
Wireless Communication

Swati Pohankar

Master in Computer Application Tulsiramji Gaikwad Patil College Of Engineering And Technology Mohgaon,
Nagpur, India

Abstract: The term wireless communication was introduced in the 19th century and wireless communication technology has developed over the subsequent years. It is one of the most important mediums of transmission of information from one device to other devices. In this technology, the information can be transmitted through the air without requiring any cable or wires or other electronic conductors, by using electromagnetic waves like IR, RF, satellite, etc. In the present days, the wireless communication technology refers to a variety of wireless communication devices and technologies ranging from smart phones to computers, tabs, laptops, Bluetooth Technology, printers. This article gives an overview of wireless communication and types of wireless communications.

Keywords: Introduction, Types, History, Features, Advantages, Disadvantages, Future Scope, Conclusion.

I. Introduction

In the present days, wireless communication system has become an essential part of various types of wireless communication devices, that permits user to communicate even from remote operated areas. There are many devices used for wireless communication like mobiles. Cordless telephones, [Zigbee wirelss technology](#), GPS, Wi-Fi, satellite television and wireless computer parts. Current wireless phones include 3 and 4G networks, Bluetooth and Wi-Fi technologies.

Types of Wireless Communication

The different types of wireless communication mainly include, IR wireless communication, satellite communication, broadcast radio, Microwave radio, Bluetooth, Zigbee etc.

1. Satellite Communication

Satellite communication is one type of self contained wireless communication technology, it is widely spread all over the world to allow users to stay connected almost anywhere on the earth. When the signal (a beam of modulated microwave) is sent near the satellite then, satellite amplifies the signal and sent it back to the antenna receiver which is located on the surface of the earth. Satellite communication contains two main components like the space segment and the ground segment. The ground segment consists of fixed or mobile transmission, reception and ancillary equipment and the space segment, which mainly is the satellite itself.

2. Infrared Communication

Infrared wireless communication communicates information in a device or systems through IR radiation . IR is electromagnetic energy at a wavelength that is longer than that of red light. It is used for security control, TV remote control and short range communications. In the electromagnetic spectrum, IR radiation lies between microwaves and visible light. So, they can be used as a source of communication

3. Broadcast Radio

The first wireless communication technology is the open radio communication to seek out widespread use, and it still serves a purpose nowadays. Handy multichannel radios permit a user to speak over short distances, whereas citizen's band and maritime radios offer communication services for sailors. Ham radio enthusiasts share data and function emergency communication aids throughout disasters with their powerful broadcasting gear, and can even communicate digital information over the radio frequency spectrum.



II. History

Communication systems using electrical and electronic technology have a significant impact on modern society. As the courier speeding from Marathon to Athens in 490 B.C. illustrates, in early history information could be exchanged only by physical transport of messages. Only a few examples exist of non-electrical communication techniques for transfer of information via other infrastructures than those for physical transport: smoke signals, signal flags in maritime operations and the semaphore are among them. Early attempts to communicate visual signals by means of the semaphore, a pole with movable arms, were made in the 1830's in France. A similar experimental system was used by the Dutch during the 'ten days campaign against the Belgian revolt in 1831 / 1832. In 1837, the House of Representatives passed a resolution requesting the Secretary of the Treasury to investigate the feasibility of setting up such a system in the United States. The market interest in enhanced communication systems was also clearly illustrated by the fact that in 1860 the Pony Express started regular physical message services over land in the U.S. But at the same time, electronic systems for communication had started to develop.

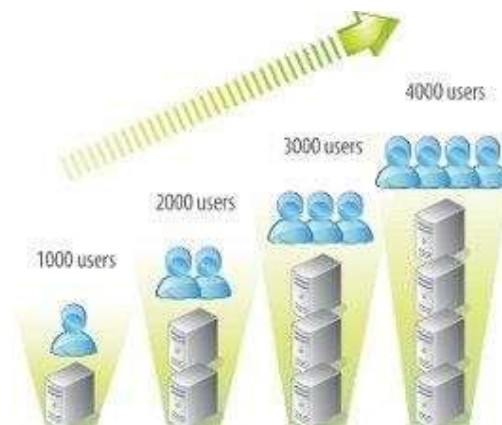
III. Feature

1. High Capacity Load Balancing

Wireless networks were originally planned for coverage only, but with all the smartphones, tablets, laptops etc. out there-- today's wireless networks must be **planned for capacity**. thousands of access points, switches, firewalls, managed power and various other components. You need to have a smarter way of managing the entire network from a centralized point. Deploying a network management system gives you that ability and so much more, **check out this in-depth blog post to learn more**. With the increased demand on both your wireless and wired infrastructure, you must incorporate high capacity load balancing.

This means, when one access point is overloaded, the system will actively shift users from one access point to another depending on the capacity that is available.

