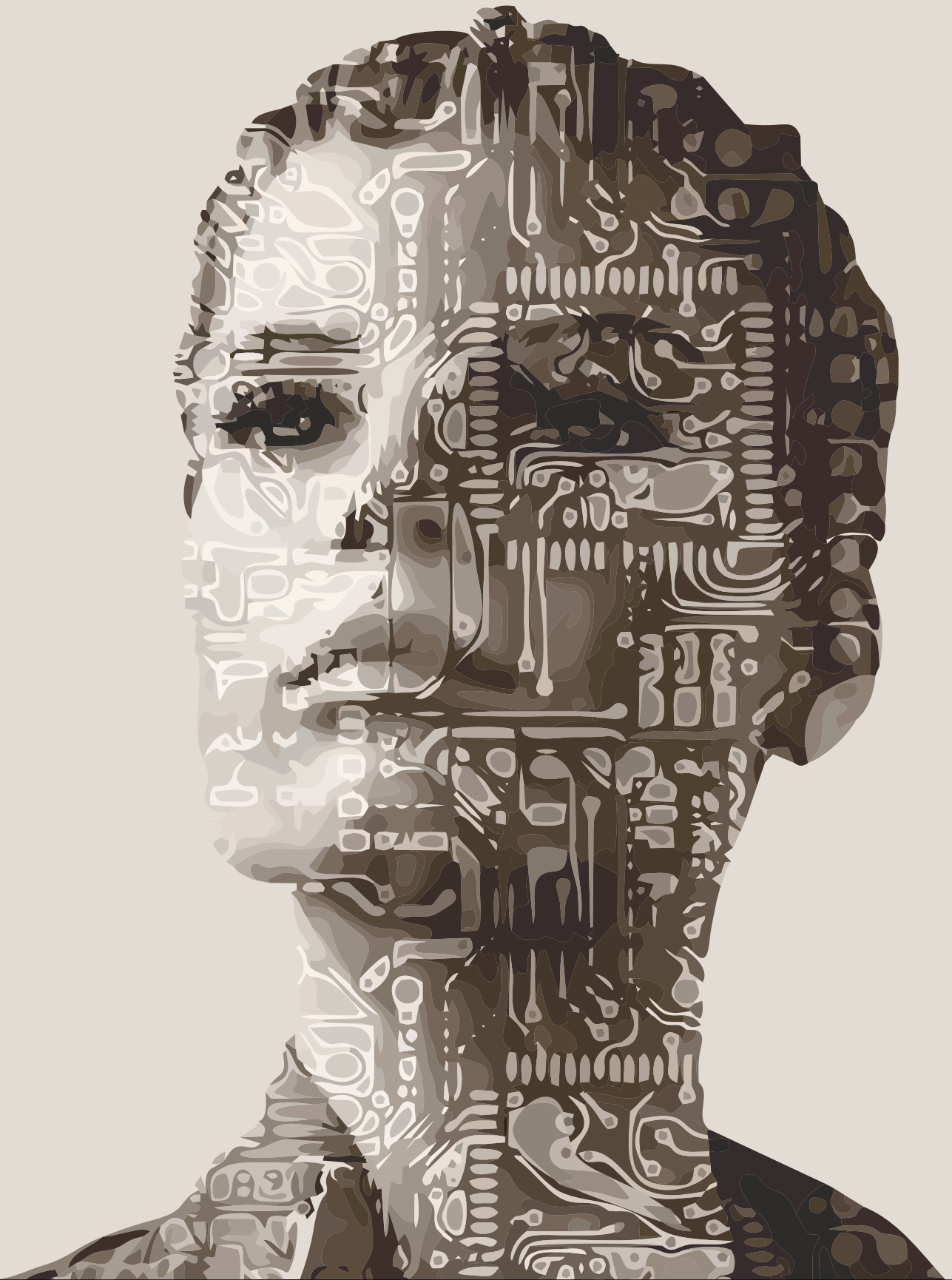


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Xavier's Student Journal of Computer Science and Technology





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Xavier's Student Journal of Computer Science and Technology



Department of Computer Science

St. Xavier's College, Jaipur

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Now that times have changed from manual work to an evolving digital world, everything seems to turn to digitization.

So, we here at St. Xavier's understand the growing need of the competitive environment and hence very gladly would want to cater to the Department of Computer Science, having present to you it's second journal "INFORMATICA". By the means of it, we tend to spread awareness among the youth regarding the future of IT and it's day to day useful applications, which are enjoyed by every common man in today's times. With the best of all wishes now, I hope this journal proves to be worthy of it's purpose where everyone get's to learn something interesting and innovative. Congratulating on the success of the first edition of "INFORMATICA," I expect the second one to reach equivalent greater height and above.
Thank you.

As a new member to the ever growing family of St. Xavier's, I have been really impressed by the intellectual art, both mental and physical shown by the students. The determination and the dedication possessed by them while achieving any goal is really appreciable. Regardless of the different streams, the workforce at St. Xavier's makes it the college it is well known for. To make out a better place through ingenuity, innovation and almost limitless enthusiasm, I stand out to call myself the most proud of all Xavierites.

To have all the insights of a professional life nowadays, technology with good communication skills open the gate to a world preferable and appreciated by all. The student journal "INFORMATICA" is a medium through which various IT related research and information have been provided. Also that, it is important for a person as a student to research upon a topic for it provides the various aspect of growing and learning, it helps a brain to adapt. So, I express my appreciation towards the Department of Computer Science for their never ending efforts to work for the betterment of their department and the concerned ideologies of it.

Having perform a research is kind of an investment one never regrets in the future. Because it provides a horizon towards the various uniform and non-uniform conditions, a person enhances his mental capacity and learning ability. The Department of Computer Science is trying to focus on the research activities about new technologies, maintaining the level in this competitive world which has to create a great impact. This journal is giving you an information about not only an old technologies which has adapted with a new one but also future comings which we can't even imagine how rapidly the changes are taking place.

I wish the students very best for your future and also you should encourage your friends for writing such research.

Thank you!

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AUGMENTED REALITY: AN OVERVIEW

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ABSTRACT

In recent years, computer graphic has progressed to point where the images are almost identical to what that it is in the real world. However, these computer-generated images that are present in media like movies, games, etc. are still somewhat detached from our physical surroundings. To obscure the line that is present in between of what is real and what is computer generated, a technology known as Augmented Reality (AR) is used. Augmented Reality's core aspect is that the participant or the user engages in the regular, normal world through the overlay of digital information that is placed to augment our surroundings. Augmented Reality is implemented by overlaying alphanumeric or/and graphical information on user's real-world view. The aim of augmented reality is to present digital information which could be directly registered into the physical environment, so that the digital information seems to become part of the real world, at least in the user's opinion. This would help us to create direct, automatic, and actionable links between physical and virtual world.

This paper will provide a literary review of what augmented reality is, how it works and its application in a different area.

Keywords: augmented reality, real world, virtual world, physical world, computer-generated images, digital information

1. : INTRODUCTION

Augmented Reality (AR) is a growing aspect of technology on mobile devices, related to the escalation of mobile computing in recent years due to the omnipresence of internet access around the world. Augmented Reality (AR) is becoming increasingly popular, due to smartphone apps like Amikasa, PokemonGO, Ink Hunter, SpecTrek etc. As these apps superimpose a computer graphically generated virtual world onto the real world it allows users to feel more sense of immersion and reality as it is based on real world.

With the tech companies like Google and Facebook investing in certain technologies, it is bound that the world would notice. Goldman Sachs market report state that if AR market could worth around \$58.6 billion by 2020.

1.1 : Definition

Augmented Reality(AR) enables the user to observe the real world with virtual elements or information that are projected on user's real-world view. So in simple words, AR just augment the reality, rather than substituting it completely. To user it will appear the real and virtual objects exist side by side in the same space. Milgram et al. (1994) provides a helpful image of how reality and virtuality are related to each other (see Figure 1).

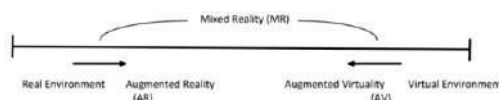


Figure 1. Representation of the reality-virtuality (RV) continuum, re-drawn from Milgram et al., 1994.

Figure 1 shows how the difference among virtual environment (where all elements are virtual), augmented virtuality (where virtual environment is augmented by real object(s)), real environment (real world surrounding) and augmented reality (real world elements are augmented by virtual ones).

The most widely accepted definition of AR was proposed by Azuma in his 1997 survey paper. According to Azuma [1997], “AR must have the following three characteristics:

- Combines real and virtual
- Interactive in real time
- Registered in 3D” (1)

Klopfer and Squire (2008) define augmented reality as “A situation in which a real-world context is dynamically overlaid with coherent location or context-sensitive virtual information.” (2)

1.1 : History

1.1.1 : 1960-70s

- The earliest known example of Augmented Reality was given by a cinematographer called Morton Heilig who designed Sensorama a motorcycle simulator which was immersive, a multi-sensory technology that had sound, smell, visual, and vibration.
- Ivan Sutherland develops a system called The Sword of Damocles which is first ever Augmented Reality system. The system used six-degrees-of-freedom trackers and optical see-through HMDs to perform Augmented Reality.
- Myron Krueger makes a laboratory where the users for the first time could connect with virtual objects and information. He named it Videoplace.

1.1.2 : 1980-90s

- Tom Caudell and David Mizell coined the term “Augmented Reality”. This came about from their R&D work at Boeing's Computer Services.
- Jun Rekimoto developed an AR model called NaviCam using the concept of 2D matrix marker. Markers are physical objects or places where the real and Virtual Environment are fused together. A marker is what the computer identifies as the place where digital information is to be presented. NaviCam later became one of the first marker systems that allowed camera tracking with six degrees-of-freedom.
- The first factual definition of augmented reality was given by Ronald Azuma who later became one of the prominent researchers in the field of AR.
- Hirokazu Kato develops ARToolKit, a computer tracking library which helps in the development of AR apps and circulated it on the open source community. The ARToolKit tools allow video capture in the real world to be combined with virtual objects, to include 3D graphics, and be run on any operating system. Today, ARToolKit is used to make Flash-based AR which can be seen through Web Browser.
- The University of North Carolina at Chapel Hill presented a compelling medical AR application which was capable of letting a physician observe the fetus present in pregnant patient directly.
- Feiner, Hollerer, and Pavlik introduce a wearable AR system that let the user to experience AR information that is integrated with related outdoor locations. This system pushed the idea of AR browser.
- Rasker introduced spatial augmented reality where virtual objects are directly rendered on the user's physical space.

1.1.3 2000s

- Bruce Thomas created an AR version of the famous game called Quake and named it “AR-Quake”. This was a first outdoor Augmented Reality game.
- Simon Julier and others create a system called “BARS” (Battlefield Augmented Reality System) which equipped the soldiers with essential data relevant to their location. The system consists of a wearable computer, HMDs with a wireless network system.
- Reitmayr and Schmalstieg advanced the idea mobile collaborative augmented reality.
- Vlahakis devised an AR system for tourism and educational purpose and named it Archeoguide.
- Nokia introduces the Mobile Augmented Reality Applications (MARA) project.
- Mobilizy introduces browser called Wikitude World Browser which is first ever augmented reality enabled browser. This application associates GPS and compass data with Wikipedia's data and extends information on the real-time camera view of a smartphone.
- SPRXmobile launches Layar which is another AR browser that uses GPS and compass data for registration.
- Morrison et al. introduced MapLens, that used magic lens on a paper map to give a mobile augmented reality map
- Google developed wearable AR called Google Glasses and Innovega introducing AR contact lens.
- Microsoft introduces HoloLens.
- PokemonGo opened people's eyes worldwide to the potential of AR experiences that consumers find compelling.

