. The lack of standardization is one of the biggest problem as it become difficult for customers to understand that whether the companies making claims of producing green product is true or not . Moreover no specific standard has been specified in order to certify that the product is green or organic. Therefore there is immediate need of creating a regulatory body which can set a criteria and standard which can further help in classifying the product as green or not.

2) **New concept:** Green marketing is new concept for countries like India though educated and urban consumers are aware about the benefits of the green products to some extend but in rural area the awareness regarding this concept is still very low. Addition to all this, the available literature is also very less. Therefore a need is felt to educate the Consumers and made them aware about environment concepts .The new green movements will take time and effort to reach the masses. By India's ayurvedic heritage, the consumers are convinced for using natural and herbal products. A big shift is seen in today's consumer as they have stated practicing healthy living lifestyles such as yoga and natural

food consumption but still a large section of society is not understanding the importance of this concept because of lack of awareness. [7]

3) Patience and Perseverance: The investors and corporate need to understand that producing environment friendly product is a major and long term Investment project. The level of opportunities is very large but the marketers need to maintain patience and look at the long-term benefits from this new green movement as no immediate results is guarantee in this investment. Since it is a new concept and idea, it will have its own acceptance period.

4.) Some other Challenges

1. Green products require renewable and recyclable material which is costly.

2. Requires a technological up gradation, which requires huge investment in R&D.

3. Water treatment technology is needed and it is too costly.

4. Level of awareness about green products and their uses is very less among people.

5. As price of green product is comparatively high as compare to other products so most of the people are not ready to pay a premium for green products

OPPORTUNITIES IN THE FIELD OF GREEN MARKETING

It seems that all types of consumers, whether individual or industrial are becoming more anxious and aware about environment safety and maintenance. In 1992 study of 16 countries, more than 50% of consumers in each country other than Singapore indicated they were concerned about the environment (Ottman1993)[8]. A study in Australia found that 84.6% of the sample believed all individuals had a responsibility to care for the environment. A further 80% of this sample indicates d that they had modified their behavior, including their purchasing behavior, due to environment reasons (EPA-NSW1994). As demand of customer has started shifting from non green product to green product many firms has start seeing these shift as an opportunity to be exploited. By having a view on these figures it can be easily seen that the firms marketing goods with environmental characteristics will soon enjoy a competitive advantage over other firms which are dealing in non-environmentally friendly product.

There are many examples of firms which are come up and taking an initiative for becoming an environment responsible company and are now successfully satisfy their consumer needs in much better way.

• McDonald's replaced its clam shell packaging with waxed paper because of increased consumer concern relating to polystyrene production and Ozone depletion [Gifford 1991, Hume 1991].

• Tuna manufacturers modified their fishing techniques because of the increased concern over driftnet fishing, and the resulting death of dolphins [Advertising Age 1991].

• Xerox introduced a "high quality" recycled photocopier paper in an attempt to satisfy the demands of firms for less environmentally harmful products.

• Coca-Cola pumped syrup directly from tank instead of plastic which saved 68 million pound/year.

• Badarpur Thermal Power station of NTPC in Delhi is devising ways to utilize coalash that has been a major source of air and water pollution.

• Barauni refinery of IOC is taken steps for restricting air and water pollutants.

This is not so that all firms which are calming of practicing environmental marketing activities are actually improved their behavior. It has been seen in some cases that the firms have misled consumers and attempt to gain market share just using the word "green" with their product name. In other cases firms have jumped on the green bandwagon without considering the accuracy of their behavior, their claims, or the effectiveness of their products. This lack of consideration of the true "greenness" of activities may result in firms making false or misleading green marketing claims. [9]

COCLUSION

With the help of social media, the concept of Green Marketing has got lot of recognization and because of which it grown wildly. The aim behind this idea is to provide customer the health benefits of each product. Green marketing is still in its growth stage and a lot of research is yet to be done on it. As there is necessary need to explore its potential keeping in mind the economic aspect of marketing. A need is felt to identify and concentrate over the promotion of green goods. The need of awareness is more in younger and affluent members of the population as they are the future customer for these products. Green marketing assumes even more importance and relevance in developing countries like India. Green marketing refers to the marketing where ecological issues are the focus while taking any vital

marketing decision. The effective green marketing requires applying of good marketing principles in order to make green products according to the desirable need and wants of customers.

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A Study on the Potential of E-Commerce in Agriculture Domain in Uttarakhand

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Abstract—*The study undertakes a review of basic and contemporary literature available and tries to explain E-commerce Potential in agribusiness. This paper explains that E-Commerce can be proved as a game changer particularly in agriculture domain. It also gives emphasis on how E-Commerce act as a way forward for monetization of Farmer's produce. Shaking hands with Geoinformatics, data mining and web mining provides thrust to Agribusiness Market intelligence.*

Keywords: Agribusiness, E-Commerce, Geoinformatics, data mining, web mining Market intelligence

1. OVERVIEW

1.1 **Agricultural Domain**: Agriculture is an important sector to fuel in economic growth. Certainly it needs to be more significant and attractive. By creating necessary framework for strengthening the entire agriculture value chain, the Government of India will not only help to improve socio-economic condition of the nation's farmers but will also enable Indian agriculture to become economically profitable ,eventually leading to more inclusive development.

1.2 **Trends of E-Commerce in Uttarakhand:** Electronic commerce (E-Commerce) is buying and selling of goods and services on the Internet. Using E-Commerce, organization can expand their market to national and international markets with minimum capital investment. An organization can easily locate more customers, best suppliers and suitable business partners across the globe [3]. It is true to say that an organization can easily locate more customers, (steep areas of uttarakhand cannot be an obstacle) best suppliers and suitable business partners across the globe with the help of Geographical Information System technology and Data mining incorporated in E-Commerce.

2. OBJECTIVES OF THE STUDY

2.1 To analyse the E-Commerce Potential and trends and recognizing agriculture as an enterprise

2.2 E-Commerce as a way Forward: Monetization of Farmer's produce.

Data mining, is referred to as knowledge discovery in databases (KDD).Web Mining use data mining techniques to fetch array of information from the web documents like hyperlinks server logs etc. The basic objective of Web mining is to generate information.
In order to become market leaders and maximize their Return on Investments (ROI) ecommerce ventures should aggressively use data mining to generate web intelligence and that will provide them with a better insight into their customers. Data mining will help companies in measuring all important metrics and thereby plan their strategies for better performance [8]. Hence, with the help of web intelligence we can achieve a vast array of customers for agribusiness.

3. LITERATURE REVIEW

E-Commerce in agriculture could potentially tighten the supply chain and facilitate better and efficient marketing .It reduces transaction costs and hence offer substantial benefit to smaller, local producers as well as local agribusinesses. It enables a vast array of products to be transacted, usually at a price that is competitive with local retailers [4]

A large volume of literature is available on the concept of applying E-Commerce technology in agriculture sector. Studies were made on marketing agriculture produce through ICT or E-Commerce advancement in line with agribusiness. A brief view of relevant literature is done below.

Dariusz Strzębicki analyzed the role of E-Commerce in agriculture marketing. "The analysis was conducted on

the example of Poland, a country with a specific structure of the agricultural market. Also, farmers may use electronic commerce in order to strengthen their position. Electronic commerce offers great opportunities for collaboration and joining forces by farmers. An example is the electronic consortia owned marketplace of beef called Wołowina Sudecka. It was created by cattle ranchers, who thanks to this electronic marketplace and their own slaughterhouse sell to food industry enterprises and consumers avoiding intermediaries" [6].

The contribution of agribusiness industry to the economy is significant. The fact that agricultural products require accurate, well-timed information and the distribution of the producer (farmer) and buyers (Traders and consumers) over a large geographical area has made agricultural sector lucrative field for e-commerce intervention [9].

4. E-COMMERCE POTENTIAL: RECOGNIZING AGRICULTURE AS AN ENTERPRISE

E-Commerce has a great potential and definitely will be an upcoming sector in coming years. E-Commerce wings are spreading not only to urban regions but its presence has now been felt in rural areas too. Certainly the rural areas are not untouched with its glamour of E-Commerce. E-Commerce has a significant role to play in forthcoming time. It will act as a game changer particularly in agriculture domain. The beauty of E-Commerce will be reflected in the form of wide market coverage .The seller can also have better reach to vast number of customers easily.
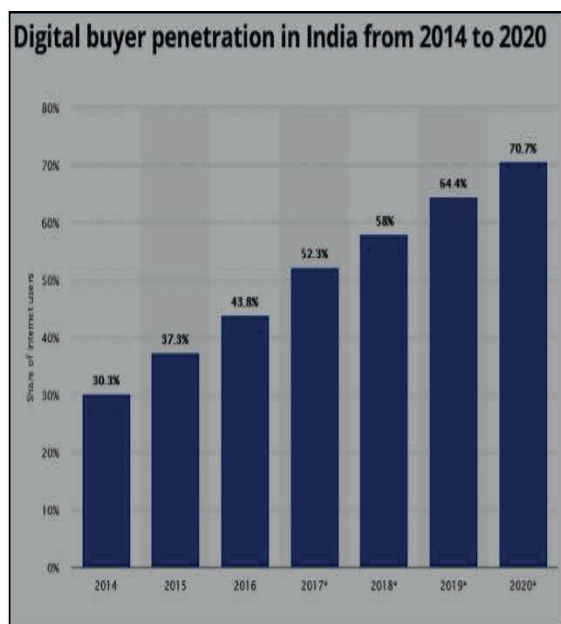
Figure 1. Digital buyer penetration in percentage (Source: statista 2018)

The above statistics gives information on the digital buyer penetration in India from 2014 to 2020. In 2016, 43.8 per cent of internet users in India had purchased products online. In 2019, this figure is expected to grow to 64.4 per cent [1]. With the establishment of the Software Technology Parks of India (STPI) earth station at Dehradun now offers high-speed connectivity. There are more such earth stations planned at other locations. Facilities by BSNL and Reliance are also available in the state [2]. As more people are buying smart phone, tablets and they have easy access to internet and 4G.

