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SURVEY ON WIRELESS INTERNET TECHNOLOGIES

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ABSTRACT

Wi-Fi provides wireless connectivity to computers, smartphones, PDAs, and ipads. Wi-Fi is also known as the 802.11 network standard and its major advantage is that it is compatible with almost every operating system, printer, or gaming devices. Wi-Fi connectivity is established by using a network router.

Keywords: Wireless, Networks, Security, Internet, Service Provider, Routers, Cables, Network Speed Test.

I. INTRODUCTION

Nowadays, internet can be accessed through PC, Laptop, Smartphone, tablets etc. Day by day use of internet and number of users are increasing, which demands different technologies to come out to provide fast, reliable, cheaper internet connection. This paper demonstrates different technologies used to provide internet connection to the devices. Common methods of internet access by devices includes broadband connection on coaxial cable, fibre optic cable, Wi-Fi, satellite and cellular mobile telephony technologies (2G, 3G,4G). Among these, broadband, fibre optic cables are wired technologies and Wi-Fi, satellite, cellular mobile technology are wireless technologies. The wireless industry is going very fast nowadays. We can easily see the evolution from 2G to 3G and now advance to the 4G and 5G network. Before wireless networks, wired networks were commonly used in every field. But there were some disadvantages regarding mobility, quality of service and connectivity. Wired network bounded the region of the working area for the internet and it requires multiple wires to connect computer from one device to another. While on the other hand wireless network is an open source for everyone to use the internet. There is no limitation of the region and no issue regarding connectivity because data is transfer through signal which includes frequency in the form of waves. But there are also some disadvantages of wireless network regarding cost, speed, coverage, bandwidth etc. If we talk about the better network so it depends on the situation and problem.

The network is a set of communication devices connected by media links. There are two types of network wired network and wireless network. Bob Metcalfe and D.R. Boggs are the two engineers who developed the Ethernet i.e Wired network. They started their work in 1972 and established their development in 1980 under the standards IEEE (802.3). Wired network defines as a low-level transfer of data and for its usage, they build the cards and cables, through which data can be transfer from one PC to another computer.

A wireless network is a computer network that uses wireless data connections between network nodes. Wireless networking allows homes, telecommunications networks and business installations to avoid the costly process of introducing cables into a building, or as a connection between various equipment locations. Admin

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telecommunications networks are generally implemented and administered using radio communication. This implementation takes place at the physical level (layer) of the OSI model network structure.

A wireless local area network (WLAN) links two or more devices over a short distance using a wireless distribution method, usually providing a connection through an access point for internet access. The use of spread-spectrum or OFDM technologies may allow users to move around within a local coverage area, and still remain connected to the network.

There are two main types of wireless network architecture, which discussed below:

Standalone Architecture: In Ad-hoc architecture, all devices are directly connected for communication just like peer-to-peer connection. For setting up on Ad-hoc mode, manual configuration is required instead of an automated process, and no access point such as a router/switch is required for communication. Such type of architecture is used in a small environment e.g. a centralized business domain.

Centrally Coordinated Architecture: Devices are connected with the help of an access point means a router/switcher is required for communication. Automatically configure instead of manually handling. Such type of architecture is used in a large environment, e.g. distributed business domain. Centrally Coordinated wireless network architecture.

II. LITERATURE REVIEW

The wireless network was also established by IEEE in 1947 with a standard 802.it first connection was of 2Mb and that time it was not so much advance and familiar to anyone but later with the passage of time and generating the new version of wireless, it becomes famous over the world. Wireless word is used to refer to medium which is made up of electromagnetic waves or infrared waves. All the devices, which are wireless that has sensor or antennas embedded in them. It includes mobile, wireless sensor, TV remote, laptop etc. It does not use the wire for the connection between two devices or to transfer the data. It uses the radio frequency waves. Fiber optic and broadband ADSL are also used.

Types OF Wireless Protocols

There are three protocols of wireless network:

- Long range(measured in miles)
- Medium range(measured in tens or hundreds of feet)
- Short range(less than 10 feet)

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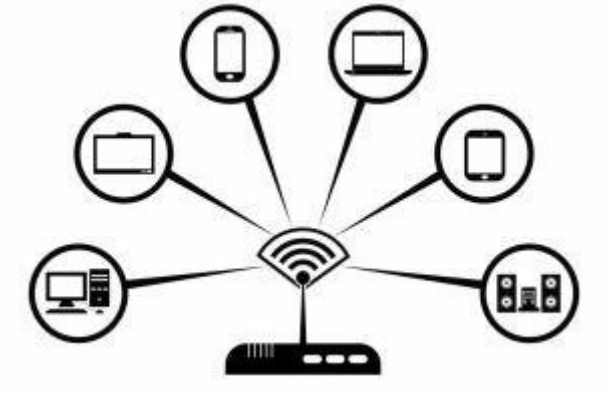

Factors Affecting Wireless Networks

- Physical obstruction
- The range of the network and distance between the devices
- Sharing of signal
- Usage of network and load on the network
- Poor antennas
- Reflection back of the signal
- Spectrum channel limitation
- Restriction of the wireless signal
- The polarization of the signal
- Speed loss due to wireless overhead
- Lower performance

Applications Of Wireless Networks

- We can use the wireless network in mobile communication. By using this technology multimedia approach, interconnection and transfer of data and all other things related to wireless are in your control and range.
- We can also use this technology in voice communication. It gave the facility to in contact with two or more users via video calls or text messaging.