2.SIMILARITIES AND DIFFERENCE BETWEEN AUGMENTED AND VIRTUAL REALITY

Ø. VR has the ability to transpose the user to another world which is completely computer generated whereas AR takes current reality and add things like digital graphics and images or sensation to the real world rather than moving somewhere else.

Ø. While VR is more deeply engaging, AR provides more freedom for the user, and more opportunities for marketers because it does not always require a head-mounted display.

Ø. Virtual Reality is ordinarily projected to the user by a head-mounted display or hand-held controller whereas Augmented reality can be simply superimposed on mobile devices such as smartphones, computer, laptop, and tablets by demonstrating how digital information interact and collaborate with the real world.

Ø. One thing which is similar in both Augmented Reality and Virtual Reality is that they both hold the ability to alter the user's perception of the world.

3.How does augmented reality work?

This section of paper addresses the working of augmented reality at basic level. The working of augmented reality application can be described in two basic step:

- 1.The application has to determine the current state of both physical and virtual worlds.
- 2.The application then has to overlay the virtual world elements onto the physical world such that the user can sense the virtual objects in real world.

There are obviously many sub-steps involved but we can consider the steps above given as the core steps.

3 essential components which helps in the development of augmented reality system or device are

1. Tracking
2. Registration
3. Display

Tracking

For AR registration, tracking user's viewing orientation and position accurately is crucial. Generally tracking device should be consisting of digital camera &/or GPS, accelerometer, optical or wireless sensor. The dynamic sensing position and orientation parameters are known as tracking.

The different types of Tracking Techniques are shown in figure below

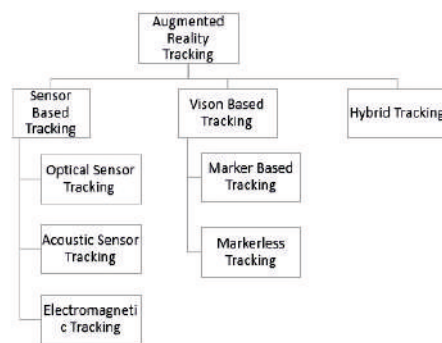


Figure 2: Types of AR Tracking

Registration

One of the key requirement of AR application or system is virtual information to be registered smoothly into the real world which is done through alignment of spatial properties. Registration could be of two type:

Static registration where the camera is static. In this only calibration is required to establish AR. Dynamic registration where the camera is moving. Here tracking is required to Implement AR.

Display

The display is used for creating a suitable impression of coexistence of real and virtual world that is both real and virtual world spatial properties are arrayed simultaneously.

There are three categories based on the way of superimposing the virtual element onto the real world:

·Optical See-Through Display

These are partially transparent display with optical combiner the mix real and virtual world

·Video See-Through Display

This type of display has an opaque screen which is aligned with a video camera. Here the screen is made transparent by displaying real time camera images.

·Projection Based System

This type uses the real world for display and projects graphic onto the real world.

To display above given categories 3 configurations can be used:

·Head Worn Display (HWD): User usually mounts these type of display on their head so as

to get imagery in front of their eyes.

- Hand Held Display: These type of display usually has flat-planed LCD display with a camera attached to provide see-through based augmentations.

- Stationary displays: these type of display act as “window” which is facing AR. No tracking is required with these type of display as they are not moving. The display in this category could range from simple PC monitor to advance 3D spatial display.

1 : CLASSIFICATION OF AUGMENTED REALITY

There are 4 main types of augmented reality based on technologies which are used to make application or system:

1.1 : Marker-less Augmented Reality

These types are the most widely implemented. These type usually uses a location or position acquired from GPS and so are usually also known as Location-based or GPS Augmented Reality. They use a detailed GPS or triangulation location information or accelerometer to provide the data based on your location. The reason behind being popular is that these technologies are easily available on the mobile phone.

1.2 : Marker Based Augmented Reality

This type of Augmented Reality uses some type of visual markers like QR or 2d code that is sensed by user ordinarily through a camera to provide the results. When acknowledged the system alter that area with a static or moving digital element like an audio or a video clip, or a 3D model or some other bit of information.

1.3 : Projection-Based Augmented Reality

Augmented reality which essentially works by projecting artificial light on the surface of real world are known as Projection-Based Augmented Reality. These type of application allows human interaction like touch by sensing alerted projection which is caused by user interaction or in some cases through laser plasma technology.

1.4 : Superimposition Based Augmented Reality

These type of augmented reality usually either fully or partially replace the real view of something with an augmented view of same. Here the object recognition plays an important role as the application cannot replace the objects if it doesn't know what exactly it is.

2 : APPLICATIONS OF AUGMENTED REALITY IN DIFFERENT SECTORS

2.1 : Education

Whenever new technologies are developed, attempts are made to try and use them in an educational sector. Augmented Reality is no exception and for past decade AR technologies have been tested for different educational applications. These trials have shown that in some situations AR can help students learn more effectively and have increased knowledge retention compared to traditional desktop interfaces.

Some example of AR applications for educational purpose are:

- MagicBook: This application overlays 3D images on real text

- colAR: In this application, user can color the 3D model that is created by the application.

- Construct3D: This application is used to create 3D geometric figures for maths and geometric education.

2.2 : Healthcare

Doctors can use augmented reality as a visualization and training assistant for surgery. It

could be possible by collecting 3D data of the patient in real time by using by collaborating it with sensors of MRI, CT scan or ultrasound. Then the data could be rendered and combined it with the real world view of the patient. As a result, this would provide an "X-ray vision" of a patient body part.

Some example of AR applications for healthcare purpose are:

- EyeDecide: This application uses camera display for simulating the impression of some specific conditions on a person's vision
- AccuVein: It is an AR application that with the help of a handheld scanner projects a real-time map of veins on the surface of the skin.
- Medsights Tech has developed a software which can create an accurate 3-D model of tumor present in patient body with the help of augmented reality.

2.3 : Military

For years now, military aircrafts have to use HUDs i.e. head up display for overlaying vector graphics, flight information and some basic navigation on pilot's view of the real world. AR technology is also used in new recruits training exercise.

Some example of AR applications for military purpose are:

- Super Cockpit: This application was initially designed for the fighter pilot. It used virtual environment and HUD to create virtual visibility for conditions like low light and to assist in localization.
- Battlefield Augmented Reality System (BARS): It is an AR system consists of a wearable computer, a see-through HMD (i.e. Helmet Mounted Sights) and a wireless network system. The system is used by the military to superimpose the additional information about environmental infrastructure to officer's real-world view with the help of AR.
- ARC4: ARC4 carry out real-time information to soldiers about their surroundings including map, people, and landscape that is out of view or obstructed and overlays all information on Headset. This device interfaces to both daytime see-through displays and night-vision goggles

2.4 : Tourism

There are AR applications that has revolutionized the tourism industry like application that superimposes the monuments that have been partially or fully destroyed or overlays the information about them some engraving or objects or apps that would recognize the language that is present in the real world and would show the translation in the language you prefer.

Some example of AR applications for tourism purpose are:

- Yelp Monocle: yelps application provides an augmented browser view for hotels, café, building available nearby and also provide its rating and review.
- Word Lens: this application superimposes translated sentence on top of their real-world counterpart.
- Wikitude: this application provides information about the place which can be overlaid on real world through user mobile camera.

2.5 : Maintenance and Repair

Another sector where augmented reality has been proven very useful in manufacturing and repair as it makes instruction easier to understand by superimposing them on actual equipment you are working on through HUDs.

For example, the system KARMA i.e. Knowledge-based Augmented Reality for Maintenance Assistance, is a system that actively generates 3D maintenance direction and superimposes them on the real object that is present in the real world by tracking its

position.

2.6 : Gaming

Gaming with Augmented Reality is becoming increasingly popular after the launch of Pokémon GO in 2016. The main reason why AR games are becoming so popular is that they involve the user physically, emotionally and mentally i.e. immersion on game into their real world

Some example of AR games available are:

·ARQuake: One of the first AR games developed. It is a recreation of popular game Quake but in this user has to fight the virtual enemies in the real world.

·Pokemon GO: It is geolocation games developed by Niantic, which enables you to catch Pokemons that are placed on real world and has developed battlefield which is also superimposed on real world.

·Genesis: It is AR trading card game where with the help of augmented reality the card come to live and holds battle with other user's card.

2.7 : Retail Industry

This is another sector which has been largely benefited through AR technology. With the creation of AR catalogue application which helps the customer visualize how the object would look with their interior. Another application is Magic Mirror which allows the customer to try the clothes and accessories virtually by tracking or outline the physical prototype and thus saving customer's time.

3 : CONCLUSION

This paper has presented a comprehensive review of what Augmented Reality is and its application in different sectors. Despite of recent advances in the field AR technologies, there is work and research remains to be done. AR markets is bound to grow bigger in the coming year and with still being into the initial phase and thus ideas for upcoming apps are endless. The main goal in AR is to generate virtual elements so realistic that would be hard to distinguish them from the real world which can be achieved by nearly perfect and smooth registration. This will make AR more accessible in future and would easily integrate into our lives.

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A REVIEW OF USES AND WORKING OF WIRELESS MESH NETWORK

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ABSTRACT

A wireless mesh network is made up of radio nodes which is organized in mesh topology. It is a wireless ad hoc network. A wireless mesh network is very promising and unique communication technology that helps us to connect to the world in flashing speed. Wireless mesh network consists of mesh clients, mesh routers and gateway.

A mesh is an affluent interconnection among devices and nodes. Nodes are the devices that are connected in mesh network, which can establish wireless links connecting it to more nodes in network. Mesh networks are wireless network with routing capabilities.

Keywords- wireless mesh network, ad hoc

INTRODUCTION-

A wireless mesh network (WMN) is a network wounded by the connection of wireless access point installed at user's place. Each network user is also a provider, whose helps to forward data in next node. In WMNs, nodes consist of mesh routers and mesh clients. Each device works as a host as well as a router, it forwards packets of other nodes that may not be within direct wireless transmission range of their destinations.

Wireless mesh network allows people living in remote area and industries that work in rural areas to connect to a network at reasonable price. In this, only one device or nodes need to be physically connect to a network by a wire like a DSL internet modem. That one-wired node then shares its Internet connection wirelessly with all other nodes in that connection. The more nodes are there further the connection will be extended, creating a wireless cloud of connectivity that can serve dozens or even hundreds of users.

In a wireless mesh network, the network connection is spread out among many wireless mesh nodes that communicate to each other to share the network connection across a large area. Mesh nodes are small radio transmitters that works in the same way as a wireless router do. Nodes use the common wifi standards known as 802.11 a, b and g to communicate wirelessly with users, and, more importantly, with each other. Nodes are programmed with such software that tells them how to interact within the larger network. Information travels across the network from point A to point B by hopping wirelessly from one mesh node to the next. These nodes automatically choose the quickest and safest path in a process which is known as dynamic routing. [1]

Working of Wireless Mesh Network:

The building blocks of wireless mesh networks are the mesh nodes. Mesh nodes are divided into two groups, mesh routers and mesh clients. Mesh routers have additional gateways facilities, which help a router to connect to other existing wireless technologies like Wi-Fi. Client uses traditional Ethernet as network interface card which help to connect directly with mesh routers.