5. E-COMMERCE AS A WAY FORWARD: MONETIZATION OF FARMER'S PRODUCE

E-Commerce is a way forward to convert the simple farmers in to smart farmers. In fact it provides a big transformation to the agriculture sector. It alters the whole marketing channels and shifts the profitability towards producer/farmers. For e.g. Figure 2.2 A simple calling Mobile can be converted into smart mobile phone by incorporating android technology. Android technology has provided millions of applications to a simple mobile phone and enhances the speed to manifold. In similar way, Figure 2.1, the new ICT technology like E-Commerce, Web mining etc in agriculture sector offers substantial opportunity to further speed up the agribusiness sector.
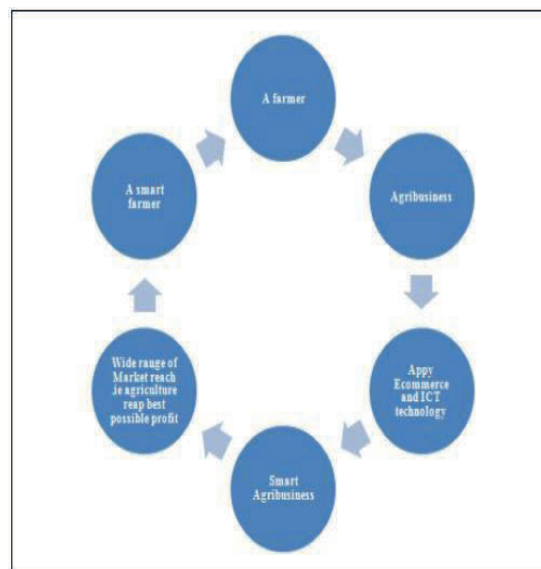
Figure 2.1 Conversion Process from simple Farmer to Smart Farmer

The time in fact has arrived to move forward from traditional way of agribusiness to technical way of tackling agribusiness. Many researchers has emphasized on application of E-Commerce in agriculture to maximize the farmers profit. For eg, Application of advance technology in marketing in the form of E-Commerce motivates the farmers to sell their produce in a wide market, unlike before. Web Mining is used to discover the common traits of customers which can be used for business intelligence to improve the agribusiness. The combination of server logs and cookie log also helps in web mining .

With the establishment of e-commerce sites will not only help in sales of agricultural related products but will also help in constructing a model with can be implemented in many parts of the country.

It will help set up a base model which can be tweaked accordingly when needed.[9]
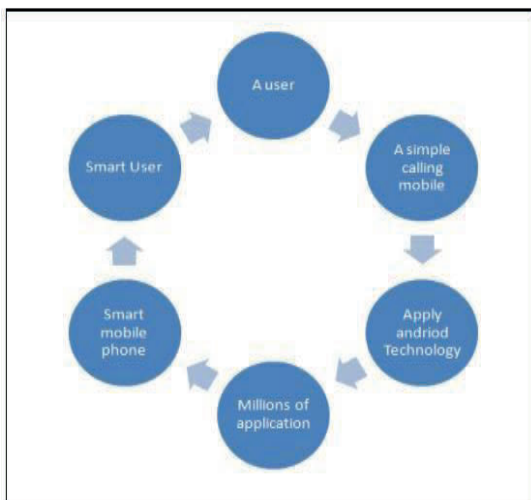
Figure 2.2 An example of conversion from simple   mobile Phone to Smart Phone

ICT based E-Commerce opens a new door of huge market for the farmers. Farmers hence get a better opportunity to be acknowledged by various customers from different areas. Sky will be the limit for the farmers in agribusiness. A majority of agribusinesses survey related to present study indicates that there are upcoming changes in agribusiness sector and E-business & E-Commerce is adopted on large scale. While about half of businesses have taken a proactive stance to E-Commerce by setting up a website or buying and selling products online, the other half have more or less decided against the Internet as a tool in their business despite the fact that an Internet presence is likely to be necessary in the future[4].

| SNo	District	Principal Markets
1	Nainital	1-Haldwani
		2-Ramnagar
2	Udham Singh Nagar	3-Rudrapur
		4-Kashipur
		5-Jaspur
		6-Sitarganj
		7-Nanakmatta
		8-Khatima
		9-Kichha
		10-Gadarpur
3	Champawat	11-Bazpur
		12-Tanakpur
4	Dehradun	13-Dehradun
		14-Vikashnagar
		15-Chakrata
		16-Rishikesh
5	Haridwar	17-Manglore
		18-Lakshar
		19-Haridwar Union
		20-Roorkee
		21-Bhagwanpur
6	Paudi	22-Kotdwar
7	Chamoli	23-Karanprayag
8	Uttarkashi	24-Uttarkashi
9	Tehri Garhwal	25Tehri Garhwal
10	Almora	26-Almora
11	Pithoragarh	27-Pithoragarh

Table1.1 Uttarakhand Principal Market

Source: Uttarakhand Agricultural Produce Marketing Board (UKAPMB)

6. GEOINFORMATICS APPLICATION

With the help of GIS (Geographic Information System) technology, geodata (geographic reference such as longitude or latitude or X/Y) can be stored and can be made available globally using internet. GIS can be an efficient tool in agriculture sector to give new dimension to farming system. This will help the farmers to increase the agriculture production and ensuring them to continue agriculture as one of the significant livelihood option.

Moving towards E-Commerce, GIS can also be used for managing agribusiness information based on its location. GIS can keep a track on the location of buyer and seller. The seller will be having a worldwide market for their harvested produce. Likewise the buyer will be having many options to purchase the produce. Hence the use of geoinformatics will be a key tool in providing thrust to agribusiness.

The spatial data infrastructure (SDI) has for long been developed as a network for GIS data access. As a result the GIS data, in distributed and heterogeneous databases are readily accessible and sharable. Increasingly, traditional spatial data infrastructure fails to fully meet the needs of emerging markets. In order to meet the demand for lean enterprises, evolving E-Commerce activities and rapid gravitation towards Internet GIS, all compound to motivate the concept of a novel service-centered infrastructure that enables delivery of geoinformation and GIS services of varying complexity. Now days the partnership of public and private

institutions, working in the GIS market is emerging as a new business model to meet GIS market needs. [5]

GIS data can be fetched through android programming, thus automatically gets stored in the database remotely situated.

7. CONCLUSION

The study shows that the use of Web Mining, Data Mining and Geoinformatics is a key tool in providing thrust to agribusiness, and application of advance technology in marketing in the form of E-Commerce motivates the farmers to sell their produce in a wide market, unlike before. ICT based E-Commerce opens a new door of huge market for the farmers. Farmers hence get a better opportunity to be acknowledged by various customers from different areas.

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Relationship of Adolescents with Family and Impact of family Composition on their Decision making

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ABSTRACT

Adolescence is portrayed by huge mental, intellectual and socio emotional growth. With the development of teenage years, the measure of time went through with guardians normally drops while time went through with associates escalates impressively. In any case, guardians keep on assuming a key job in improving their undeveloped behaviour. Adolescent Parent connection substantially affects intellectual, social and sensitive conduct. Protected connection with adolescents is related with less involvement in vulnerable practices, lesser emotional and social issues, and upgraded social abilities and adapting activities. It outlines the effect of connection of parents on adolescent modifying behaviour and examines strategies for supporting sound juvenile parent connection. The paper additionally gives a short analysis of the effects of family composition and family change on adolescent decision making. It takes as a beginning stage the presence of inescapable relationship between family change and teenager's decision and addresses a scope of issues that are analyzed in the reviews of literature. Study will moreover examine the Adolescent decision making are influenced by family structure and by modifications to the family unit coming about because of influence of Fathers, Grand Parents, marriage, separations, demise, mother's educational skills, working status of mother and various different situations. Modifications in family structure amid early adolescence can result in unreliable connections and uncertainty in family functioning, and family connections, regarding conduct. These changes can impact psychological growth and can lead to poor scholarly execution. Paper also describes that it exerts influence on adolescents decision making in different stages.

Keywords: Adolescence, Parent Connections, Family Composition, Family Modifications, Adolescent Decision making.

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INTRODUCTION:

Pre-adulthood is progressively perceived as the second real 'porthole' of prospects and perils in growth, subsequently in implication to growth of children. It is a time of physical, intellectual and social transition of high degree and speed that it is nothing unexpected to find that it is related with the beginning or intensification of various wellbeing related concerns including distress, dietary problems, substance misuse and trust, perilous sexual conduct, isolated and criminal doings and education withdrawal. Now-a-days, the job of family impact in juvenile change has been truly addressed. Influence of parent attachment on youngsters have been addressed in addition to few strategies or mechanism that parents can execute to build a rapport with adolescents, which further leads to sensible development in their behaviour. A few specialists have contended that guardians have practically no effect in how their kids explore the immature period, indicating rather information demonstrating that peer control this period. In spite of this situation, there is accepting proof that guardians have substantial effect, and that this effect works in the form of their connection link with their teenagers. This is actually been addressed as 'Protected Bonding' with the parents. This connection or bondage leads to reduced mental strain, psychological issues, and physical problems and rather adds on to the healthy upbringing and behaviour of teenagers with positive outcome.