Advantages Of Wireless Networks

- Users are free to move with a wireless network and can easily access the internet anywhere with their laptop and other handsets devices.
- The user can easily share the files with other devices without any connection of cables.
- There is no need of cable connection. So it is cheap and not a time consumer.
- Easily connected to more than one PC or device at the same time.
- They are convenient and easily accessible.
- It handles a large number of users because it is an open source and unlimited to use.
- By using the wireless network social media information becomes easy to access and become easy to transfer.
- It is convincing because the user can access from any nearly located resources.
- It is useful to enhance the productivity.
- In wireless network number of user connect with each other easily but in wired they all need their wire to connect
- It is cheap.
- Network security is becoming good and stronger than the system cannot be easily hacked because they insert the strong password in hardware and in software.
- Although it is slow in speed it fulfils the requirement of the user and the user easily gets the desired thing from the internet.
- Healthy and safe.
- Wi-Fi is cost effective.

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Disadvantages Of Wireless Networks

- It can require extra cost and other equipment to set up.
- up the wireless becomes difficult.
- Speed is effective and slower while sending some sort of file.
- If you go far away from the router it becomes difficult for you to access the internet.
- The range is limited.
- Less secure because anyone can steal your internet bandwidth if your password is
- not secure and not protected.
- Easily hacked the information.

III. HOW WI-FI HAS CHANGED THE WORLD

Before the internet, nobody familiar with each other but after the internet has arrived people started using it and it becomes so popular that it demands increases day by day. And Wi-Fi becomes the life of people more easily because anyone can access internet through laptop, mobile and can be accessed by nearest Wi-Fi, hotspot or booster. Now a day 88% people come online according to the research through Wi-Fi.it played a most important and significant role in human life. With the help of Wi-Fi, we can improve our society and as well as ourselves steadily and speedily. It provides the online shopping facility to the people and this type of shopping criteria is very common in Europe because with the help of this technology people compare the prizes and purchase the item. Wi-Fi is also giving facility of the communication and communication become easier through this technology. Healthcare center is also available for the people online; because now a day's doctor carries Personal Digital Assistant (PDA), through which they can communicate with the people easily, no matter where are they, at home or outside. Wi-Fi is the best solution for a whole geometric location and they can share their data easily. It going forward and forward and day by day its technologies is increases and its speed also up to 866.7Mb/s because of 802.11ac and 802.11n.

IV. FUTURE OF WIRELESS TECHNOLOGIES

Wireless technology has changed the mean of communication .business industry are running and highly progressed because of the wireless network. It is now more suitable for the business because of its awesome features like speed, security, mobility, and Wi-Fi hotspot. Voice application can be successfully running because of the wireless network. By using this you can easily access the internet with high speed and including text, audio, video messages, and many more things become easier due to the wireless network. Wireless technology is going faster and faster each year and day by day. In Europe large number of people are using 4G internet and it is not so much common yet in some countries but now they looking forward for a new and advance generation of network which is 5G.it is probably introduced into the market in 2020 and it provides the more services to the people and lots of data with extremely high speed of 10 Gigabit per second and best quality of data with response time below one millisecond which is most beneficial for the internet things.

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After 5 to 10 years, billions of billions of new devices will use the facility of the 5G [15] including car, machine to machine access, telemedicine, household medicine, no matter of bandwidth because it provides the bandwidth 24/7 to people. And we will use the biohazard sensor which is used to carry the bit to bit data each and every day. This is happening because of the rapid increase in the technology and daily growing of the traffic data. The other most important technology is Li-fi (light Fidelity), which is used to connect the things and data with the help of a light signal. It is faster than Wi-Fi and provides the speed of 224 gigabits per second. It uses the ultraviolet and infrared waves to transfer data and they carry more information than radio frequency waves and it is 10,000 times larger than the radio frequency. Engineers are still working to increase the working capacity of the wireless technology more and more enhanced with better security and high speed.

V. CONCLUSION

The wireless network is better than wired network.80% of the world using the wireless network now a day. Its future is brighter than wired network according to research. Wireless gives the freedom of movement and sharing of files becomes easier, no matter of slower speed. But there have been made some changes in the wireless network properties related to the speed, cost, and security. It gives the flexibility as data is transfer from one medium to another through radio waves which sometimes mess the working place and become dangerous also. Cables can be easily damaged. There is a single connection and no multiple connections can be made or accessible on a single cable network. It is time-consuming and costly as compared to the wireless network. Wi-Fi is a simple, cost-effective way to connect to the Internet, without the need to physically connecting wires. Hotspot is a geographic area setup in any public location, and has a readily accessible wireless network. The wireless network is opposite to the wired network and its protocol is much beneficial than that of a wired network. Wired technology does not provide the generations of the internet to the users. It is limited and gives the connection through the wire to wire that's why wireless is commonly use nowadays and further going on we will see the brighter and brighter future of Wi-Fi technology.

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