A wireless mesh network functions by sharing an internet connection across a local area network. In this only one device or nodes is physically connected to a network by a wire. That one-wired node then shares its Internet connection wirelessly with other nodes, which

then shares it with their nearest array of nodes and the connection continues to connect different nodes like this. If one node can no longer communicate, the others can still communicate with each other, directly or through one or more intermediate nodes. As only one node is physically connected to the modem, each node should have capability to send data back and forth at constant speed.

Wireless mesh networks are effective in sharing internet connection because the more nodes that will be there, the more signal will travel. And the more nodes you have the connection becomes stronger and faster for the users. The quality of internet connection depends on the distance from and position of a traditional router, a mesh network expands that coverage so distance and direction shouldn't matter. [2]

Applications for Wireless Mesh Networks:

Wireless mesh network introduces the concept of proper mesh topology with wireless communication between mesh routers. This technology helps to overcome many challenges, such as the installation of extensive Ethernet cables. Application for wireless mesh network is as follows-

- **Home Networking-** It is a network of home appliances such as personal computers, smart televisions, washing machine and other electronic items. This provides connectivity between the home appliances and only a single connection of internet is needed through the router.

- **Cities and municipalities Networking-** With the help of wireless mesh network, cities can easily connect to widely spread citizen and public services over a widespread high speed wireless connection. In many urban areas public Wifi hotspots are being installed. Mesh routers can be easily mounted on rooftops and the client devices get connected in a single hop. It provides a cost effective way to share internet access among different houses.

- **Disaster Management Networking-** wireless mesh network can be used in places where spontaneous network connectivity is required. During disasters like fire, earthquake, where all the other existing communication infrastructure might collapse. By providing communication interfaces at the mesh routers, different mobile devices can get access to the network. This helps people to communicate with each other when they are in critical situation and ask for a help.

- **Security Networking-** As security is turning out to be a very high concern, security systems become a necessity for buildings, shopping malls, grocery stores, etc. Wireless mesh network is much feasible solution than wired networks to connect all devices. Since images and videos are major part in handling security that demands much higher network capacity than other applications. So WMNs is more useful here. [3]

The Internet connection: stronger and faster-

The internet connection truly depends on the distance between a computer and the nearest wireless nodes. Distance places a huge role in wireless signal strength. The more near your computer is to wireless nodes the stronger your signal will be and further stronger and faster your internet connection will be.

Advantages of Wireless Mesh Networks:

- Your Wireless mesh network will become more huge and rapid by installing more nodes.
- As in WMNs we use less wires so our setup cost decreases as compared to wired network particularly for large areas.
- They are convenient where Ethernet wall connection is not there like outdoor venues, transportation or in amusement parks.
- They rely on the same Wifi standards that are already present in the environment for most

wireless networks.

- Mesh network is able to find automatically the fastest and most dependable paths to send data, even if nodes losses signal so mesh network is self curing.
- In wireless mesh local packets don't have to travel back to a central server, so it allows local network to run faster.
- These nodes are easy to install and uninstall that makes the network extremely adaptable and expandable as more or less coverage is required.

Disadvantages of Wireless mesh networks:

Alongside the strong and attractive features of WMNs comes a profusion of disadvantages that need to be addressed in order to innovate the ways to overcome those issues.

The Disadvantages are-

- At beginning Mesh topology requires lots of devices that will need lot of capital to invest in.
- Complexity in connection can be caused as each node send messages as well as work as router.
- Communication protocols suffer from scalability issues due to multi-hop networking which is common in WMNs. It means that when the size of network increases, the network performance degrades significantly.
- Without a trustworthy security solution, WMNs will not be able to succeed due to lack of incentives by customers to subscribe to reliable services.
- Maintaining mesh network can be difficult to manage as it requires continuous supervision because of repetitions present in network.

Conclusion:

The capability of self-organization in WMNs reduces the complexity of network deployment and maintenance, and thus, requires minimal upfront investment. The backbone of WMNs provides a viable solution for users to access the Internet anywhere anytime. However, the wireless and multi-hop nature of the communication, they are subjected to a wide range of security threats that are needed to be solved. Hence we conclude that WMNs is very efficient and fast way to connect the entire world wirelessly but it has certain disadvantages that have to be solved to make this connection stronger and flawless.

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E-COMMERCE SERVICES IN INDIA: PROSPECTS AND PROBLEMS

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ABSTRACT

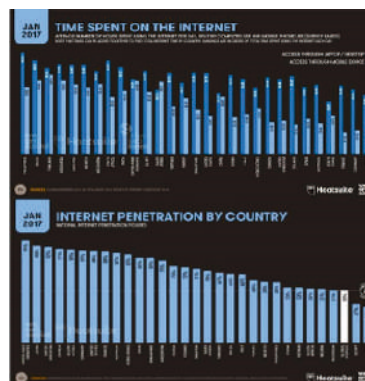
Electronic business (Web Based Business) as a major aspect of the data innovation insurgency turned out to be broadly utilized as a part of the world exchange general and Indian economy specifically. With progressions in innovation, there have been changes in the strategy for business exchanges. India, being a fast connector of innovation is apace with the present situation of electronic information trades and has taken to internet business. Web based business remains for electronic trade and relates to exchanging merchandise and enterprises through the electronic medium. India is demonstrating gigantic development in the Ecommerce. The minimal effort of the PC and the developing utilization of the Internet is one of explanations behind that. There is a developing mindfulness among the business group in India about the open doors offered by online business. Material Industry is second biggest industry in the nation contributing 14% to GDP. Online business and electronic applications in computerization has acquired colossal development in India. Web based business is interfacing provincial India for the business subsequently create town economy. The future looks splendid for online business in India. India is demonstrating huge development in the E-business. India has a web client base of more than 100 million clients. The infiltration of e-business is low contrasted with business sectors like the US and the UK yet is developing at a substantially quicker rate with countless contestants. India is yet to witness a leap forward E-trade example of overcoming adversity especially in online retail. Online business makes new open doors for business; it additionally makes new open doors for instruction and scholastics line. It raises key difficulties that are being looked by shoppers identifying with online business viz., Ethical issues, Perceptions of hazard in e-benefit experiences, challenges for ebusiness instruction and legitimate framework. The new Innovative Technologies in Electronic and IT applications is spine of the Industry advancement. This can happen just when E-trade supplements and compliments advancement of the Engineering Industry and huge scale Quality assembling occurs in India. India needs to elevate E-trade business to create provincial India by creating compelling correspondence to delineate of the merchandise delivered and make accessible products and enterprises easily to the purchasers. Material article of clothing Industry has enormous help by E-trade by online web-based interface however buyer should be taken into certainty by instructive program in rustic India.

Key Words: Electronic, services, ethical issues, perceptions, legal system, e-business

INTRODUCTION

Over last few decades the popularity of e-commerce has tremendously increased due to its quick and convenient way of exchanging goods and global services. India has proved

to be a booming ground for e-commerce business models; the country has already reported 15% growth in e-commerce retail business year in 2016-2017. The present study is conceptual survey of descriptive nature. It attempts to explain the concept of e-commerce, Impact of e-commerce, differences between traditional commerce and electronic commerce, benefits of e-commerce, various trends in e-commerce and challenges before e-commerce. It concludes that e-commerce offers several benefits to the various stakeholders. Hence we should equip ourselves to give warm welcome to e-commerce which is an obvious outcome of globalization and technological revolution around the globe. In its most straightforward frame web based business is the purchasing and offering of items and administrations by buyers and organizations over the Internet. Web deals are expanding quickly as buyers exploit bring down costs offer by wholesalers retailing their items. This pattern is set to fortify as sites address customer security and protection concerns. Since a decade ago the prevalence of internet business is hugely expanded because of snappy and helpful method for trading products and ventures both provincially and comprehensively. Presently a-days it has turned into the virtual primary road of the world. Today, web based business has developed into a colossal industry. The aggregate estimation of E-business exercises inside India has surpassed Rs 5.7 billion amid 2004-05, as indicated by an examination led by Internet and Online Association of India. The goals of this paper are to ponder the present position of E-business in India, to examine the eventual fate of electronic Business in India and to consider the difficulties looked by E-Business players in India. The present investigation is reasonable overview with exploratory cum expressive in nature. It depends on the investigation of auxiliary information. The optional information is benefited from different diaries, web, and books.



Meaning of E-Commerce

Electronic trade or internet business alludes to an extensive variety of online business exercises for items and administrations. It likewise relates to "any type of business exchange in which the gatherings cooperate electronically as opposed to by physical trades or direct physical contact."

In straightforward words, E-commerce just means taking things that your organization is already doing in person, through the mail, or via phone, and doing those things in another place on the Internet. It likewise alludes to all types of business exercises directed over the Internet. This can be e-tailing, B2B, intranets and extranets, web based promoting, and essentially online existences of any shape that are utilized for some kind of correspondence (e.g. client service). Currently, over 30.2% of the world has an access to the web, and to the E-commerce. Diminished web surfing charges, web innovation improvement covering extended transfer speed, and expanded rates and unwavering

quality has made internet business accessible to a vast pool of developing business sector customers.



Literature Review

India has a web client base of around 137 million as of June 2016. The entrance of e-business is low when contrasted with business sectors like the United States and the United Kingdom however is developing at a significantly speedier rate with an expansive number of new participants. Cash on delivery is a unique thing to India and is a preferred payment method. India has a dynamic money economy because of which around 80% of Indian ebusiness has a tendency to be Cash on Delivery. E-business in India is still in blossoming stage yet it offers broad open door in creating nations like India. Exceedingly extreme urban territories with high proficiency rates, tremendous provincial populace with quick expanding education rate, a quickly growing 14 Bhavya Malhotra web client base, innovation progression and reception and such different variables make India a fantasy goal for ebusiness players. In addition, squat cost of Personal computers, a new introduced base for Internet utilize and a continuously more focused Internet Service Provider (ISP) advertise has stoked the fire in increasing web based business development in Asia's second most crowded country.

India's e-business industry is on the development bend and encountering a surge in development. The Online Travel Industry is the greatest fragment in e business and is prospering to a great extent because of the Internet-adroit urban populace. Alternate sections, sorted under online non-travel industry, incorporate e-Tailing (online retail), online classifieds and Digital Downloads (still in a blooming stage). The online travel industry has some privately owned businesses, for example, Make my trip, Cleartrip and Yatra and also a solid government nearness as far as IRCTC, which is an effective Indian Railways activity. The online classifieds fragment is extensively partitioned into three segments; Jobs, Matrimonial and Real Estate. A portrayal by the Internet and Mobile Association of India has uncovered that India's e-business advertise is mounting at a normal rate of 70 percent every year and has developed more than 500 percent since 2007. The present gauge of US\$ 6.79 billion for year 2010 is route in front of the market estimate in the year 2007 at \$1.75 billion.



State of E-Commerce in India

Today E-commerce is an equivalent word for Indian culture and is viewed as a basic piece of our everyday life. Different web sites give end number of products and enterprises. Moreover there are those that give a particular item, together with its united administrations Multi-item e-Trade-These internet business entrances in India give products and enterprises in different gathering. Posting only a couple, attire and extras for man and ladies, prosperity and brilliance items, PCs and peripherals, vehicles, programming, books and magazines, purchaser hardware, machines, adornments, sound/video, diversion, merchandise, articles blessing, Real-domain and administrations from a solitary result of web based business gateways Some Indian sites in a particular field, for example,

1. Automobiles – These sites gives you a choice of purchasing and offering your items by transferring and offer four wheelers and bikes, new and utilized vehicles, on the web. A portion of the administrations offered are car research and reviews, online assessment, technical specifications, vehicle insurance, vehicle financing

2. Textile – Textiles Industry is second biggest in India beside farming add to 14 % offer of the fares and contribute 4 % of the GDP. An open door for Textile Industry to develop is tremendous. Administration of India is Promoting

Textile Industry modernization by TUFF plot. New Technical Textiles Industry is probably going to create business from 3billion to 20 billion dollar. To help cultivating agrotech Textiles is helping change in execution and efficiency in farming. Introduce 130 Billion dollar business to 160 US Billion Dollar. Significant Markets are India and China and open door for Indian youth who can make and grow new market by utilizing online business.