In the recent times, lot of research work has revealed the effect of family composition and family alterations on adolescent growth. This writing reports a collection of proofs that youngsters brought up in different family circumstances show differential exemplars of reaction over an extensive array of decisive aspects. Pre Adulthood or Adolescence is characterized with cognitive social and intellectual maturity thus making them capable of taking decisions. [1] The influence of family members in terms of role of fathers, mothers and grandparents is critical on the behaviour of adolescents. Specifically, teenagers brought up in single parent families are exhibited, to perform not that well on parameters of growth in comparison to their companions in complete parent families, while parent's partition has been observed to be related with a variety of unfriendly results for youngsters. Studies also reveal the fact that teenagers brought up with single parent or mother leads are somehow negatively affected in their growth and development.

The research inspects a scope of issues that are framed in the review of literature. It takes as a beginning stage the presence of significance of family composition, inescapable relationship between family alterations and adolescents' decision making and analyzes a scope of inquiries that pursue from this, for instance, the effect of family modifications in terms of cultural rules of family, educational pattern of mother or single mother, working status of mother, her attitude on adolescent outcomes together with the socio economic background of families is

also to be considered if high socio economic background can compensate for negative outcomes of single mother on adolescents and could affect their decision making.

LITERATURE REVIEW:

Behrman, et al, (2018), analyzed the research on "**Family structure and child development in Chile: A longitudinal analysis of household transitions involving fathers and grandparents",** with the mindset that**,** the huge part of kids in Chile that encounter natural father and, ancestor family changes, and check if these advances are related with youngsters vocabulary and conduct and if earning could be a system behind discoveries. Techniques used are the application of initial-contradictions and secondary variable study to a huge, broadly delegate, longitudinal study of more than five thousand Chilean children. It was revealed that youngsters whose moms isolated from their folks' homes inside the two years between two study rounds have more terrible age-standardized Test ratings than youngsters in family units without such changes. Alterations in earnings don't clarify the affiliations. At the point when fathers included in family units between the two research phases there is a increase in earnings however no affiliation between dad inclusion and adolescents ratings. Essentially, there is no noteworthy relationship between dads isolating from the family and adolescents, however father takeoff is related with lower salary. These discoveries give proof that grandparents refines   dialect   improvement   while interacting with their grandkids and that dads are an imperative base of family income. The study further looks at dads and ancestors at the same time and that is being considered in terms of shifts from inside or outside house of natal father.

M.Amullaya, and Anbarsooz Marjan (2014), conducted research on "ADOLESCENT INFLUENCE ON FAMILY BUYING DECISIONS MAKING-IN INDIA". The adolescent group is developing quickly and employs noteworthy purchasing power. With this gigantic teenager market, advertisers should better comprehend adolescents buying effects. Furthermore, this research assesses family and companion outcomes on teenager buying choices by applying societal control models, which has not been analyzed in the youngster setting.[2] The applied model analyzes how family cultural policies may affect adolescents' view of societal dominance from guardians and companions. For instance, family interaction pattern may escalate youngsters' dependence on specific aspects of societal control. This paper additionally inspects the connection between the aspects of supposed social influence and the buying of various kinds of items outcomes are majorly reliable with expectations, exhibiting that teenagers from high socio-inclined atmosphere are liable to high predicted companion return and referent power, while youngsters from high intellect inclined atmosphere exerts more prominent family and genuine power

Moore Kristin A., Andrea Kinghorn , (2013), examined the research titled "PARENTAL RELATIONSHIP QUALITY AND CHILD OUTCOMES ACROSS SUBGROUPS". The study focuses that various research have discovered connections between the nature of the guardians' relationship and positive results for kids and families. Still almost no exploration has inspected whether this affiliation clutches crosswise over different populace subgroups, particularly among hindered groups. Is the nature of the guardians' relationship truly connected with results for kids of low-salary parents and for single couple? [3]To examine this issue, Child behaviour broke down information from the 2007 National Survey of Children's Health. Investigations centres on 64,000 respondents whose youngsters were between the age group of 6 and 16. Results show that the guardians' attachment quality is reliably and decidedly connected with adolescent and family results, including: youngster's behavioural issues, teenager's social ability, adolescent's school commitment, kid discouragement, parent-child interaction, and parental sentiments of exacerbation. This affiliation grips crosswise over differed subsections, together with: white, dark couples; wedded and living together couples; lower and higher pay families; young men and young ladies. Also, the connection applies in everything except not applied when societal and financial contradiactions are considered.

Lee & Beatty, (2002), studied the topic "Family Structure and influence in Family Decision Making", and analyze the impact of family composition in the family basic leadership process. Specifically, it tries to decide whether SRO and the spouses' working status have any kind of effect in the measure of impact youths and their folks have in family buying choices. This research is based on observational way to deal with measure the extent of impact shown by all individuals from the family in the buying choice. Observational information is extracted from recorded chronicles of family communications amid a virtual decision taking circumstances. The outcomes announced here help the relative valuable commitment policy; moms who add to the arrangement of their families have noteworthy impact. Further, the measure of impact experienced by teenagers is observed to be reliant on their families' SRO and their moms' word related position.

Willis Laura A., and Belch A. Michael, (2001) studied "Family decision at the turn of the century: Has the changing structure of households impacted the family decision-making process? The analysis highlights the study of wedded couples' effect in family purchasing conduct is enthusiastically reliant on research drove during the 1980s. From that time period, key changes have occurred in the US family. These movements may have affected

the possibility of opinion design among the parents. To examine the quantity of earlier revelations are as yet pertinent currently, models are made and attempted with an existing case of 440 individuals. Discoveries advocate that there are basic transformations in the family procuring procedure, with the women exerting major effect on all determined areas. The results demonstrate that publicists must re evaluate their strategies for a couple of things. Essential information was gathered in the form of Primary data from research conducted in USA.

OBJECTIVES OF THE STUDY:
- ✓ The present study aims to focus on the pattern of transitions that happen in adolescence phase and their conduct towards parents during this time period.
- ✓ Another objective of the paper is to outline the influence of attachment or bond of parents with adolescent modifying behaviour and examines strategies for supporting sound juvenile parent connection.
- ✓ The research has another phase with the major objective of scrutinizing the significance of family composition and influence of family members on adolescent decision making.
- ✓ Lastly, the paper aims to additionally highlight the impact on adolescent behaviour resulting from modifications in family composition.

RESEARCH METHODOLOGY:
In order to make research more successful the researcher has to define and plan the whole program properly and effectively. This plan is known as research methodology.
- ✓ The research methodology used in this paper is descriptive in nature
- ✓ Secondary data review and analysis involves collecting of information from literature work in relevant research field and other relevant data for instance, data from PISA (Programme for International Student Assessment, 2012) in order to get maximum information of adolescent outcomes in diverse family patterns.
- ✓ Mostly of the information retrieved from the internet via journals, research papers, articles, and expert opinions on the same subject matter.

SCOPE OF ADOLESCENT TRANSITION
The ideal attribute for pre-adulthood is transformation. In spite of the fact that this has for quite some time been perceived by social researchers and psychological experts (eg, therapists, analysts and other young wellbeing experts), the genuine profundity of the progressions that happen amid this period still can't seem to be completely comprehended. Current study focuses to noteworthy changes in neurological structure and capacity. Intellectual and expressive ability develops from untimely to delayed youth. Young people are progressively ready to concurrently speak to and look at various points of view and properties, advancing a more separated perspective of the world, together with how teenagers see themselves as well as other people around them. [4] Nearby these quick organic changes, young people enter another social-mental period of life. It is typical for the measure of time went through with guardians to drop sharply while time went through with companions increments.

In nutshell, puberty includes huge changes in pretty much every space of working. Amid times of fast advancement, study demonstrates that family affectability and cooperation are basic in 'framing' youngsters to the subsequent level of performance. In any case, in the immature period of improvement, the parental-teenager relationship is tossed into transition as kids endeavour toward self-rule and guardians battle to discover better approaches for holding their youngsters with regard to an alternate attachment. It isn't astounding that the idea of the youthful parent connection is central to how the two segments manage this transformation.

ADOLESCENT-PARENT ATTACHMENT:
The quick mental, subjective and societal changes of adolescents make a social-psychological problem for them: the joining of novel and assorted encounters in connection to the humanity and themselves. Puberty additionally introduces a connection issue which means keeping up association with guardians while investigating new societal jobs from the family and creating connection associations with companions and close friends. Of incredible significance is the truth that the effective change of pre-adulthood isn't accomplished by separation from guardians. Rather, sound change to self-governance and adolescence is encouraged by protected connection and passionate bonding with guardians.

Safely bonded teenagers likewise endure less emotional issues, for example, uneasiness, misery, carelessness, thought issues, direct turmoil, misconduct and hostility [5]. Protected connection in female teenagers is identified with less obesity concerns [6] and less continuous dietary problems. Protected connection in youth additionally predicts more useful adapting aptitudes and important gains in social abilities from 15 to 19 years old. Safely connected young people deal with the change to secondary school all the more effectively, appreciate more constructive connections and experience fewer clashes with family and associates than do unreliably bonded youths.

