

## **The evolution of mobile wireless communication**

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#### **Abstract**

In the last few decades, mobile wireless communication networks have experienced great changes [1]. Mobile wireless generations (g) mainly refer to the change in the nature of the system, speed, technology and frequency. each generation has some standards, capabilities, techniques and new features that differentiate it from the previous one. This article compares the type of technology used in the upcoming 5g mobile wireless communication generations, data transfer rates, challenges, techniques, features and applications that have evolved. an overview of mobile generations is presented.

**Keywords** - Mobile Communications, Wireless, LTE, IOT, 4G, 5G, Mobile Generations

The first generation wireless cellular communication system is an analog technology developed in the 1980s [2]. It was used for voice services and was based on a technology called the advanced mobile phone system (AMPS). The AMPS system is a frequency modulated technology and uses frequency division multiple access (FDMA) with a channel capacity of 30khz and a frequency range of 824-894mhz. it supports speed up to 2.4kbps.

Second-generation wireless cellular communication is a digital technology introduced in the late 1980s. it uses digital signals for audio transmission and has a speed of 64 kbit/s. the bandwidth of 2g is 30-200 khz. 2g provides services such as short message services (sms), picture messages and multimedia message services (MMS).

The third generation wireless mobile communication system was introduced in 2000 [3]. the aim of 3g systems was to offer increased data speeds from 144kbps to 384kbps in wide coverage areas and up to 2mbps in local coverage areas. In Addition To Voice Communication, The Services Offered By The 3G Network Include Data Services, TV/Video Access, Internet Browsing, E-Mail, Video Conferencing, Paging, Fax And Navigation Maps.

The fourth generation mobile system was introduced in the late 2000s and was an all ip-based network system [3]. The main goal of 4g technology is to provide high-speed, high-quality, high-capacity, security and low-cost services for voice and data services over ip, multimedia and the Internet [3]. 4G technology combines various existing and future wireless technologies to provide freedom of movement and seamless roaming from one technology to another. LTE (Long Term Evolution) And Wimax (Wireless Interworking For Microwave Access) Are Considered 4G Technologies [4].

because 5g has no limitations, it can be called the perfect real wireless world or world wide wireless network (WWW) [4]. Ipv6 is the primary protocol to operate on both 4g and 5g. The goal of 5g is to enable unrestricted data access and data sharing by anyone, anywhere, anytime.

#### **Conclusion**

In this paper, after reviewing many studies, we can conclude that the development of mobile wireless communication networks has been very fast from 1g to 3g, which was only for sending voice message data and other activities. considering that mobile wireless communication 5g technology has become the next revolution in the mobile market, different types of mobile generations have been explained. 5g technology has a bright future as it can handle the most important advancements and offer valuable services to its customers. 4G and 5G methods provide experienced services with high-speed data transfer with a noticeable change for the better in the field of communication. 5g aims for a real wireless world without any limitations.

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