3. Stocks and shares and E-exchange - In India today, through e – business you can even adapt in to value. Following are the administrations offered to enrolled clients: Online buy/showcase investigation and do inquire about, offer of stocks and offers, organization data, looking at organizations, Research on Equity and shared assets.

4. Properties and E exchange give data on new properties and resale properties. With the designer and advisor one can straightforwardly bargain. Extra Services: Insurance organizations, NRI, Packers and Movers administrations, Housing Finance, modelers and inside originators.

5. Lifestyle and E-exchange India with a prosperous foundation has a sound legacy of electronic business and is instrumental, generally in offering India itself being item, cheering Indians and outside individual for its multifaceted culture and excellence. Tourist destinations are grouped by subjects, for example, Adventure - trekking, mountaineering, and so on., Eco-Themes has a place with timberlands, verdure.

6. Gifts and E-exchange late days, needed to arrange for what to blessing to a friend or family member, walking through your most loved store, and peruse for a considerable length of time before purchasing a blessing. The endowments are named: Collectibles, for example, sketches and forms, extravagance things, for example, family unit trinkets and floor coverings, adornments boxes, calfskin products, scents, and so forth., blossoms, toys and amusements, chocolates, woodwork and metal - craftsmanship.

7. Marriage and E-Commerce-In the realm of web based business that are made about marriage entrances. One can locate a reasonable accomplice on their sites by locale of staying (India or a remote nation), statement of faith or social gathering. Related administrations for enrolled clients: Health and Beauty, Fashion and Style, Information on customs and function, legitimate issues, Wedding Planners, Astrological Services.

8. Employment and E-exchange - Two noteworthy entries like www.naukri.com and

www.monsterindia.com are dynamic in moving toward customers with proper employments the snap of a mouse. The administration is allowed to work searchers and bosses who charge an ostensible expense.

Future of E-Commerce in India

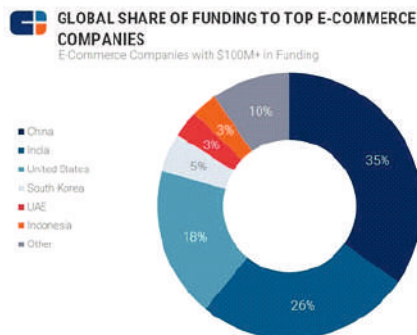
India is growing quickly and if advancement is to be measured, how might we overlook the part of web based business in it. The web client base in India may at present be a simple 100 million which is significantly less when contrasted with its infiltration in the US or UK yet it's definitely extending at a disturbing rate. The quantity of new participants in this circle is raising every day and with development rate achieving its peak it can be assumed that in years to come, standard retailers will want to change to online business. Bits of knowledge into expanding interest for broadband administrations, rising ways of life, accessibility of more extensive item runs, lessened costs and occupied ways of life uncover this reality all the more conspicuously in this way offering approach to online arrangements on blessing vouchers. Passing by the measurements, the E trade advertise in India was worth about \$2.5 billion in 2013. It rose to \$8.5 billion by 2015 therefore portraying a positive surge over the most recent two years. As indicated by an announcement discharged by the Internet and Mobile Association of India (IAMAI), these figures would reach up to \$12 billion by 2016! To comprehend this situation, we can separate E-trade into three general classes which incorporate physical administrations, physical merchandise and virtual products. Another classification that is bit by bit making its check is the neighborhood business (couponing, business catalog, classifieds and so forth.) which offers noteworthy covers with E-trade. The first classification of physical administrations is unquestionably the real donor which incorporates travel ticketing, occupations, wedding and occasion administration sites with travel destinations representing 75% of all E-business ventures! It gives appealing arrangements as well. The second classification of physical merchandise is the one at present increasing impressive consideration, because of the buildup made by new companies/stores being propelled every day. Pioneers in this division are Flipkart, Homeshop18, Indiatimes, Naaptol, Letsbuy and so on each of which offers everything from cell phones to pet nourishment. The third and last classification of virtual merchandise and blessing vouchers like online music, software's, motion pictures, diversions, Taj Hotel blessing vouchers, Reebok blessing vouchers, Pizza Hut blessing vouchers and so forth have been moderately falling behind in India when contrasted with Europe and America, fundamentally because of theft concerns and the social point of view of Indians. Be that as it may, the situation is required to change with the advanced downloads section anticipated that would develop in the Indian Ebusiness advertise because of the blast of cell phones and the administrations accessible over the Internet at unique rebates. Certain one of a kind characteristics of the E-business industry in India, for example, money down method of installment and direct imports that lower costs significantly are most likely going to realize a quick development in this industry in years to come. As indicated by the most recent research by Forrester, a main worldwide research and counseling firm, the online business showcase in India is set to become the quickest inside the Asia-Pacific Region at a CAGR of more than 57% between 2014-18. The report, titled "Asia Pacific Online Retail Forecast, 2011 To 2016," has been issued by Forrester Research Inc. Expert Zia Daniell Wigder, with Steven Noble, Vikram Sehgal and Lily Varon.

Another report by the Boston Consulting Group says online retail in India could be a \$84-billion industry by 2018 — more than 10 times its value in 2010 — and will represent 4.5 for each penny of aggregate retail. The internet business stages boost its

scope to the potential clients and furnish them with an advantageous, fulfilling and secure shopping background.



Evidently, more online clients in India will make buys through the Internet. General internet business industry is on the edge to encounter a high development in the following couple of years. The internet business showcase in India was to a great extent overwhelmed by the online travel industry with 80% piece of the overall industry while electronic retail (E-Tailing) held second place with 6.48% piece of the pie. E-Tailing and computerized downloads are relied upon to develop at a speedier rate, while online travel will keep on ruling the real extent of piece of the overall industry. Because of expanded online business activities and mindfulness by brands, e-Tailing has encountered fair development. As per the Indian Ecommerce Report discharged by Internet and Mobile Association of India (IAMAI) and IMRB International, "The aggregate online exchanges in India was Rs. 7080 crores (approx \$1.75 billion) in the year 2011-2012 and it was developed by 30% to touch Rs. 9210 crores (approx \$2.15 billion) by the year 2013-2014. it went up to \$6.3 billion of every 2016 and to \$14 billion out of 2016. Around 75% of this is travel related (carrier tickets, railroad tickets, inn appointments, online versatile revive and so on.). Internet Retailing includes around 12.5% (\$300 Million). India has near 10 million online customers and is developing at an expected 30% CAGR opposite a worldwide development rate of 8– 10%. Hardware and Apparel are the greatest classes as far as deals. According to "India Goes Digital", a report by Avendus Capital, a main Indian Speculation Bank having some expertise in computerized media and innovation division, the Indian web based business showcase was evaluated at Rs 28,500 Crore (\$6.3 billion) for the year 2011. Online travel constitutes a sizable segment (87%) of this market today. Online travel showcase in India is required to achieve Rs 54,800 Crore (\$12.2 billion) in measure by 2018. Indian e-following industry is evaluated to develop to Rs 53,000 Crore (\$11.8 billion) in 2018.



Conclusion

The online business showcase in India has grown by 34 percent over the most recent seven years, was about USD 600 million in 2014-15 and is relied upon to touch USD 9 billion by 2017 and USD 70 billion by 2020. As indicated by Forrester, the Indian internet business advertise is required to develop at a CAGR of more than 57 percent between 2012 and 2017, which is the quickest inside Asia-Pacific area. The key factors that are driving this development are the ascent of Internet utilization (developing at 20 percent) and 4G entrance, and expanding cell phone clients with accessibility of Internet on cell phones. It is assessed that as of now there are 27 million portable Internet clients in India out of which 4 percent are purchasing items on versatile. Because of expanding mindfulness among purchasers about item quality, change in customer state of mind and shopping propensities, India's web based business advertise is relied upon to develop at a thriving rate through 2020. Rising number of fast web clients is urging organizations to advance and offer a differentiated exhibit of items and administrations on the web. Throughout the most recent couple of years, with noteworthy changes in the installment structure in web based business showcase, customers in India are progressively moving towards online space and are shedding their conviction of internet shopping medium being risky. Customer gadgets, online travel and clothing and extras are the market fragments displaying promising development. With the choice of same day conveyance, online perishables stores are likewise going into the nation's online space. As indicated by as of late discharged TechSci Research report "India E-business Market Forecast and Opportunities, 2020", the nation's online business advertise is conjecture to develop at a CAGR of more than 36% amid 2015 - 2020, because of growing cell phone client base, tremendous rebates and offers stretched out to clients by the web based business organizations, expanding per capita discretionary cashflow and developing youth populace. India's internet business showcase is overwhelmed by eadministrations portion, by virtue of blasting on the web travel advertise, which is developing as the most favored medium for arranging occasions, making inn appointments and purchasing tickets for go by different modes including air, transport and rail. "India's workforce significantly contains youthful buyers who have less time for going out and shopping at consistent physical stores. Such a situation makes humongous potential for web based shopping in a market as immense as India. In addition, extraordinary offers and rebates by the main online business players additionally increment customer enthusiasm towards the items." said Mr. Karan Chechi, Research Director with TechSci Research, an exploration based worldwide administration counseling firm. Application of electronic Gadgets and IT I vast scale fabricating is need of great importance and online business can help support quality assembling.

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WIRELESS NETWORKING- HISTORY, WORKING AND IMPACT

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ABSTRACT

The wireless networks and handheld devices have continued their rapid technical evolution, growing focus on increased user-end utility and new opportunities for compelling wireless applications in many aspects of people's lives. The wireless media of data transfer include radio waves, micro waves, infrared waves, Blue tooth and satellite links. Like any other network, wireless networks also have their advantages as well as disadvantages. With the help of wireless networking, we are developing new technologies and ideas. There is an endless quest for increased capacity and improved quality in the field of wireless communication.

Keywords: ALOHA NET, WAVELAN, electromagnetic waves, satellite links, resource sharing.

INTRODUCTION

The 21st Century is the Digital Era. Today, wherever we go we find computers, laptops, smart phones and other gadgets, all connected over a network, allowing us to exchange data almost instantly. Networks help us not only to stay connected with others anywhere at all times, but also gives us access to our valuable data. Moreover, resource sharing is now easier than ever.

The first professional wireless network was developed under the brand ALOHA NET in 1969 at the University of Hawaii and became operational in JUNE 1971.

The first commercial wireless network was the WAVELAN developed by NCR Corporation in 1986. However, earlier systems had very low speeds. But, it was not a big problem since wired networks were used more.

By 2003, mobile phones and laptops could also be connected to wireless networks. As time passed, systems became more and more efficient and faster.

In 2007, our beloved smart phones came into existence. They offer high speed data processing and allow us to connect to WIFI and do almost every task that a computer can do.