Protected connection is obviously imperative to wise teenager's modification. The inquiry is if young people require from their family to support strong connection. Studies propose that the connection capacity of guardians alters here and there, however stays stable in others [7]. For instance, while kids require closeness and physical accessibility of guardians to give comfort when they are bothered, young people needn't bother with a similar level of vicinity and can get comfort from understanding that their family is cooperative in case of their absence also. In any case, parent's affectability and concern keep on being fundamental in keeping up protected bond amid immaturity, particularly in the space of self-sufficiency needs [8]. The capacity of guardians to support an 'objective coordinated association' with their kids likewise stays basic, and is especially difficult since strife among guardians and youngsters rises amid youth. In any case, current testimony recommends that the limit of guardians and their juvenile kids to look after 'Attachment' while differing on basic issues is the sign of protected connection [9]. Keeping up attachment is confined by particular parental-teenagers conduct amid contradictions, including boldly expressing own feeling, and approving and indicating compassion for the other individual's perspective.

SUPPORTING ADOLESCENTS AND THEIR FAMILIES:

It is important that the misconception of pre-adulthood separation be dispersed. Numerous guardians feel they have next to zero impact in their adolescent life and they lament the way that their kid's destiny rests outside their hands. Guardians require strong data on the significant psychological, social and sensitive adjustments that happen amid puberty and the significance of their persisted affectability to their youngster's needs amid this phase. They have to comprehend the anticipations in their association with their youngster, and how effectively to deal with the progress of youth. Numerous guardians encounter the rise in parent-adolescent strife that happens amid teenage hood as an individual dismissal of the relationship and their significance to their kids. This judgment is misguided, though absolutely logical considering the contention and interaction complexities that frequently happen among guardians and their young kids. Pushing guardians to restructure the significance of contention as a chance to structure their association with their adolescents can be of extraordinary help to guardians. Numerous guardians of teenagers require immense cooperation to build up the aptitudes that are important to help their adolescents through youthfulness. Luckily, restorative intercessions are rising for families with youngsters, and mostly exhibit an assurance in decreasing perilous conduct in teenagers. Parent's involvement that emphasise on connection and the improvement of understanding and lesser disputes with adolescents, can be especially useful [10].

Altering the misconception of youthful separation, in any case, requires endeavours that stretch out ahead of the emotional framework. Community health initiatives that urge guardians to remain associated with their young kids may modify the common notion that guardians and society embrace about teenager's apathy and disobedience. Cooperation inside the educational framework, accentuating the persistent significance of connection to guardians and different grown-ups amid immaturity, would likewise be useful. Specifically, intellectual training that bolsters connection amid the change from basic to secondary school through spanning programs that associate youth with instructors, organizing of schools and classrooms to energize association, and parental training will be effective in decreasing number of school withdrawal amid this delicate phase of adolescence.

SIGNIFICANCE & PRESENT TREND OF FAMILY COMPOSITION:

This second phase of this paper is the analysis of family composition, changes and its impact on adolescent's decision making. Therefore, research has been initiated with an endeavor to revive the study by inspecting the impact models of family individuals by examining the literature work. The goal of this paper is to inspect the significance of family composition, as estimated by SRO and spouses' working position, in the family basic judgment process. While there is a developing level of elective family types in Western social orders, for instance, single-guardian family kinds, and that will have vital ramifications to family judgment making process [11] The changes in family composition is vital to study as it has substantial effect on the social, physical and mental well being of a child or teenager. Any change or modification in family pattern in terms of single parent, mother, father, only grandparents, attitude of family with respect to the norms of society largely affects the upbringing of a child in multiple aspects. Family composition also affects the adolescent's exploitation and risks rises in case of absence of father. Significance of family composition is clearly evident from the high diverse patterns of families like, families with no kid, identical sex pair, re-marriage etc. and its critical effect on children. Below table based on US data reveals the current trend of living patterns of kids and it is quite apparent that the percentage of children living with a complete family is deteriorating and no. of single mother families are escalating.

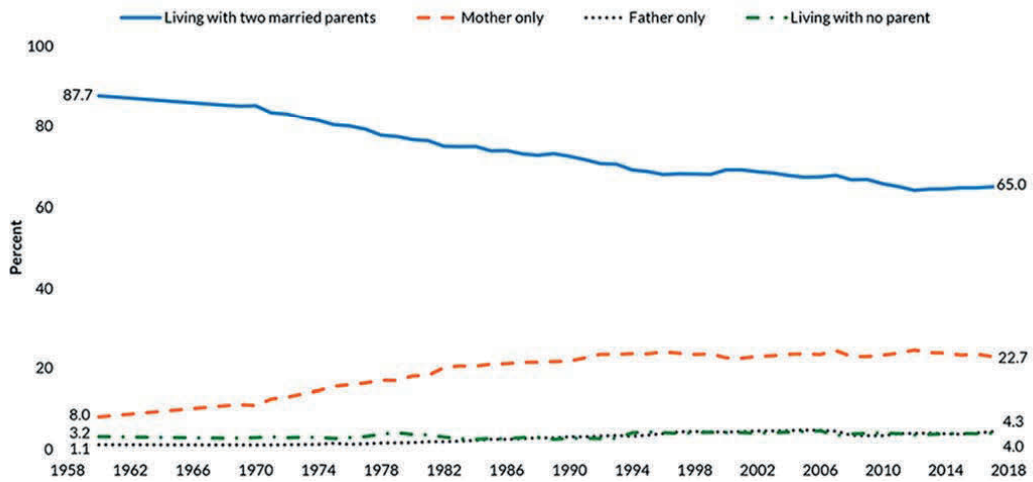## Living Arrangements of Children Under 18: 1970-2017

Fig. 1

Source: Child trends calculations as per U.S. Census Bureau (2008-2017)

INFLUENCE OF FAMILY MEMBERS:

a.) Role of women in Family:

Alteration is happening in the impression of the job of females in the public arena today. These alterations, includes education, developing figure of two parent earning families, and the appearance of qualified and working females, have brought about confrontations to past convictions about the job structures and the buying impact of individuals in family [12]. In western countries, large portion of females in family are engaged in the workforce (Statistics New Zealand, 2000). An expanding number of ladies are adding to the assets of their families and more ladies are inspired to win through in their skills; while managing with the obligation of running a family unit, has implied changes in utilization consumptions patterns of families and behavior related to judgment making in family.

Studies propose that a man's capacity to settle on choices comes from the capacity to have room for the satisfaction of his spouse's wants [13] In this manner, if the husband satisfies his obligation to accommodate the family unit in a complete way, the more the other partner would enable the husband to dictate the standards of basic judgment making in the family. This would, thusly, recommend that if the spouse adds fundamentally to the family unit earnings, at that point the wife's impact would be more noteworthy than in families where wives don't add to the family unit earnings. But it cannot be generalized that spouses who contribute financially are dictating in their family units; to a certain extent, it is more probable that there is greater equity in the extent of impact applied in the basic judgment making process. In this way, a spouse's working status affects the idea of decision making in families.

b.) Cultural norms

The pervasiveness of ladies operating outside the house isn't simply due to the need to enhance the household pay, yet additionally due to modifications in social standards and societal gauges. These adjustments in gender job dispositions and practices can be clarified utilizing a sex-job worldview. The gender role inclination of a family unit (i.e. regardless of fact that if it is old or existing) highlights the social qualities with respect to the activities performed by various individuals from the family, specifically that of the spouse/moms and husband/dads. The gender or sex job orientation is the fundamental power that at last influences family unit basic judgment process [14] For instance, a non-conventional gender or sex job orientation proposes that both relatives will settle on choices mutually, which means, a more transparent and fair impact pattern, while a customary gender or sex job orientation recommends a more oppressive job male spouse and choices that are more despotic.

c.) Single-Mother Families

The expansion of sole parenthood and parent's separation has happened to an imperative societal changes practised by Western social orders in the last 50 years. This transformation has not been even over these social orders; it has begun afterwards and travelled leisurely in a few spots. Consequently, there are considerable contrasts amongst different nations in the level of non conventional livelihood plans. Studies also show that parental separation and experiencing childhood in a sole parent family implies pessimistically to the kids' healthy growth [15] and a few

researches have checked the degree to which these impacts bend among nations and over a period of time. It was predictable that these pessimistic affiliations are less in nations where modern family shapes are more usual, and there is a more prominent acknowledgment of new family frames, and has liberal approaches for single parent family units. Shockingly, most of the analysis that focuses the variety crosswise over nations and after some time demonstrates that the impacts of parental separation and family composition on kids' prosperity have been generally steady. A few investigations have even discovered that the effect of parental separation has expanded with moment, repudiating many predictions that a decrease in disgrace and rise in father inclusion may alleviate the impacts.