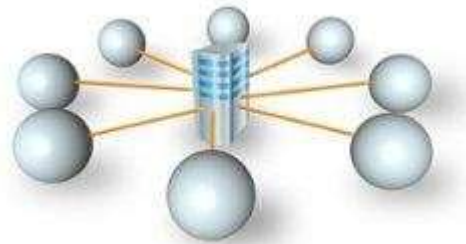
2. Scalability



The growth in popularity of new wireless devices will only continue to increase. Your network needs to have the ability to start small if necessary, but expand in terms of coverage and capacity as needed--without having to overhaul or build an entirely new network. Trust me, if you don't need it now, you will need it later.

3. Institute Accounting Software

Even educational institutions have to keep proper accounting records in order to stay within budget. Good college management software will be able to help organize all accounting needs and keep everything in order when it comes to your school's money. 3. Network Management System



Modern day wireless networks are much more complex and may consist of hundreds or even

IV. Advantages

1. Mobility

Because radio waves travel freely through the air, wireless modes of communication give you a great deal of mobility. You can, for example, listen to a radio at the beach or traveling in your car. The technology isn't perfect, as tall buildings, metal furniture and other objects interfere with radio waves, and distances of several miles weaken them. But wireless devices don't tie the receiver down to a particular location as hard-wired ones do.

2. Convenience

You must physically connect a device to a wall jack for wired communications to work; this becomes a problem if the jack is in an inconvenient location or if the cable isn't long enough to reach the jack. Wireless devices have no cables to connect; if the signal has sufficient strength, the device will work. This is also true for mobile computing devices; as long as you have the password for the local wireless data network, your smartphone or laptop connects automatically. When you leave a location, your mobile device automatically drops the connection and picks up the next strong network signal it finds.

3. Flexibility

For a traditional analog system such as AM radio broadcasting, a wireless transmitter accommodates any number of receivers. For example, it doesn't matter if 10 people or 10,000 tune in to the local baseball game. Cell phone systems are almost as generous, although the two-way digital communications technology runs out of private channels if too many people try to use the system at the same time. In a similar sense, a home Wi-Fi network is limited to 254 devices. By contrast, a wired communications system is limited to the number of physical connections on the equipment; if these run out, you must replace the equipment to support more users. A typical Ethernet router for home use, for example, offers only eight sockets, even though its network software can handle 254 users.

4. Lower Cost

Wireless communications networks are less expensive to install and maintain than equivalent wired systems. Not only do you have to pay the per-foot costs of the cable itself, you need to invest time and labor to plan wiring routes and put the wire in place. Any changes to the wiring plan add to these costs. Although even wireless systems need some cabling, the amount involved is a small fraction of that needed for wired equipment.

V. Disadvantages

1. Cost

Wireless networks are typically inexpensive, but it can cost up to four times more to set up a wireless network than to set up a wired network in some cases.

2. Coverage

The range of a wireless network is limited and a typical wireless router will only allow individuals within 150 to 300 feet to access the network.

3. Dependability

Wireless networks are extremely susceptible to interference so radio signals, radiation and any other similar type of interference may cause a wireless network to malfunction.

4. Security

Wireless networks can be accessed by any computer within range of the network's signal so information transmitted through the network (including encrypted information) may be intercepted by unauthorized users.

5. Speed

Wireless networks are typically slower than wired networks, sometimes even up to 10 times slower.

VI. Future Scope

Wireless network, a world of magic

Wireless network a magic word which can change your status very promptly that can get access to internet very speedily, and make possible conversation more and more than two users such as text messages, downloading and uploading of pictures, hear online radio, music and video downloading with a very high speed. Wireless network offering hotspot therefore now the usage of internet at airport, business companies is not an issue now.

Uses of Wireless Technologies in Medical Science

With the development of science the profession of medicine becomes more and more complex and sophisticated. Therefore at this time we need a technology which can serve and solve all big complication in hurry for the benefit of patient and progress of science and for all above purposes and the solutions are Bluetooth, wireless network are the best application to solve all problems. The main applications of medical science are remote monitoring of patient, biometric data of wireless network, and dispensers applications.

Uses of Wireless Technologies while Traveling

Every one is in hurry and wants to go at their destination on time or before the time. Every agency related to travel desire to offer more facility and better opportunities to their customers to make their travel business more profitable. Wireless technology has ability to fulfill all above requirements as like airline.

VII. Conclusion

In conclusion, wireless communications globally is something that people can expect as technology advances. Wireless communications has a lot of benefits and can make the world a lot more efficient. It does have concerns though as with every other new advancement that is made in today's world. The issues with security regarding access to a person's personal information or the negative impact that it may seem to have on society are a few things that are holding back the progress that wireless technology could be making. With more research and experiments conducted, the problems associated with wireless communications can be reduced and make it a more significant part of the world. Wireless technology will be very important in the near future where the need for wires connecting individual devices seems to be coming to an end.

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