Wireless Media

In wired connections, various kinds of cables are used (such as twisted-pair cables, coaxial cables etc.) to establish networks. They are the medium of data transfer. Every connection requires one. In wireless networks, we use electromagnetic waves. These waves are basically electric and magnetic fields travelling through empty space. Frequencies of waves are measured in Hertz(Hz). Based on FreBelectromagnetic waves are categorized into various categories.

·Radio waves: These are Omni-directional waves used for communication ranging from over a few metres up to an entire city. Radio waves offer ease of communication over any kind of terrain. They can penetrate objects. This makes them a favourable medium for WIFI networks.

Frequency: 3KHz to 3GHz

·Micro waves: These are unidirectional waves that travel in a straight line. They are useful for long distance communication but the transmitting and receiving antennas need to be aligned. Micro waves cannot penetrate objects.

Frequency: 300 MHz to 300 Ghz

- Infrared waves: These are used in devices such as remote controllers. The frequency of these waves is near to that of red light, thus the name infra RED. These waves cannot penetrate objects. This is more of an advantage as the controller of one device cannot control a similar object in the next room.(Imagine someone messing with your TV from a different room and you have no idea what's going on). Frequency: 300 GHz to 400 THz
- Bluetooth: These are Radio waves having frequency range from 2.402 GHz to 2.480 GHz. These are used for short range data transfer with the help of devices that provide Bluetooth services.
- Satellite links: These are used for communicating globally and are mostly used by government organisations.

Types of Networks

Type	Range	Standards
Personal Area Network (PAN)	Within a person's vicinity	Bluetooth, ZigBee, NFC
Wireless Local Area Network (WLAN)	Within a building or campus	IEE 802.11 (WIFI)
Metropolitan Area Network (MAN)	Within a city	IEEE 802.15 (WIFI MAX)
Wide Area Network (WAN)	Worldwide	Cellular (UMTS,LTE)

Advantages of wireless networks

- 1.) The Most basic advantage of wireless networks is that the user can move around freely while working on his/her data.
- 2.) Multiple computers/smart phones can be connected without any wiring. This also reduces the cost of wiring for establishing networks.
- 3.) Resource sharing is easy and efficient.
- 4.) Distances have been reduced as wireless networks allow us to stay connected anywhere.

Disadvantages of Wireless Networks

- 1.) Connections may not be available everywhere. There are still many places where networks are not available.
- 2.) Range limitation: Speed of data transfer is based on the range of the network. Every network has a limited range. We need to stay within the range of the network for good speed.
- 3.) Safety concerns: Your data may be vulnerable to viruses and external interferences unless you have taken really good security measures.

Advancements

Improvements keep taking place in the IT sector in order to eliminate whatever drawbacks there are. Many limitations have been overcome, some still need to be brought down.

The 4G (4th generation) and the upcoming 5G (5th Generation) networks are examples of great advancements in the field of wireless networking.

Other new advancements include IOT (Internet of Things), Google Drive and Drop box which allow us to store data and create back-ups, new messaging apps which allow us to contact other people easily, search engines which allow us to collect information regarding any topic and many more.

Conclusion

Tracing the history & development of wireless networks and looking back at the old days of the beginning, it won't be wrong to say that we have indeed come very far. Even now, we are developing new technologies and promoting new ideas in order to develop better devices which would perform tasks at a faster rate while consuming the least amount of energy and data.

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ARTIFICIAL INTELLIGENCE: BOON OR DOOM

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Abstract:

JARVIS the name familiar to the youths. Similarly, Siri, Cortana, and more. These softwares are developed one after another. Why they came in existence and what is in those that they have gained so much of attraction. The simplicity of its use, no need for the consumer to know about its backend, light, compatible and many more advantages this have but are these advantages enough to cope up with the effect it has led on the society and the people. Little of the advantages and some drawbacks of it have been focused on here. Effect on education, better healthcare facilities, greater research, depth knowledge and what not benefits we can acquire from this. These softwares have led to less physical work of the people, lack in social interaction which is a huge problem. The purpose of the study of this individual topic is that I want to know more about what effect it puts up on the society we live in. If it is beneficial or it moulding the people around subconsciously. Initially the outcomes were very favourable, but slowly with the passage of time and the deeper study, it was acknowledged that even though it is favourable, but for what percentage of people and what percentage of people are using it just as a different person helping them out in their day to day chores. The findings of the research states that even if it is a nice technology, it is supposed to be kept to the experts. The way society takes advantage of this, I personally feel dissatisfied. The Personal Assistant might be very common but the huge amount of study, line of codes and a ton of hard work behind these are rarely appreciated.

Keywords: AI, Siri, Cortana, JARVIS, Personal Assistant, Virtual Assistant.

Introduction

“It is the working man who is the happy man. It is the idle man who is the miserable man.”

- Benjamin Franklin

What happens when an intelligent man has to sit idle? Well if he is intelligent, he won't. Something extraordinary is bound to happen, every time when a man has nothing much to do, he creates something. He gets indulge in checking his abilities, his potential. Being one of the richest man in the world and having a huge team to lead his company, Mark started getting bored by his same day to day schedule. So, he decided to test his programming skills and to gift something extraordinary to his son.

Here, he gets an idea of creating an Artificial Intelligence System which will perform home tasks with the use of Facebook tools, “JARVIS”. JARVIS is a concept of AI which was introduced to the world in the Iron Man movie in 2009. J.A.R.V.I.S. stands for “Just A Rather Very Intelligent System”.

Before JARVIS, many attempts were made to create such a thing. But they only stuck till an AI which will talk to you and perform some small commands on a specific platform, like Siri, Cortana and others. Now with the time, these are getting more and more common. Now not only mobile, and personal computers and scientific platforms are using it but even a small chatting application has created its own AI software just to add another feature in it. See how easy it has been to develop such a software.

AI is a way to create a software which think intelligently, the way a human thinks. By studying the working of human brain, how it thinks, how it learns, how it decides, and combining these all, we accomplish the task of developing and AI. The AI is a very complex project and various technological disciplines like philosophy, maths, biology, computer science, neuron science etc are required to get on with the working of the AI.

As the technology is concerned, it follows “AI is whatever hasn’t been done yet.” Which means AI only consists of the technology which has not been used yet. Like OCR (Optical character Recognition) is being excluded from the “AI” as it has been the technology of daily use.

An Intelligent Personal Assistant is a software that is designed to help people with their basic tasks, usually using the most common human understandable language. It is also known as virtual assistant or chatbox. Most widely used Virtual Assistant softwares are Apple's Siri at 34%, Google Assistant at 20%, Amazon Alexa at 6% and Microsoft Cortana at 4%. Facebook is also working on their own VA named “M” and is expected to hit the market by the end of 2017.

Intelligent Personal Assistant(IPA) performs tasks on behalf of an individual identity depending on a number of inputs. It has the potential to derive information from a variety of sources such as weather conditions, stock prices, schedules, news and much more. These personal assistants do have the potential to maintain and organize information including emails, events, to do lists or files.

It all started with the introduction of IBM Shoebox the first tool enabled to perform digital speech recognition in 1961. These kinds of softwares are designed to interact mainly by voice and by text. Some very famous Virtual Assistants are:

Intelligent Personal Assistant	Developer
Assistant	Speaktoit
Alice	Yandex
Alexa / Echo	Amazon.com
Bixby	Samsung Electronics
BlackBerry Assistant	BlackBerry Limited
Cortana	Microsoft
Google Assistant	Google
M	Facebook
Mycroft	Mycroft AI
Siri	Apple Inc.
Viv	Samsung Electronics

These softwares were created, are created but for what use? Are we benefitting ourselves from them or are they just another attempt at wasting our resources. Now let us have a brief look at what these AI are offering us and at what cost.

Advantages

This AI software has brought a drastic change in the way we operate things. The way we do our day to day chores to big scientific decisions and what not. From the use of Cortana or google assist to work with IOT to control the surroundings to placing an order on amazon.com by Alexa. There are a lot more benefits we can acquire from this, of which a few we are discussing below.

BETTER RESEARCH

Research work can be made easy by these AI softwares. As you see, we can apply certain filters around and the software can search the internet for similar stuffs we want to work on. While working traditionally we face certain problems like the number of links we have to go through to get a small amount of information and the number of fake sites we have to face. The time invested in these websites slows down the pace of our research and make things complicated. If we use these softwares and filter the type of information we want, we can collect the information at a great pace and segregate the information. This will surely pace up the research work and boost up the quality of the paper.

BETTER EDUCATION

The education system can be changed entirely and can have infinite possibilities for teaching. See, if the softwares are combined by the robots or installed on a computer, they can be fabulous teachers. These will have infinite knowledge as everything, now, is available on the internet. To learn, you just need to have a bit of curiosity. These AI can scan the understanding capacity of the students and can tutor them as per their grasping speed. This will pace up the education and the students will be provided better means of learning. As our brain catches the most we visually see, these bots can make us visualise every aspect of our studies resulting in, you know what. Many gates will open if we get success in forming such a software.

EASE IN OPERATIONS

The presence of these AI software might also lead to ease in certain operation like searching something and getting a brief information about the things we see. We can get every aspect of every detail in a flash. Performing of tasks will be as easy as to snap. Like in the already created software, one doesn't need to go to the switch and turn off the light, instead, we just have to type a command in our mobile and viola, its done. We want to change the light colour, we need not to change it one by one to get a desired colour; just give the command to change the light followed by the desired colour, and it will be changed. The daily chores have already been made so easy, so just think what possibilities it could bring if it further advanced. We can drive our car while sitting at home, just like we are driving in a game. The car would react as if we ourselves are driving it. People need not to be at the venue to get their work done.

Recently an operation took place, where the doctor was sitting over in Washington and operated a patient who was in New York. That was an emergency case, if they would have waited for him to show up at NY and operate there only, it would have taken a lot of time and they might have lost him. See how easy it becomes to work, as well as convenient.

PERSONAL COMPANION

Today, many things happened to me, and none of them were right. This has been a hell of a day. We live in an era, where we hear this a lot, as most of the people are suffering from stress, depression, anxiety and what not. They many a times need a personal companion to who they can talk to. Just someone who is there to listen. Speaking out the things in you,

serves a lot of relaxation in the mind. As because of this, we have to throw out whatever we have in our mind and should always keep in mind that it shouldn't affect any of our relations. Here I guess, a person can easily talk to the AI they have in their mobiles. This will provide them with a companion, they can talk to as well as it will help them empty themselves so that they can start their daily chores again. What leads to depression? Suppression. We have something in our mind and we are not working according to this or we are just keeping it in us. We are forcing ourselves to keep it in. We are just like a balloon. We can only keep some amount of things in us, if we exceed this, we are either going to burst out loud or we are going to get more stressed leading to depression.

There are many anti depression campaigns who take care of people suffering from depression. What they do, is that they have appointed a batch of people who do nothing. They just have to listen to what the patient has to say. That's all they do. So now what we can do, instead of going to them, we can talk to Siri, (let's just assume we are talking about siri here among all). This will have the same effect.

We all know psychologists does not have enough time to give their best to every patient and get every detail about the patient. What can be done here, an AI could be designed in a way that filters the less important talks and focus on the main points and record it on some document which will be forwarded to the psychologist. This way, he can see more patients as well as they will directly get the points they can start working on.