As indicated by the investigations, most of the studies have contended that high mounting in the predominance of sole mother families amongst the less-qualified, accompanied by evident negative impacts of guardian's separation and experiencing childhood in a single parent family on adolescents behaviour, have intensified the imbalance amongst kids from various financial backgrounds and distinctive family compositions. Notwithstanding this, many experts have challenged that this end is just valid if a third assertion is additionally valid; in particular that the outcomes of parental separation and family unit composition are more prominent among offspring of unsound financial environment, or that the results are the similar irrespective of financial environment. In the event that rather experiencing childhood in an incomplete family which involves more pessimistic ramifications for youngsters from higher financial surroundings, they have asserted this may really balance the expansion of incomplete families in kids from backward environment. The study basically states that the expansion of parents' separation and single parent families might decrease imbalance in adolescent's behaviour and increase the future opportunities amongst youngsters from various financial environments.

d.) Role Of Fathers:

There is an assortment of strategies by which father nonappearance can impact adolescents' growth. There are three parameters regarding father's role. To begin with, financial earnings may clarify a portion of the relationship between dad nonappearance and adolescent's outcomes. Involvement is likewise an instrument through which fathers strengthen youngsters' prosperity. Studies also reveal that fathers' commitment (through assisting kids with homework, tuning in to adolescents' issues, giving mental help, and framing boundaries) is related with less performance issues and an instant mediation of person and groups advising to develop separated fathers' associations with their kids and past wives social issues among kids matured four to twelve [16] And, society capital accessible to fathers yet not moms (includes more renowned designations in industry, local society administration, or customs) could motivate adolescent's growth by giving them permission to use assets or goodwill in society. But it is difficult to quantify the social capital. Fathers don't just leave families: they likewise come into them. Around 33% of youngsters in the US are destined to single moms (Curtin, Ventura, and Martinez 2014) and information those families survey demonstrates that father entry keeps on changing. Many of the guardians, who were not wedded when their kid was conceived, are wedded sometime after the birth [17] These changes can affect kid or adolescent, known the discoveries that, father nearness is for the most part positive yet the pressure of family unit alterations is negative. A survey of relationship between step-parent nearness and teenagers reactions proposes youngsters with step-guardians in the family unit do more awful than kids in families where both natural guardians are available, yet kids with step-guardians in the family countenance similar scholastically and emotionally to offspring of single parents. In any case, there is constrained proof in regard to how family structure with the youngster's natural father after the kids' origin to the world may identify with the kids' welfare.

e.) Role Of Grandparents:

Grandparents can likewise be critical for youngster advancement, and their impact can happen through similar instruments distinguished for dads. For instance, grandparents can lessen monetary struggles for grandkids in single parent families [18] and grandma tutoring has been related with the soundness of health of adolescents. In many countries, investigations show grandparent annuities advantage co inhabitant grandkids. An investigation looking at impacts of ancestors on the basis of family income demonstrates huge advantages of grandparent nearness for youngsters destined to sole parents in more extravagant families; however no impacts for kids destined to deprived single parents [19] Then again, a few investigations observe the nearness of grandparents to be related with better child behaviour in single parent family units: Many of the analysis discover no relationship between ancestor's nearness and adolescent behaviour when the two guardians are in the family unit. These discoveries recommend that grandparent affect on adolescent improvement might be directed by moms' association status, presumably because of the dads as of now offering help. Then again, grandparent concern might be further critical in a few settings, regardless of whether that care is the equivalent. For instance, grandparent residence can be highly effective in little, urban family units thin comparison to expansive, broadened countryside families where kids communicate with numerous grown-ups in their surroundings. Correspondingly, the effect of social capital can contradict according to the society. These instruments could clarify variations in studies on grandparents in Asian continent. The research describes the comparison about progressing families to non progressive family units in Taiwan; uncover future co residence with grandparents to be related with higher intellectual test scores in adolescents. On the other hand, a cross-sectional examination from rustic China recommends that putting up with

grandparents with reduced education does not influence kids' academic achievement, rather surviving with moderately highly educated grandparents is altogether connected with a reduced probability of school withdrawal.

INFLUENCE OF CHILDREN

The main area of research in this study is the impact of various relatives, together with adolescents (are the youngsters aged from 13 to 19 years). Previous work in this field has presumed that the impact of adolescents differs with the sort of item and the choice stage. Youths are majorly dominant at the time of acting as Initial Customer, for instance, garments, games, ready to eat food, breakfast, granules and school items. They are moreover compelling in decisions with respect to items for household relaxation point, for instance, holidays, motion pictures, satellite TV and dining out. In any case, they are less compelling in these item classifications in comparison to the items where they act as essential clients [20]. There is certain research which had included the factor of eating out in some restaurant as criteria for making buying decision. This sort of procurement choice is also utilized in past researches which had taken kids, and has been observed to be suitable as youngsters are fairly included.

With respect to variations on the basis of financial and economic situations of family, in spite of the significance of the issue of changing cost of separation and family composition by family financial background, it has not gotten much consideration till now. Till present, the study has acquired blended statements. A few investigations have discovered that upgraded financial base can adjust for the negative impacts of family composition and parental separation, yet different researchers have discovered that bigger negative impacts at higher financial status. Some studies may not be able to state the children behavioral reaction due to variations in countries, thus the impact of social and economic background relies upon the adolescents' behavior and country chosen.

Three decision stages

There are three decision phases, which are majorly utilized in past, study while estimating adolescents' impact. These are issue acknowledgment, data inquiry and decision Researchers, in any case, have utilized four phases [21] or two phases. Past discoveries propose that adolescents have high impact amid the issue acknowledgment and data inquiry phase, yet that this reduces at the decision phase

CONCLUSION:

This paper is divided into two phases; first part highlights the proof that firmly indicates the significance of youthful parent connection as parameter of wellbeing amid this growth stage. It is required for psychological wellness and other welfare and instruction experts to be learned about juvenile improvement and the worth of youthful parent connection. Moving our presumptions about youthfulness as a phase of separation and resistance to an outlook that effectively fits the truth of this growth period and focuses the significance of remaining associated is well due. In review, studies recommend that fathers' monetary assets, commitment, and social worth or value are encouraging for adolescents growth, and analysis discovers that father nearness is related with financial advantages however not really with additions in teenagers growth. Longitudinal investigations on separation demonstrate kids with co-occupant fathers have improved social-psychological results, yet find blended proofs in regard to advantages in the intellectual and scholarly domains. In contrast with research on dads, study into on the job of grandparents and their effect on youngsters' improvement is blended, probably on the grounds that the grandparental job is more varied crosswise over family circumstances and societies. That discoveries seem to fluctuate by grandparent and mother conditions, and also culture, proposes that situation is significant for comprehension and translating discoveries. In no nation are the negative impacts of living in a single parent family prominent at higher motherly qualification levels over the majority of the results considered. In this way, there is no proof that the developing number of single parent family composition is reliably lessening imbalance in social orders. Truth be told, there were blended discoveries in the relevant filed amongst different nations. For a few results, the negative impact of family composition is more prominent with higher maternal training and for different results, the moulding impact of mother's qualification is unimportant. All the previously mentioned changes in family composition structure substantially affect basic judgement making of kids and adolescents regarding decision making.

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Relationship between organization performance and Human Resource Reporting and Disclosure Patterns in Indian banking sector

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Abstract

HRA is simply a workout to identify measure and communicate information about human resource and it responsibility to be viewed as an implied comparison. [1] HRA reporting aspect is very new concept and it is still in innate stage. The present study reports the relationship between characteristics and human resource disclosure (HRAD) level in selected banking organizations. Organizations undertaking are classified under 2 broad categories: Public sector and private sector. HRAD has been found significantly related with size of organization, category of the organization and profitability. In this context, I have strive to examine human resource accounting practices in banking sector in India and understand how the HRA is affecting the financial and overall performance of organization.

Key words: Human Resource Accounting (HRA), Human resource Accounting Disclosure (HRAD) Human resource Value (HRV), Human Capital, Human Asset

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INTRODUCTION

Our Employees ----- 'Our Greatest Assets'
[2]The economic growth of any nation depends upon the trapping and exploitation of human resources as well as non-human resources along with their merge in a proper ratio.

Human resource are the energies, skills, talent and knowledge of people which are or which potentially can be applied to the production of goods or rendering useful services.[1]HRA is the process of identifying and measuring data about HR and communicating this information to interested parties. In this context, it is worthwhile to examine and human resource accounting practices in corporate sector in India and understand how the HRA is affecting the financial and overall performance of organization. [3]It is simply an attempt to identifying measuring and communicating information about human resource and it ought to be viewed as a metaphor.HRA reporting aspect is very new concept and it is still in native stage. The basic objective underlying HRA is to facilitate the effective and efficient management of HR (Poewal, 1993). [4]The crux is that human intellectual and structural capital should be treated as other assets. But it is very tough to quantify the expertise knowledge and competence of human resource as these matters are not physical assets of company.

PROFILE OF SELECTED BANKS

HDFC bank

The Housing Development Finance Corporation Limited (HDFC) was amongst the first to receive an 'in principle' approval from the Reserve Bank of India (RBI) to set up a bank in the private sector, as part of RBI's liberalization of the Indian Banking Industry in 1994. The bank was incorporated in August 1994 in the name of 'HDFC Bank Limited', with its registered office in Mumbai, India. HDFC Bank commenced operations as a Scheduled Commercial Bank in January 1995.It has 84325 employees and has a presence in Bahrain, Hong Kong and Dubai. HDFC bank is India's largest private sector lenders by assets. The bank is committed to maintain the highest level of ethical standards, professional integrity, corporate standard and regulatory compliance. HDFC bank's business philosophy is based on five core values: Operational Excellence, Customer Focus, Product leadership, People and Sustainability.

ICICI bank

ICICI bank was originally promoted by ICICI limited, an Indian financial institution, and was its wholly-owned subsidiary. The principal objective was to create a development financial institution for providing medium term and long term project financing to Indian businesses. In 1999, ICICI become the first Indian company and first bank or financial institution from non Japan Asia to be listed on NYSE.ICICI bank currently has a network of 4850 branches and 14164 ATM's across India.