Disadvantages

LESS PHYSICAL WORK

As the software is designed, keeping in mind to reduce the human effort, this is effecting the human body. The human body is not meant for sitting idle and giving commands typing. The human body has evolved to do physical work. Earlier the human body used to have a use of appendix, which used to create some acid which human used to digest raw food, like grass, tree leaves and other stuffs. But then the humans evolved, and they evolved to be smarter, rather the smarted living organism. Who are we to calculate that we are the smartest? Are we sure, other animals hasn't evolved? They cannot make buildings, cannot use mobile, cannot drive fastest car in the world. We judged ourselves and them on this basis? Is this for real? We used radar tech in 1935 for the first time, while the bats used similar concept even before 50 million years. We created "La Jamais Contente" in 1899, the first car to reach the speed of 100 km/h, while Peregrine Falcon speed up to 390 km/h. Isn't it funny, the way we think we are the smartest living beings. What if this falcon stops flying? What if it stops flying for a decade, or for a century or two? The nature will weaken the wings of the species. They won't be speeding up to this ever again. Exactly the way we lost appendix. Now it is just a part in the human body which doesn't work. And the worse part, if it starts working, the being is dead.

This happens when we mess up with our body. We may not want to lose our legs or anything else the way we lost appendix. Do we?

EFFECT ON CHILDREN

As we talk about the effects of AI on youth, we must also discuss how it has affected the life of children. "Papa, I want an XBOX, I want an iPhone", these have been the desires of the kids these days. They are kids and they no more find happiness in family and friends, instead they need these gadgets, Siri to talk to. I guess you might have seen the video of the baby girl Mila. That girl was actually frustrated and angry because she was presented a telephone, instead of an iPhone. This has been the life of kids. I personally no longer see kids going out to play, make friends, play some outdoor games. Instead they are busy on

their machines which has and is ruining their childhood. To them, Siri is greater friend than their real life friends and family.

QUICK COMBAT

The machines can be trusted, but at what extent? If AI of the places containing missiles or the destruction weapons, is tempered with, what great loss this might do to the society. The machine might be given an order to fire a missile over a crowded city. If the command being given by the General, will the machine be able to refuse the order? It might not have the ability to judge between what is right and what is wrong. It might have to decide between the order given to it and the lives of people of which its top priority will be the given orders and not the lives of people, whereas if a human be there at the place, he will select to disobey the order to save the lives of millions.

LACK OF COMMUNICATION

With the lack of common standards between the different devices, it was impossible to make the machines communicate. Just like humans, understand certain language, the same way every device understands another. So here similar problem was faced by the developers. Different devices performed under different languages and to make them all communicate with each other, the only option was to reprogram all the devices from scratch, in one language and then create connection between the devices which was a very tedious task to perform.

MACHINE ERA

As the modifications of the JARVIS and other similar softwares took place, we happened to face a problem which was considered only fiction. These softwares were provided a lot of knowledge and a lot of programming skills were used in their creation. But as we know not everything we plan goes well. Similarly, in here, the two machines started to communicate between themselves and in a language which was not understood by the humans. This might feel fiction but it actually happened and hence those projects were shut down. What would have happened if they were not stopped at the right time. Things might go the way of Terminator or Robot, the movies.

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RETINAL AND IRIS BIOMETRICS

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ABSTRACT

Biometrics is a measure of identifying a person on the basis of certain biological traits. It is categorized into physiological and behavioral characteristics. Iris and Retinal Biometrics are a part of the Ocular-Based Identification Technologies. In other words, they depend on the physiological characteristics of the eye that differ from person to person. Retinal scanning, makes use of retinal blood vessels situated at the back of iris, which are different from person to person. In iris scanning, the colored round portion of the eye, having a delicate and complex structure is analyzed with the help of camera technology with certain kind of infrared illumination. These methods are highly reliable since no two individuals can have the same iris or retinal pattern. The capillaries decompose too quickly after the death of the subject and cannot be used later on to gain access. Retinal scan measurement accuracy can be affected by diseases, pregnancy and chronic health conditions. Iris fine texture remains remarkably stable. Because of this, Iris scanning is more widely accepted as a commercial procedure than retinal scanning while retinal scan is considered invasive.

II. Keyword

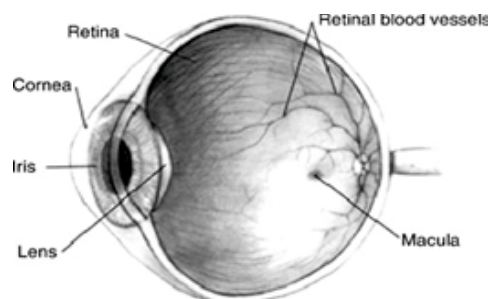
Biometrics, Iris, Retina, Pupil, Bifurcation Algorithm, Hamming Distance, Euclidean Distance, Gabor Filter, Canny edge detection algorithm, Daugman's algorithm

III. Introduction

In today's fast paced world, the emerging technologies have taken over the society. The current authentication techniques are: 1) something you know i.e. Passwords, pin codes which can easily be guessed, 2) something you have i.e. smart cards which can be stolen. The above two techniques are no longer considered to be secure enough to maintain confidential information. The advancement in technology has given birth to a concept called 'BIOMETRICS' for authentication which makes use of the unique human body elements i.e. your fingerprints, DNA, iris, retina, voice etc. The probability of two individuals having same traits is almost zero. Also biometrics cannot be lost unless any serious accident. Thus biometrics is considered as a reliable form of authentication.

In this paper we have focused on the 'IRIS recognition' and 'RETINAL scan'. The iris and retina of the eye vary from human to human. They are extremely difficult to replicate. Also, the two of these do not change over the lifetime.

Thus, the iris recognition and retinal scan are considered to be the best biometric technology in comparison to the rest of the biometric technologies.



IV. Retinal Scan

A. Working

The retina is basically a neural tissue which is located in the posterior portion of the

eye. The capillaries which supply blood to the tissue differs from person to person. Since the network of blood vessels cannot be completely genetically determined, identical twins also do not share similar complexity structure.

The retinal scan maps unique patterns of the retina. The blood vessels within the retina absorb more light compared to the surrounding tissues and hence can be identified easily with proper lighting. A low-infrared beam is cast upon the retina when the person looks through the scanner's eyepiece. The beam then traces the path on the retina.

Once the device has captured an image of the path, specialized software compiles the unique features of the network of blood capillaries and converts to the computer code and stores it in the database. Since the retinal path absorbs low infrared light compared to the other parts of the eye, the reflections vary in the scan.

The eye is positioned in front of the system at a capture distance ranging from 8 cm to one meter. The person must look at a series of markers, viewed through the eyepiece, and line them up. The eye is optically focused for the scanner to capture the retina pattern. The retina is scanned with the near infrared (NIR 890 nm) irradiation and the unique pattern of the blood vessels is captured.

B. Algorithm:

The bifurcation points at the intersection of blood network capillaries are analyzed and the informative matrix is generated. This matrix is compared with the list of all matrices located in the database. If the matrix matches with the one in the database, then the user is authenticated.

C. Performance Evaluation:

FAR: The probability that the system incorrectly matches the input pattern to a non-matching template in the database is calculated by False Acceptance Rate.

$FAR = \frac{\text{Total False Acceptance}}{\text{Total False Attempts}}$

◦FRR: The probability that the system fails to detect a match between the input pattern and a matching template in the database is known as False Rejection Rate.

$FRR = \frac{\text{Total False Rejection}}{\text{Total True Attempts}}$

◦GAR: Measurement of how many genuine users are accepted into the system as genuine user.

◦GRR: Measurement of how many genuine users are rejected by the system.



Figure 1.2- Bifurcation of Retina

D. Advantages

- Does not require computer memory and are not subjected to dirt.
- They are not affected by external factors such as noise, change in voice etc.
- The method is highly accurate and since the retinal pattern is not completely genetic-based, the system can differentiate between identical twins.
- Can detect any health issues.
- Authentication procedure can be executed in seconds.
- Retina remains stable throughout the life of a person.

- Can also detect any abnormalities at early stages.

E. Disadvantages

- Requires focusing on the camera and maintaining a distance from device.
- Multiple image capturing is required which could cause user discomfort if not properly executed.
- Difficult to provide sufficient data for matching.
- Factors such as pregnancy, diseases like leukemia, sickle cell anemia and chronic health issues like congestive heart failure, cholesterol affect the eyes.
- The equipment's are quite expensive and scanned procedure is perceived by some as invasive.
- Users may not be comfortable with retinal scanning as they think that retinal scan might harm the functionality of their eye.

F. Application

- It is mainly used for authentication and identification purposes and is used by many governmental organizations such as NASA, FBI and CIA.
- It is used in prisons to allow only authorized personnel only.
- It can be used to detect eye diseases such as cataract and glaucoma.
- It is also used in ATM verification and prevention of welfare fraud.

V. Iris Scan

A. Working

The iris is a thin, circular structure in the eye that controls the diameter and size of the pupil and thus the amount of light reaching the retina. Our eye color is the color of the iris which can be green, blue or brown and in some cases can be hazel. As the light enters our eye, muscles attached to the iris expand and contract the aperture at the center known as the pupil.

The iris recognition systems camera, first scans the person's eye and produces a digital image. Then it localizes the inner and outer boundaries of the iris in the image that is captured. Then some technique is used to remove the eyelashes, eyelids and kind of reflection that obstructs the iris. Polar coordinates are then added to the image to define separate zones of analysis which helps in comparing the key features of iris in 2-D space. The system then checks for different kinds of patterns that are observed as the size of the pupil changes. This leads to the creation of some light and dark pattern areas in the iris that are converted into digital form using band pass filters. According to the brightness of the given area the filter registers a 0 or 1. Then after using by using some mathematical formulas a unique Iris Code is generated. This code is then checked with the one stored in the system.

B. Algorithm

Canny edge detection algorithm is used to extract useful information from different vision objects and reduce the amount of data to be processed. The criteria for edge detection include:

- The algorithm should capture as many edges present in the image.
- The edge point should accurately localize on the center of the edge.
- The edge should be captured only once.

Daugman's Algorithm

Initially, the system has to localize the inner and the outer boundaries of the iris in the image of the eye. Then remove all the obstructions such as eyelids and eyelashes. Set of pixels containing only the iris is normalized by a rubber sheet model and is then analyzed to create a bit pattern encoding the information required to compare to iris images.

Gabor Filter

It is set of complex numbers that carry local amplitude and phase information of the iris pattern.

Hamming Distance

If is below threshold value, the identification result is positive. (matched).

C. Advantages.

- Each and every person has different details. This makes it unique and the most informative and reliable biometric trait.
- Iris texture starts forming right form when a person is 8 months old and is considered to be extremely stable.
- Images of the iris can be normalized into rectangular regions of fixed size so that binary feature codes of fixed length can be extracted for extremely fast feature matching based on simple XOR operations. This makes it highly scalable.
- Use of spectacles or contact lenses has no effect whatsoever on the automated reading of iris structures.

D. Disadvantages

- Small target to acquire from a distance.
- Obscured by eyelashes, lenses,
- reflections.
- Deforms inelastically as pupil changes size
- Illumination should not be visible or bright.

E. Applications

- This is used by ATM machines to directly verify the user without using a bank card.
- It is used to maintain security at borders by authenticating the person by iris scan.
- Used at airports, especially when travelling to another country.
- Mobile phones also use this technology to authenticate the users
- Used in the pension distribution system.
- The RightPatient iris biometric patient identification system is designed to capture both the face and the iris pattern of patients and uniquely link them to their electronic medical record.

VI. Conclusion

According to the research that is done we found out that although retinal scan is highly accurate, it cannot be widely accepted by users. The technology required is also quite expensive. On the contrary, iris scan is hands-free, rapid and has the potential to take over all the authentication technologies in the future.