SBI

The origins of State Bank of India date back to 1806 when the Bank of Calcutta (later called the Bank of Bengal) was established. In 1921, the Bank of Bengal and two other banks (Bank of Madras and Bank of Bombay) were amalgamated to form the Imperial Bank of India. In 1955, the Reserve Bank of India acquired the controlling interests of the Imperial Bank of India and SBI was created by an act of Parliament to succeed the Imperial Bank of India. The SBI group consists of SBI and five associate banks. The group has an extensive network, with over 20000 plus branches in India and another 186 offices in 34 countries across the world. The group commands over 23% share of the domestic Indian banking market.

PNB bank

The Punjab National Bank was established on 12 April, 1895 with the ambition of having a "Swadeshi Bank" with Indian capital. It started functioning in Lahore and with the permission of Lahore High Court, the officials shifted the registered office to Delhi, and by July 1969 Punjab National Bank was nationalized. PNB, known as the "People's bank" now ranked as the 2nd largest bank in the country after SBI in terms of branch network, business and many other parameters. Today PNB has more than 5100 offices including 5 overseas branches, maintaining its leading position in the banking sector

REVIEW OF LITERATURE

The most specific asset that an enterprise has if is personnel. It takes advantages of their interdependent knowledge. [5]That would explain why some firms are more productive then others with the same technology, a solid human resource team makes all the difference (**Archel 1995**).

[6]To embrace both HRA and UA (utility analysis) **Grojer and Johanson (1996)** use the concept Human Resource Costing and Accounting (HRCA). Grojer and johanson (1996) express the management orientation of HRA even more clearly in the assertion that HRA concerns the management of HR.

[7]**Gul (1984)** attempted to study the usefulness of human resource turnover cost information for labour turnover decision-making in a sample of Austrialian accounting firms.

[8]**Sen et. Al(2008)** in their study make a scientific investigation into whether   HR information has any impact on internal decision making I.e. in the context of personnel management decision making related to employee recruitment and employee turnover control in banking industry of Bangladesh.

[7]**Anita Mishra and Monalika Rath (2010)** stated that the HR accounting system tries to evaluate the worth of human resources of an organization in a systematic manner & record them in the financial

statement to communicate their worth with changes in time and result obtained from their utilization to the users of the financial statement. Hence, looking at the importance of human resource accounting, now it is required under law and government guidelines, for undertakings, to maintain separate item in their balance sheet about such human resource activities undertaken by them.

[8]**C. K. Sonara and Ashav Patel (2009)** expressed their opinion regarding human resource accounting is that today is the environment of corporate reporting. **Mukesh Chauhan and Mrs. Shivani Gupta (2009)** examined that, in knowledge – driven economies therefore, it is essential that the humans be recognized as an integral part of the total worth of an organization. However in order to estimate and project the worth of the human capital, it is necessary that some method of quantifying the worth of the knowledge, motivation, skills and contribution of human element as well as that of the organizational processes, like recruitment, selection training etc., which are used to build and support these human aspects, is developed. Human resource accounting denotes just this process of quantification/ measurement of human resource. He emphasized that human resources should be treated like physical assets and should be shown in the balance sheet of the enterprise.

[9] **Arindam Ghosh and Asit Gope (2009)** described that Human Resource Accounting (HRA) a scaling tool that generates the quantitative control information about the contribution of human resources for promoting industrial productivity.

Abhayawansaand Abeysekara (2008) disclosed his opinion that the importance of human capital in firm value creation is firmly established in the literature, the level of emphasis places on human capital disclosure by preparers of financial statements in minimal.

[10]**P. James Prem Kumar (2007)** explained that Human Resource Accounting (HRA) as an approach was originally defined as the process of identifying, measuring and communicating information about human resources in order to facilitate effective management within an organization. It is an extension of the accounting principles of matching costs and revenues and of organizing data to communicate relevant information in financial terms. The subject of offering measures of the value of people to the organization through human resource accounting has tempted human resource professionals and academics alike.

[11]Ramakanta Patra & Khatik (2003) observed that human resources play the most important part in the development of an enterprise. Human Resource Accounting (HRA) helps to measure the value of employees, which helps management, take the vital decisions related to human resources in order to increase production. It requires the measurement of the performances of an organization and the optimum use of the resources under its direct and indirect control. HRA has been analyzed for a profit making heavy engineering public sector company, Bharat Heavy Electricals Limited (BHEL) Bhopal, India. The economic value model of Lev and Schwartz has been used for this study of BHEL to evaluate the HRA. The obtained results are verified by using the T-test. And they examined the correlation between the total human resources and the personnel expenses for their fitness and their impact on important for decision making in order to achieve the organizational objectives and to improve the output.

[12]**S. Kwiatkowski (1998)** highlighted an increasing intellectual factor in services, products and enterprises. He writes, the growing role of intellectual products is visible on both consumer and industrial markets. On both these markets almost purely intellectual products, often devoid of their material supplement, successfully compete with those which clearly dominated several years ago.

[13]Thus, in manufacturing we witness expansion of technical consultancy a purely intellectual and markable component contributing to value creation in a client organization through technology development". There has also been an increasing recognition of concept of HRA, evidenced the flow of literature on various aspect of HRA , but there are very few organizations involves in the systematic measurement and reporting of HRA information.

RESEARCH OBJECTIVES

The researcher intends to achieve following objectives from the study.

- To study the HRAD practices in between selected public and private banks and highlight the differences, if any.
- To study the relationship between organization size and HRAD practices.
- Examine the relationship between profitability and HRAD of the selected organizations.

HYPOTHESES

On the basis of objectives the researcher formulated the following hypotheses:

- **H_{01}-** There is no significant difference in between public and private sector bank on account of HRAD practices.
- **H_{02}-** There is no positive association between organization size and levels of HR disclosure (HRADI) practices.
- **H_{03}-** There is no positive relationship between the relative profitability of organization and the extent of HRAD.

RESEARCH METHODOLOGY

The study primarily used secondary data for driving appropriate justification for various research objectives. Organizations are classified under 2 broad categories: Public sectors banks and Private sector banks. Data is collected manually from the Annual Reports of the respective organizations for the period 2017-2018. Listing Age and Market capitalization data are collected from company web sites. In the study a Human Resource Accounting Disclosure Index (HRADI) comprising of 16 [11]HRA reporting variable was constructed by reviewing relevant literature. In examining each of these HRAD items, a dichotomous procedure was followed where each organization was awarded a score of '1' if the organization appears to have disclosed the conceded reporting variable and '0' otherwise. The score of each organization was totaled to find out the net score of organization.

An HRADI was then computed by using the following formula:

- HRADI= $\frac{total\ score\ of\ individual\ organisation*100}{maximum\ possible\ score\ obtainable}$

- **Measurement of HRAD variables**

No	Disclosure Items	No	Disclosure Items
1	Separate HRA statement	9	Human resource development fund
2	Total value of HR	10	Workers/employees fund
3	No. of employees	11	Employees categories
4	Human resource policy	12	Managerial remuneration

5	Training and development	13	Retirement benefits
6	Management succession plan	14	Performance recognition
7	Employment report	15	Superannuation fund
8	Employees value addition	16	Other employee benefits

DATA ANALYSIS

The data collected have been suitably classified and tabulated in the form of tables. **Table 1** shows the disclosure of identified human resource accounting variables from the annual reports of selected companies. Private sector bank HDFC disclose information on 6 aspects in annual reports out of 16 selected variables and ICICI discloses on 8 aspects out of 16 selected variables. Public sector banks in comparison of private sector are more tentative about disclosure of HR related information in their annual reports.

Table 1: Disclosure of Human Resource Accounting Variables

Sr. No	Disclosure Item	Banks				Total
		HDFC	ICICI	PNB	SBI	
1	Separate HRA statement	0	0	1	1	2
2	Total Value of hr	0	1	1	1	3
3	No of Employees	1	1	1	1	4
4	Human Resource policy	0	0	1	1	2
5	Training and Development	1	1	1	1	4
6	Management Succession planning	0	0	0	0	
7	Employment Report	0	0	0	1	1
8	Employees Value addition	1	1	1	0	3
9	HR development fund	0	0	1	1	2
10	Workers/employees fund	0	0	0	0	
11	Employee categories	0	1	1	1	3
12	Managerial Remuneration	1	1	1	1	4
13	Retirement Benefit	1	1	1	1	4
14	Performance Recognitions	0	0	0	0	
15	Superannuation Fund	1	1	0	1	3
16	Other Employees Benefits	0	0	1	1	2
	Total	6	8	11	12	

Source: Annual Report of respective companies (2017-18)
1: Disclosed   0: NOT DISCLOSED

Table 2 below shows Human Resource accounting disclosure practices by selected private as well as public sector banks. It helps to understand which bank provides more information regarding its HR. It reveals that the selected private banks are not equally disseminating information regarding its HR. It further reflects that SBI discloses information on 12 aspects (i.e. 75 %) out of 16 listed aspects, whereas PNB disclosed information on only 11 aspects (i.e. 68.75 %) out of total 16.