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SELF DRIVING CARS – THE EVOLUTION OF AUTOMOBILE INDUSTRY

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ABSTRACT

To Develop an Intelligent Transportation System which take into consideration the social, economic, environmental and safety factors of the modern human society, is one of the grand challenges faced in the 21st century. The automobile industry has the potential to change the competitive landscape and revolutionize the concept of self-driving or autonomous vehicles which will be flooding among the masses, and turn over the way we interact with the vehicles.

This paper presents the motion autonomy capabilities which have been developed for future cars. These new capabilities rely on effective solutions which we developed to the contribution for the solution of two main problems: autonomous manoeuvring for a car-like vehicle using the concept of Sensor-Based Manoeuvre, and obstacle avoidance in a dynamic environment using the concept of Non-Linear Velocity Obstacle. Experimental results obtained with real vehicles are also presented and discussed.

Keywords: self-driven cars, cars, cybercars, cycab.

Introduction

Over the past decade, innovation in automobile and technology industries have made a tremendous growth in achieving the common goal i.e. Automation of cars which have been exclusively for years a human function. Even in current time companies are shipping cars with features such as cruise control and parking assistance which could be taken as a small example of automation in common cars. Some companies have pushed further the limits of innovation by creating almost fully autonomous vehicles which can direct themselves on highways and urban environment with any human intervention. Due to its advantages over manually controlled vehicles which seems to be lagging left far behind, autonomous vehicles have the potential to dramatically change transportation.

Roadmap for Self-Driving Cars

Various technologies for autonomous driving of road vehicles have been Developed. It is still unclear how and when such technologies could be introduced in everybody's car because some socio-economic, political, and liability problems are not well understood yet. It is believed that such technologies, would be best used in a first step for solving some of the increasing difficulties of urban transport (mainly traffic congestion, lack of parking areas, pollution), by offering new alternatives to the automobile and to mass transport. several projects have been launched in this spirit e.g. the Praxiteles project in France, the Serpentine project in Switzerland. The Park Shuttle project in Netherlands. the European CyberCars project involving several industrial companies and cities in Europe. etc. All these projects rely on the same basic idea i.e. reducing the use of the private automobile in downtown areas by offering new modern public transportation systems which are both convenient and sustainable.

A number of technologies are still to be developed for obtaining the required motion autonomy capabilities. These capabilities include autonomous manoeuvring, controlling vehicles having various kinematic structures, and obstacle avoidance in dynamic environments. Motion autonomy is certainly one of the major technical issues to be addressed for the development of autonomous cars. A quite classical way to solve the motion autonomy problem for a car-like vehicle moving in a partially known environment is to combine an appropriate off-line global path/trajectory planner with a reactive execution controller capable to track the nominal trajectory while avoiding collisions, with unexpected obstacles. CyCab developed by INRIA, Finland could be taken as an initial prototype of autonomous vehicles.

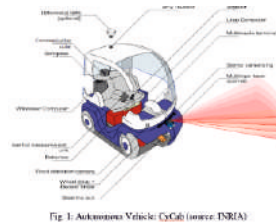


Fig. 1. Autonomous Vehicle: CyCab (source: INRIA)

Google is making prototypes of cars which are fully autonomous despite upgrading the existing cars from car manufacturers with self-driving features. Google's approach of fully autonomous could be seen in their cars as they don't come with a steering wheel also. Google is planning to increase its production by 2020. Its long term plans are to shift from ownership model to a service model, where people can simply demand and get a car just like the case similar to taxi cab services.

Technologies for Self-Driving Cars

- Lane change assistance has two radar units which are invisibly mounted at the rear bumper. One radar works as a master and other as a slave. Data collected from both of the radar and combined in a sensor data fusion tracking algorithm. This technology is already in use by leading automobile manufacturers such as Audi, Volkswagen, BMW, Porsche and Mazda.

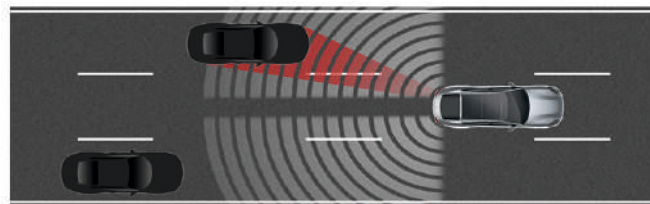


Fig. 2: Lane change assistance (source: Porsche)

- Parking Assistance aid is becoming a necessary feature in populated regions where parking is a common problem. It is much needed in Europe and Asia. This works as an ultrasonic sensor transmits in open parking. As soon as the sensor finds an empty spot it alerts the driver who can use the remote to finish the parking process. This technology was initially introduced by Ford but later other manufacturers have also included it in their vehicles.

- Adaptive cruise control is an advanced form of an ordinary cruise control that could be commonly seen in every car. It slows down and speeds up the car accordingly to keep

pace with the car in front of you. A small radar in place under the bumper which measures the distance. Some manufacturers use laser while others use optical system based radars. This technology is highly useful in stop-and-go traffic and rush hour traffic conditions. Adaptive cruise control can work at any time whether day or night but fails to work perfectly in heavy rain, fog or snow. In autonomous cars, it not only track the car in front but also the cars at sides while in the condition when a lane change becomes necessary.

·Vehicle-to-vehicle Communication (V2V) is a process in which cars can talk to different cars, exchanging information and alerting drivers to potential collisions. They talk to sensors on signs, stoplights and bus stops and even sensors embedded in the roads to receive traffic updates and rerouting alerts. they also communicate with your house, office and smart devices, acting as a digital assistant, gathering the information to keep you going. Vehicle-to-vehicle communications comprise a wireless network which sends messages to other vehicles about their current situations.

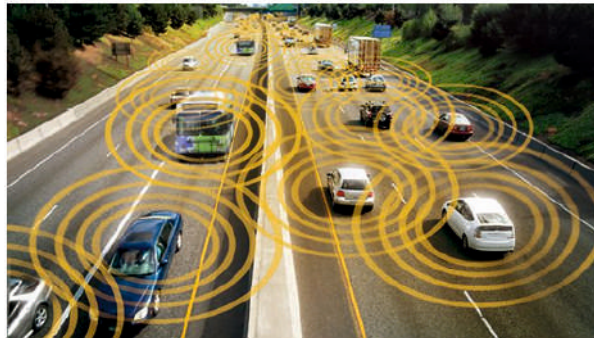


Fig. 2: Lane change assistance (source: Porsche)

Conclusion

Due to advancement in technology and new services mushrooming up for people of all age, whether medical or recreational. Ride sharing will play a great role in reducing Urban congestion as well as pollution. Startups taking into consideration these technologies are likely to make huge impact and benefit greatly. Finally, the transportation and freight industry will harness a lot of potential from self-driving vehicles.

Clearly, there is a promising future ahead for self-driving vehicles.

The question that remains is how soon can we expect self-driving vehicles to hit among the masses.

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HUMANOID ROBOT: THE FUTURE PERSON IN THE REAL WORLD

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Abstract

With the rapid advancement in Technology the concept of "Humanoid Robot" is prevalent. These human robots are moreover like human beings capable of doing all the activities like humans. It will be rather worthy to exhibit them as artificial humans being programmed and controlled by others. These humanoids look exactly like human beings, their body structure is similar to humans. The mind of these humanoid is work more efficiently and effectively as compare to normal human beings as they require some special kind of programming to perform actions and task. Humanoid robot uses multi-core processors in their system which is combinations of wires and IC circuits. The storage capacity of these humanoid is extreme as they require large amount of storage devices and high performance gigahertz processors to store day to day activities. The use of these humanoids is prevalent in area like industries, factories, university colleges, hospitals, trains etc. Researchers are doing a lot of research in this area, studying the internal body composition and behavior of human beings (biomechanics) to build humanoid robots. The objective of my research paper is to create awareness among general masses about the innovation of humanoids robots with the rapid advancement of Information Technology

Keywords: Information Technology, Integrated Circuit, Multi Core Processor, Storage

INTRODUCTION

As in advancement in the technology, humanoid robots are the field of study in which we can understand the behavior of human and according to that behavior we can develop the humanoid robots with some special features and can be use by human. This robot is comparatively more efficient than normal human beings, for many people human robots like a machine now days scientists are trying to developed a robot without any human control and supervisions this kind of robots are capable to work in a natural environment using which they can interact with the humans now a days robots are programmed to work in unstructured environment where the human and humanoid robots share same space to work and complete task successfully as the human and humanoid robots work on same task so it impose manipulator behavior and control the safety structure for effectiveness of target execution firstly scientists create the robot configuration space which is now as set of stationary obstacles in this environment they decide the working of humanoid robots this robot system faces some issues such as safe physical contact , recognition of shape and object ,their goal and position this robots consist of sensors and processors this sensors are used to scan the objects and this robots can also talk just like a normal human being they using the speech reorganization system they can scan the word and react accordingly they can perform multiple task at a single time they complete give task in less than normal human complete his task that why they are more efficient the another approach for humanoid robot mechanism is to reduce the weight of robot machine due to which safety assistance of human increases the main drawback of this robots mechanism is structural vibrations due to active force this implies that the robot is self-efficient to provide the high position accuracy with this we can achieve the sensory system feedback to developed this

kind of robots and systems we require huge amount of cost and knowledge and it also require small sizes of sensors incorporated into soft layers and also this type of robots are the combination of complicated wiring and multi processors hardware progressively improve in the technology the robots are integrated with ability to cover its entire body with the films based sensors using which they can perform multiple task to work and survive in real world.

WORKING OF HUMANOID ROBOT

There are different types of humanoid robots are available in our real world with different mechanism which states the working of humanoid robots when the engineers are trying to developed the robot first they come up with the one biggest problem into some smaller and manageable manner,there are three problem engineer are trying to solve those were object detections, things about those things and act and react on that actions in the study of psychology (it is the science of human behavior) and in robotics it is the science which tells the robot moving ,thinking and sensing some robots have only one or two features such as in industries there is hand arm robots which have only sensing and action features is require which just sense the task and perform action on it like wise in normal human beings they have the power to sense they have five sense but now what about robots robot will also have five sense or more than that so this is one of the question? so for that near about 25 to 60% of robots contains cerebral cortex devoted to processing images from our eyes and build into a 3D build visual model of the world all you need to give a robot eyes is to glue a couple of digital camera to its head most robotics engineers are use some different features instead of eyes such as GPS, Satellite , Navigation ,Sonar Radars, Infrared Detectors, Accelerometers and to hearing the real world they use high frequency microphone and speakers to hear and produce the sound using this we can convert the sound into digital signals that can be digitally processed we think the how the robots smell the object and make action accordingly so for that so to recognize chemicals we have mass spectrometers and we also have gas chromatographs to recognize the smell of fluid and liquids and they have some other senses features were also available such as hand movement , leg movement and body movement and the most important features is thinking is the one of the most important feature which we require in humanoid robot without this process a robot is a dumb and unused machine and beside there is one feature we need to in built in a humanoid robot that is emotional intelligence which work accordingly and react similarly like a normal human beings emotions like smile, crying etc. these was the basic and essential working of humanoid robots.

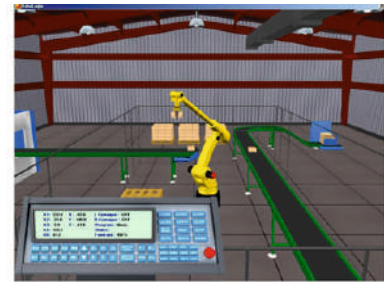


Fig.1 Robot Simulation Environment

TYPES OF ROBOTS

In this real world robots are working in different areas and different types of sectors such as industries, hospitals, colleges etc. so in order to fulfill this requirement our scientist come up with different types of robot structure which will work according to the requirement of the real world to work with them and complete their task with his full effectiveness some of them are robot arms,so this robot arm will work such as welding, riveting, swinging and sparking they are high

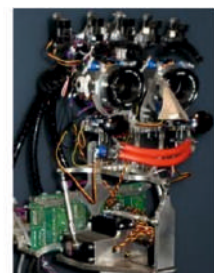


Fig.2 Humanoid Robot Working

performed arms like you can see in car factories they are developed in year 1950s and use by general motors in year 1960s and one more type of robot is Remote-controlled machines this type of robots are controlled using the remote and computer system this system are used as a remote and we can control this robot using remote controller device this robots controls set using a special kind of software which is install in this robot.

Humans are the major source through which they can control this type of robot bomb disposal, robots are come into this category of remote control robots some other kind of robot is semi-autonomous household robots this type of robots are used in house which we can use for house cleaning and lawn mowers this machine give impression they are autonomous and semi intelligence that they make less robotic that they appear this is one of the useful and real life robots, there is more type of robots which work as similar as humanoid robots general purpose robots so there is some advance robots like baxter can be trained and programmed to do many and different things they are single domain machines and robot which can be used for some general purposes they are quality control or shifting box from one places to another they are design only to work on factory floor we still don't have a robot that can make the breakfast, lunch, dinner take the kids to school itself to work somewhere else, come back home again, clean the house, cook the dinner, and put itself on recharge unless you count your husband or wife for driving a car we have a self-driving robots they robots are specially design to drive a car they have in built instruction with



Fig.3 Different Types of Humanoid Robots

special features with navigation system which is connected to satellite which maps its own area and drive a car accordingly this is run using a special integrated chips on which we write a programs and instruction using that instructions they drive a car so we have a lots of robots are available but with advancement in the technology we have some more upgrade robots

HUMANOID ROBOT IN PAST LIFE

The term robot was find by a play writer Karel Capek which tells about human structure and behavior of normal human being Leonardo da Vinci one of the great scientist who created a mechanical robot knight ,this robot consist of armor which was fitted with gear wheels and pulleys it is a remote control robot which get control using cable and wires .This robot is able to move his head this is one the best features of humanoid robot in it's past life these robots are also use for many industrial and personal purposes. The first humanoid robot Elektro was developed by a Westinghouse Electric Corporation. One of the feature of this robot is the ability to move his head and arm and best and the new feature is that it can play and record the speech.

As in advancement in technology in year 2002 robotics mark developed an another robot with same features as similar to Leonardo da Vinci model in 1990s century this robot have some advance features in it the challenge behind the development of robot is not just the designing but also the programming and its functionality but in past time due to less advancement in technology it is not possible to developed the humanoid robot as similar to normal human beings in past time it is not able to communicate with the others and not able to take decision on its own



Fig 4: Humanoid Robot in Past Life

and more over this robots design is also very difficult in past time era and balancing capability of human is not imply in humanoid robot and these robot were actuated in fixed sequence and manual controllable structure in year 1973 the first humanoid robot is developed with two legs and which can communicate with each other just like a normal human being so this was the first basic robot developed by Waseda University, the major challenges faced by the humanoid robot is his emotions and balancing power and this is happen due to lack of technology levels and less understanding of human behavior firstly concentrate on monk to learn the balancing techniques by which scientists can developed in future and in past experiences robots are not able to recognize face and facial expression and it is not able to express its emotions so this was the one of most important drawback in humanoid robot in past time.

HUMANOID ROBOT IN PRESENT LIFE

As in the increase in the population and birth rate in the present time advancement of technology is also increase so according to this advancement in IT and Technology sector scientist developed the new types of gadgets which we use in deploying new and advance robots and as the increase requirement of human power which is not able in required amount so best possible available substitute is humanoid robot this robot will work more than normal human being with same strength to complete the targets as comparatively they are the best option they industries incurred

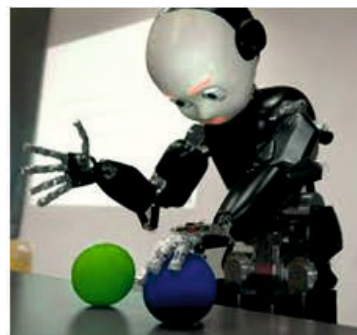


Fig 5: Humanoid Robot in Present Life

with the less amount of cost in his production so this was one of the best method to use as a substitute of normal human being consider the one of the major part of humanoid robot is his arm which is use a normal human being and this is one of the hardest human motion to move his hand in all direction because hand is one of the most important part of normal human being the mat lab consist of direct and inverse action in dynamic blocks as compare to past humanoid robot life in present life humanoid robots are more dynamic and effective and complete his given task in less time and beside this the another key features has been developed in present time is humanoid robot functionality to walk and talk like a human now a days scientist are trying to develop the humanoid robot as similar to normal human being throughout the year after technology get improved walking has been improved in robot with the concept of zero moment point which increase the robot balancing to move in all directions and it is possible using PID controllers which were installed in humanoid robot that calculate the time and respond on it and perform some actions motions like a human alone does not defines a robot as humanoid robot it has the ability to scan an deploy the situation into pictures in Nano second by which efficiency of humanoid robot increased in the robot scientists come up with the concept of vision sensor in normal person detection system use vision sensors which are the most important and economical way to incorporate a vision system the present system is more relevant in this system it detects the person and using individual camera which is incorporated with image formatting system so this are the present time humanoid robot as the result this robot are more efficient and better as compare to past time humanoid robots.

HUMANOID ROBOT IN FUTURE LIFE

As the new era began the advancement in the technology has been increased in future comparatively to past and present robots we have a wheeled robot in our future this type of humanoid robot is capable of maneuvering in various different sector of terrains and they will work in hazards environment and in climbing object there are some few flaws where the humanoid robot faces accurate localization in future various research approaches were usually carried in 2D and 3D spaces and this spaces were stored in quantized cells but this cells is not reliable in navigation of obstacles it is used to create his own way and determine the height of object and obstacles 3D objects are used for arbitrary environments at several levels and we also have 6D motion sensors which is used to poses humanoid robot by using 3D sensors in future humanoid robots human and humanoid robots motion controller is an another research to address the performance of joint limits and self-collision by capturing space in Cartesian space which can define the motions in humanoid robots to do its desire motions it has the critical satisfaction of constrained has been given the highest priority at the time of execution of some task in humanoid robot and this problem has been overcome with highest priority which is carrying out by the operational task in null spaces in humanoid robot so the efficiency of humanoid robot increased and this approach handles the limited joint movement and collisions, this approach is only use for execution of operational task to complete necessary motion control tasks in the future humanoid robot is used to design and developed to inter react with real world persons as there is increased in the degree of freedom it was and very typical task to make an control structure of humanoid robot as in the advancement in the technology we are easily able to control the humanoid robots using this they have their own mind which can perform some action according to the task they have emotions they are same as a normal human beings future robots have sensor and flash screen his eyes using which they can perform any action and task this is the basic and very important and comparatively difference between past, present and future humanoid robots as the new era comes the advancement in humanoid robot technology has been increase and we get a new type of humanoid robots with latest features in it.



Fig 5: Future Humanoid Robot

ADVANTAGE OF HUMANOID ROBOT

ADVANTAGE OF HUMANOID ROBOT

There are lots of advantages which are occur from these robots if they are perfect they can do lots of amazing things for the people. Now a day robots can sing and dance and almost look like a normal human beings and there are lots of other humanoid robots that look similar to their human counter parts, these robots are able to walk and move around independently so the first advantage is that they can do all those things that people can do and all other things which normal human beings are unable to do and the sale and deployment of these humanoid robot will also help in the increment in the economy sector as the increase in the use of robot in companies and industries so they become more efficient and effective in their work Defence Advanced Research Projects Agency make an challenge in which lots of organisation and companies are come together to make an humanoid robot for Indian military help, beside this humanoid robots can use in every sector lots of company are coming in this sector for investment in the humanoid robot as it

is very different but very efficient. It will also lead to increase in the economic sector and another advantage with this humanoid robot concept is that they cannot make any kind of mistakes, they are self-sufficient and capable in doing all thing at a particular time humanoid robot did not require any kind of leave, breaks etc. humanoid robots are able to teach the children and more beside this they can work in every sector of normal day to day life activities and humanoid robots are already apparent today and Humanoid Robots are yet to be in society's daily life. The winners from Humanoid Robots would be business owners who use the robots to work in their business efficiently without any error.

DISADVANTAGE OF HUMANOID ROBOT

With the advantage in the humanoid robots also come up with disadvantages so disadvantages are hard to be avoided because with every emerging technology comes a disadvantage you cannot change the things without an effect the one and the major disadvantage is that if the company and industries are going to adopt a humanoid robot technology so they will lose their job and due to which employment level will also decrease so there are so many people around the world without jobs or money to pay for things they need, and with the mass production of Humanoid Robots this is only going to become worse and if the humanoid robot will get any kind of error so they will become a dangerous machine they can make attack on any one so this was an one of the major drawback in humanoid robots there battery issues is also the one of the major problem which was found in humanoid robots and if machine gets heat up so humanoid robot will become a bomb for normal human beings and another disadvantage would be that this implementation of robots into people's lives will cause a shift in their social ability and willingness, in other words, people are going to become more introverted and due to lack of emotions humanoid robot can also be used for wrong purposes. As there is always a disadvantage to an advantage there are a few that result from having Humanoid Robots interact with autistic children. Humanoid Robots are not yet perfect and cannot react in the same way humans do. Although autistic generally may feel more comfortable that may not always be the case there are also many losers when it comes to an emerging technology such as humanoid robots. They will not receive any benefit from Humanoid Robots. The companies that put money in research and development of these robots and do not sell any will also be losers. Another product of Humanoid Robots would be the people who become socially addicted. The main loss, however, will be the people who lose their jobs, this is something that will greatly impact many people and the economy as well still humanoid robot is best option.

CONCLUSION

There are many emerging technologies that will going impact society in the near future. Humanoid Robots is just one of the many, just in the robotics field alone. These Humanoid Robots already look remarkably like their human counterparts and the trend is only going to increase as time progresses. For every new technology there is an advantage and then a corresponding disadvantage. As for Humanoid Robots just a few of their advantages are that they can do things that humans can do but better, they do not make mistakes, and they have the ability to help children with autism. The corresponding disadvantages are that they are going to take away jobs from people, they will cause people to become more introverted and that they also have a huge risk of harming children with autism instead of helping them. Humanoid Robots will also be very beneficial for our economy. Japan is currently the leader in this Humanoid Robotics field and there are many reasons to this. However, other countries are beginning to catch up and express their interest as well. With the rise in

popularity and curiosity of these robots there will only be more research and development put into their creation and they will sell for very large amounts of money. As there is always an advantage and disadvantage to a technology there is also always winners and losers. Someone or some group will benefit and someone will suffer. In regards to Humanoid Robots the winners will generally be the people involved in the developing project of Humanoid Robots. Such as the companies or universities that buy or sell these products, winners will also be the autistic children that the Humanoid Robots can help. As for losers in this situation the dominating category would have to be the people that are going to lose their jobs because they are being replaced by robots. The emergence of Humanoid Robots will do absolutely no good to those people and there should be a discussion on how to try and reduce this negative ethical effect. Overall Humanoid Robots are an amazing emerging technology that is going to continue a progress to a place that no one could dream off.

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