Table 2: HRADI Index Scores of Selected Organizations

Banks	No of items disclosed in reports	HRADI*
HDFC	6	37.5
ICICI	8	50
PNB	11	68.75
SBI	12	75

*HRADI= $\dfrac{total\ score\ of\ individual\ organisation * 100}{maximum\ possible\ score\ obtainable}$

The researcher found following justifications regarding Hypotheses:

- In connection with the first hypothesis that *there is no significant difference in between public and private sector organizations on account of HRAD practices,* the researcher concludes from the HRAD patterns that there are significant differences as public sector banking organisations are disclosing HR related information on many aspects in comparison to private sector organisations which are quite reluctant to share information. Therefore the **hypothesis stands rejected** and it is established that public sector organisations are more open in HRAD than private sector organisations.

Association between organization size and hr disclosure

Table 3: organization size, and disclosure of variable   (all figures in cr.)

Banks	Market capitalization	Net sale	Net assets	No. of disclosed Variables
SBI	219254	175518	2224751	12
PNB	24425	47275	596475	11
HDFC	485837	69305	715948	6
ICICI	193193	54156	599298	8

- (From table 3)In connection with the second hypothesis that there is no positive association between organization size and levels of HR disclosure (HRADI) practices,

Table 4: organization profit and employee's number and disclosed variable relationship

Bank	Profit (in cr.)	No of employees	No. of disclosed Variables
SBI	10484	209567	12
PNB	1324	70801	11
HDFC	14549	84325	6
ICICI	9801	72226	8

- (From table 4)we concludes that keeping in view the number of employees in the selected organisations, from public sector the SBI which is having larger number of employees than PNB is disclosing almost same HR related information , Similarly, from private sector HDFC is holding larger employments than ICICI, they are disclosing less information than ICICI.
- (From table 3 & 4)Keeping in view the profit, market capitalization, sale, assets in public banks Therefore, it is inferred that there is a negative association between organisation profit and level of HR disclosure, the larger the organization, the less the HR disclosure. Conclusively the hypothesis stands rejected.
- In relation to the third hypothesis that there is no positive relationship between the relative profitability of organization and the extent of HRAD, it is concluded from the financial performance of the organisations in the public sector, SBI is more profitable than PNB on various financial parameters and thereby disclosing more HR related information whereas in private sector the HDFC is more profitable than ICICI and thereby disclosing more HR related information. Therefore the hypothesis stands rejected and it is established that there is a no significant relationship between profitability of organization and HRAD pattern.

SUGGESTIONS

- HDFC bank , ICICI bank should add more information regarding human resource accounting variable such as value added, value added per employee and provide human resource development fund in their annual reports.
- ICICI bank, HDFC Bank should include economic value added per employee in their annual report for the reference of shareholders; it is an added advantage to those organizations.
- Private Banks should concentrate more on disclosure of Human Resource Accounting variables when compared to public banks.

LIMITATIONS OF THE STUDY

- The study period of the above study is limited to one year only i.e. 2017-18.Only four banks viz., HDFC bank, ICICI bank, PNB bank and SBI bank have been considered for the study of disclosure of Human Resource Accounting variables. The study would be more representative if information regarding human resource accounting and reporting relate to at least five year were

taken in to consideration. This study is based on secondary data which are collected from annual reports of banks. The limitation of secondary data may also influence the study.

CONCLUSION

- There are several areas in which non-monetary measurements may be evolved in accounting and human resource accounting is probably one of these. To make valuation of human resource objective and comparable there must be a universally acceptable method of valuation and each and every company should make benefit out of HRA.

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A Review of Renewable Energy Efficiency and Technologies

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ABSTRACT

There is an imperative call for change from current fossil fuel based on energy structures to another founded on renewable resources to reduce dependence on depleting reserves of fossil fuels with the object to measure whether India can continue its development and its people with renewable resources. The study provides an indication of the renewable energies at the same time as analysing the existing position, key accomplishments and potential features of renewable energy.

Keywords: Renewable energy, energy use efficiency technology, Energy conservation, carbon emission, Economic impact.

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INTRODUCTION

Energy is the property that must be needed by every living or non-living thing to do the task. Energy is a conserved quantity that follows the law of conservation of energy which states that energy can be converted in form or the other but cannot be created or destroyed. Many countries currently rely excessively on coal, oil, natural gas and other fossil fuels for its energy. Fossil fuels will get exhaust, and soon will become costly or too hazardous and damaging to regenerate. On the other hand, many types of renewable energy resources-such as wind, solar energy etc are constantly replenished and will never exhaust. Mostly energy comes either directly or indirectly from the sun source. Sunlight and many other energies are used directly for heating and other purposes like lighting homes and other buildings, for generating electricity, and for hot water heating, solar cooling as well as commercial and industrial uses.

Sunlight also drives the winds and energy gets trap with wind turbines. The process of evaporation takes place where the energy gets evaporated. This water vapour turns into rain or snow and gets d into seas and oceans where energy is trapped using hydroelectric power. Air, water, wind, sunlight causes plants to grow. The organic matter helps up those green living plants is known as biomass. Biomass can be used in many purposes like electricity generation, transportation fuels, various chemicals. The use of biomass for different purposes is called bio energy.

Hydrogen is found in many organic components and water. Hydrogen is the most abundant element on the Earth and combined with other elements like with oxygen to make water. On separation hydrogen is burned like a fuel or can be converted into electricity. Geothermal energy taps the Earth's internal heat for different tasks including electricity production and also heating and cooling of surroundings. The energy of the ocean's tides comes from the gravitational pull of the moon and the sun upon the Earth. In addition, the energy of the ocean's waves is driven by both the tides and the winds. The sun heats the surface of the sea more than the sea depths that creates a temperature difference, which is used as an energy source. These forms of sea and ocean energy used to produce electricity. Electric energy security is very important, as it have reduced the emission of greenhouse gases because of the replenishment of fossil fuels. According to the environmental demands the renewable energy has become the agenda of our planet as they can only fulfil the demand of the growing planet. Accordingly, this paper describes how renewable energy resources are being used,

scientific researches that improve their usage, their future scopes. Also, the paper describes the impact of power electricity and smart grid technologies that can gives the proportionate share of these renewable energy resources.

OBJECTIVES OF STUDY

1. To explain the concept of renewable energy sources in India.
2. To examine the present demand and future impacts of renewable energy sources.
3. To study the barriers that restricts the usage of renewable energy sources.

RESEARCH METHODOLOGY

The study on Renewable Energy Sources has been conducted on the basis of secondary data. The secondary data has been collected from various journals, books, websites etc. In this paper we have analysed the definition, basic concepts, and future impact of renewable energy resources in India. All the data included is secondary and proper references have been given wherever necessary.

RENEWABLE ENERGY

Renewable energy is obtained from **renewable resources** that are naturally replenished on a natural timescale like wind, rain, tides, sunlight, waves, and geothermal heat and even they are less polluting. The renewable energy can also be obtained from burning trees or garbage like fuel and making other plants into bio fuels. Our homes will soon be getting energy from the sun or the wind. Renewable energy technologies will improve the all over efficiency and cost of environmental system.

TYPES OF RENEWABLE ENERGY

- Solar Energy
  - Photovoltaic Systems
  - Solar Hot Water
  - Solar Electricity
  - Passive Solar Heating & Daylighting
  - Space Heating & Cooling
- Wind Energy
- Geothermal Energy
  - Geothermal Electricity Production
  - Geothermal Direct Use
- Bioenergy
  - Biofuels
  - Biopower
- Hydropower
- Tidal energy
- Ocean Energy
- Hydrogen & Fuel Cells
- CO_2 capture technology

India is one of the largest energy consumers. In recent years, India's energy consumption has been increasing at a faster rate due to excessive population growth and economic development. Current energy planning of India is dependent on all renewable and fossil fuels sources. The main worry arises on how to save the renewable energy and fossil fuels for our coming generation while utilizing them for different purposes of energy for well sustained economic growth.

1. SOLAR ENERGY

Solar power is also used to produce electricity using photovoltaic cells and solar thermal principles are used to produce hot winds or air. A solar cell is basically a semiconductor device that is designed to turn solar irradiance into electricity generation. Among all the energy sources solar energy has highest potential all over them.
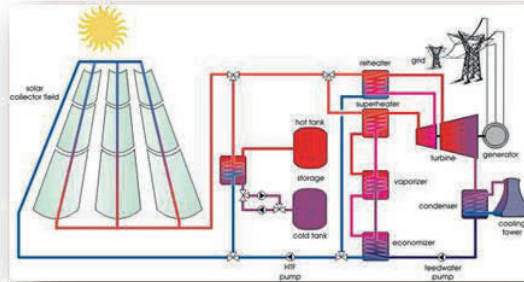

Fig.1 Photovoltaic Process

Photovoltaic principles:

Light (photons) are absorbed by the semiconductor material in a PV cell and this displaces electrons that helps to form pairs of electrons and holes called electron-hole pairs, which flows in one direction, establishing a current. Doping of the semiconductor takes place to be a p-n junction with a potential difference, which will make current flow vertically through the cell in single direction, for generating electricity. In short, a photovoltaic cell is a device that converts one form of energy into other like sunlight into electricity using semiconductor materials; and works on the same principle as a semiconducting diode. The semiconductor material, such as silicon, has the capability to eject electrons when sunlight is absorbed and the PV's cell then flows the electrons in a single direction, which forms a current, as illustrated in Fig.
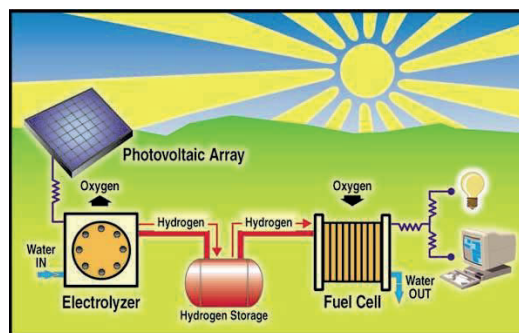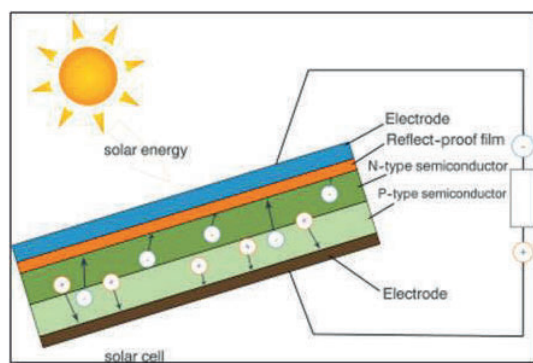

Fig.2 Processing of Solar Energy

Fig.3 Solar Cell

Photovoltaic energy:

The solar technology has the largest potential throughout the world that of solar photo voltaic cells which directly generate electricity from sunlight using photovoltaic (PV) cells. They work safely and silently. PV cells are mostly used in calculators and watches. They can also provide power to satellites, electric lights, and small electrical appliances moreover PV cells do not release pollutants or toxic material in the air or water, there is no radioactive substance, and no catastrophic accidents.

2. WIND ENERGY

Wind energy is the most promising alternative renewable energy technologies of the future. The considerable advancement in turbine technologies, making wind power economically compatible with conventional sources of energy leads to India gaining importance with rapid installation amount of energy produced by wind-driven turbines. The use of wind power in India has been gaining importance with rapid installations. Wind energy makes up the majority of total renewable energy sources installed in India. Various Plans aims to double the total capacity of wind power in India.

3. GEOTHERMAL

Geothermal energy is heat energy buried under the ground through the earth's formation. Geothermal energy is not so expensive that is it is affordable for direct heating. Estimating power from this source is a big challenge as it requires high temperature. **Geothermal gradient** is a huge temperature difference between the earth's crust and the surface. Rock can be easily melted by this source of energy. Magma is the molten rock that erupts through cracks on earth surface as volcanoes which is also known as volcanic eruptions. Geothermal energy converts one form to other to generate electricity. The decay of the naturally radioactive isotopes of uranium, thorium and potassium generates excessive heat which leads to the formation of Geothermal energy under the earth's surface.

4. BIOMASS & BIOGAS ENERGY

Biomass is a renewable energy resource obtained from various human and natural activities that generates the carbonaceous waste. Main sources of Biomass are (i) Wood scrap: forest wood, wood from energy plantations plants, saw dust, scrap tree branches, scrap leaves etc. (ii) Agricultural waste: husk of rice, groundnut shells, coffee husk, straws of different crops, shells of coconut, coconut husk, (iii) Aquatic and marine biomass: algae, water zircon, aquatic weeds and plants, sea grass, coral reef

etc. (iv) Wastes from industries and municipalities: solid waste, sewage sludge, animal waste, paper waste, industrial waste etc.

5. HYDRO POWER

Hydro power is a main renewable source of energy. Hydro power is basically that type of renewable energy source that comes from the water stored in reservoirs to generate electricity. There are so many dams that stores water and used that stored water for driving turbines by spinning it that drives the generator which generates electricity. There are so many Hydro Power Plant Projects also that are responsible for electricity generation at greater level.

6. TIDAL ENERGIES

Tidal energy can be derived in two ways. The first, that uses the power of the water when it changes height of tides between low tide and high tide with the help of barrage. Second one that is the power drawn from the fast currents caused by tides of greater level. Benefits of tidal energy: (i) Greater reliability and predictability for the future(ii) High density of water is the main reason for the power generation (iii) There is no side effect or any harmful effect of this source as well as no greenhouse gases emission. Tidal power is generated by these tidal energies.

7. HYDROGEN FUEL CELL

A fuel cell is an electrical cell which can be continuously fed with a fuel so that the electrical power output is sustained indefinitely. Electrical energy is produced by converting hydrogen, or hydrogen containing fuels, directly along with heat through the electrochemical reaction of hydrogen and oxygen into water.

$2H_2$ gas $+ O_2$ gas $\rightarrow H_2O +$ energy
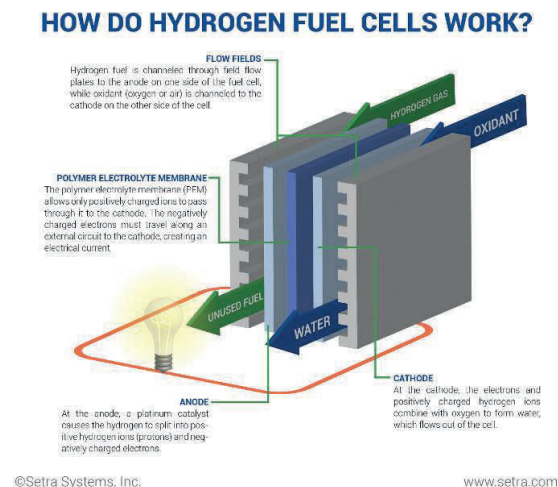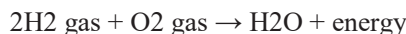
Fig. 4 Hydrogen fuel Cell

8. FORMATION OF CO_2

Process of combustion is responsible for formation of carbon dioxide. Formation of CO_2 take place in three different systems named as post-combustion, pre-combustion and oxyfuel combustion. These three technologies are shown in Fig.
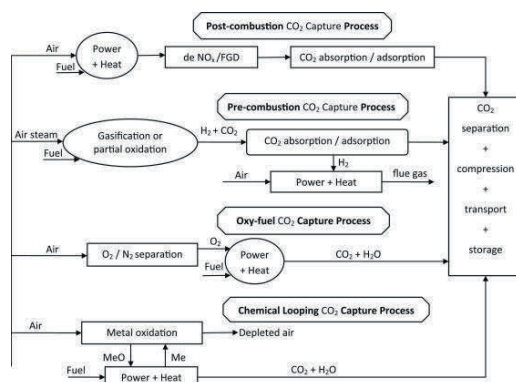
Fig.5 Cycle of CO_2 Capture

There is need to increase total domestic energy production using renewable sources of energy rather than relying on fossil fuels in order to sustain for a longer time span without pollution. It points to the need for stronger efforts to increase the supply of energy from renewable sources.

PRESENT POWER SCENARIO IN THE COUNTRY

India is the largest power generation portfolio country worldwide. India has a mixture of all the resources available including renewable and fossil fuels. Presently India's coal dependence is become out from the fact that ~57 % of the all over total installed electricity generation capability is coal based. Total thermal installed capacity that is 85% is coal based. Other renewable sources of energy such as wind, geothermal, solar, and hydroelectricity represents a very less share of the Indian fuel mixture. Nuclear also holds a negligible share.

TECHNOLOGIES FOR USING ENERGY EFFICIENTLY

Fossil fuels should be replaced with renewable energy sources as much as possible for energy efficiency. Power generation, transmission, distribution and consumption are different energy efficiency technologies. The different technologies that are currently available include electric vehicles (EV), combined heat and power (CHP), virtual power plants (VPP) and smart grids.

GROWING ECONOMY AND INCREASED ENERGY DEMAND

Energy is A very vital ingredient for economic growth. Without energy there is no life possible on this planet so the replenishment of these renewable energy sources is very important. However, in earlier times cheaper energy is the main reason for greater economic growth. The improvements in labour productivity recently have largely been achieved by providing workers with increasing quantities of energy, both directly and indirectly in capital and technology. A progressive shift towards higher quality energy carriers has resulted in more economic output. Ecological economists therefore view energy as contributing more to economic growth including low cost.

ENERGY CONSERVATION

Law of conservation states that energy can neither be destroyed nor can be created it remains constant. Energy can be converted from one source to another. Conventional energy sources draw attention on nature and human society. A policy should be made to save energy efficiently in order to conserve it

for future generation. Alternatively, renewable energy sources should be used judiciously which would cause environmentally friendly and sustainable lifestyles. Thousands of mini dams should be used to generate electricity. Electricity gets wasted in large amount during transmission. The energy talk never ends, because energy needs to be 'conserved.' **Conservation of energy** states that it only moves from one place to another - from one type of energy to another. We can conserve energy by preventing or reducing waste of energy and by using resources more efficiently.

FUTURE SCOPE

The prominence for future generation is job creation, industrial innovation and balance of payment. Renewable energy technologies are the future for enabling countries with good sources of energy resources that meets the domestic demand. Also, renewable energy technologies may even enable these countries to utilize these energy sources for long term benefits. Moreover, the cost of importing fuels can affect economic growth which is also a benefit for future generation. Every other life living on this planet is considered as a slave which relies on these renewable energy sources.

SUMMARY AND CONCLUSION

Renewable energy sources are important component of the world. Renewable energy technologies could reduce carbon dioxide emissions by replacing fossil fuels. Negative and irreversible factors in conventional energy production should be removed in order to save energy production. Conventional energy sources should be made compatible with the renewable energy sources so as to reduce the cost of generating electricity. Emission of carbon dioxide should be reduced as much as possible in order to replace fossil fuels with the renewable energy sources. In this paper, we considered different types of energies such as hydro, wind, solar, tidal, geothermal sources, because of their significant contribution to power generation. It has also been analyzed that Renewable energy production is continuously increasing on the global level.

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