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A PATH FOR HORIZING YOUR INNOVATIVE WORK

MOBILE COMMUNICATION

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Abstract: Mankind has come across many stages right from ancient Stone Age to the modern wireless age. In every stage it developed its own unique method of communication to suit its requirements. These methods range from Graham Bell's cabled telephones to today's wireless mobile handsets. We are using so many features in our mobile these days which most of us have never dreamed off. What is making all these amazing features working so well?. Today's mobile networks supports features likes SMS, GPRS, 2G, 3G, 4G, MMS, emailing facility on mobile, Bluetooth, WAP, Wi-Fi. The worldwide provides these features as they have become the standard features in mobile communication between their customers.

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INTRODUCTION

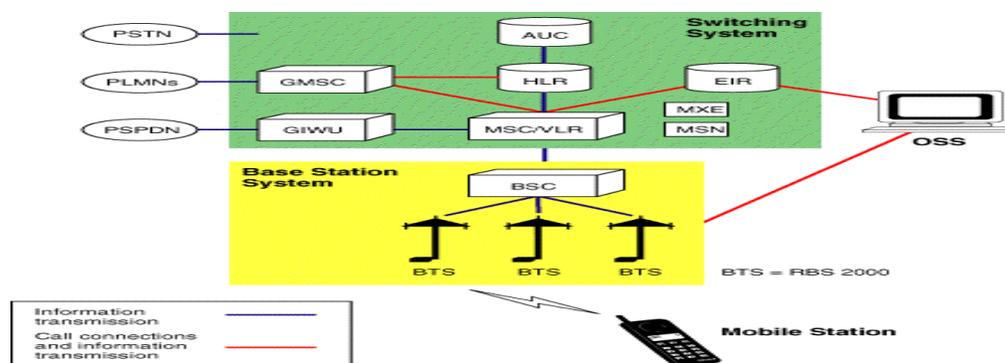
Mobile communications field has tremendously revolutionized in the past few decades. Mobile Technology has groomed a lot in past few years, major reasons for rapid advancements in mobile network technology is requirements for being mobile or connectivity on move. Day-by-day many new features are getting added. Such features demand for very high speeds showing way to the emergence of new and capable technologies. The General Packet Radio Service (GPRS) is a new non-voice value added service that allows mobile Phones to be used for sending and receiving data over an Internet Protocol (IP)-based network. Bluetooth and Wi-Fi have the potential to dramatically alter how people use devices to connect and communicate in everyday life. GSM remains the highly used mobile communication methodology worldwide, but still standard communication methods are more or less same everywhere. These antennas are known as Base Transceiver Station (BTS)

OVERVIEW

GSM

Throughout the evolution of cellular telecommunications, various systems have been developed without the benefit of standardized specifications. This presented many problems directly related to compatibility, especially with the development of digital radio technology. Its operating frequencies are 900, 1800, 1900 MHz. Also it uses a SIM card.

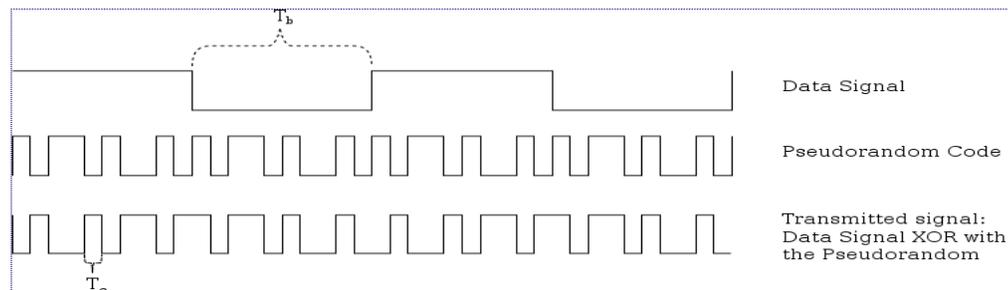
The basic GSM network elements are shown.



CDMA

Code division multiple access (CDMA) is a channel access method used by various radio communication technologies. One of the basic concepts in data communication is the idea of

allowing several transmitters to send information simultaneously over a single communication channel. The operating frequencies are 450, 800, 1900 MHz. It uses RUIM card. Data for transmission is combined via bitwise XOR with the faster code. The figure shows how spread spectrum signal is generated.



2G

Along came 2G in the early 90's and with it, digital encryption of the old 1G signal. This digital system also used less radio power, requiring less hardware and in turn, smaller phones.

Currently the mobile systems that are in use throughout the world today are classified as 2G systems. The most widely used system is the Global System for Mobile Communication (GSM), which uses TDMA for air interface. It was developed in 1990 by European Telecommunication Standards Institute (ETSI). It was developed to bring the advantages of digital cellular network & to provide a common standard. Its popular feature of GSM is Short Messaging Service.

GPRS/2.5G

General Packet Radio Service (GPRS) is a 2.5 generation packet based network technology for GSM networks that mirrors the Internet model and enables seamless transition towards 3G networks. It stood as a faster, cheaper and more efficient ways of emailing and web surfing in a mobile environment.

It transmits IP packets very efficiently allowing profitable services to be marketed at attractive tariffs. Its transmission speeds of up to 115 Kbit/s.

3G

3G is the third-generation of mobile phone technology standards. The typical services associated with 3G include wireless voice telephony and broadband wireless data, all in a mobile environment. These are a few situations where 3G will play a valuable role.

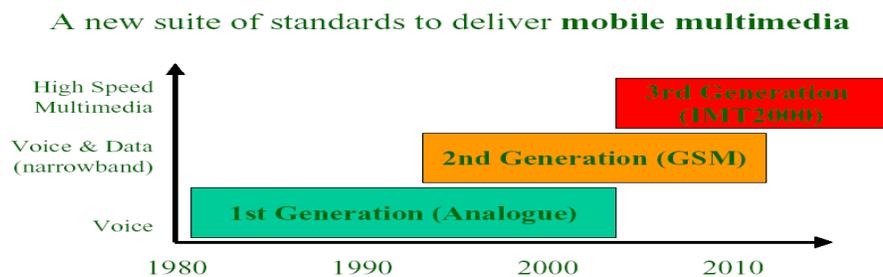
Capability to support circuit and packet data at high bit rates:

- 144 kilobits/second or higher in high mobility (vehicular) traffic

- 2 Megabits/second or higher for indoor traffic Interoperability and roaming **Common billing/user profiles:**

- Sharing of usage/rate information between service providers

- Standardized user profiles



4G

4G is the Fourth Generation Wireless Network Communications Technology standard. 4G is actually a collection of previous standards as opposed to an entirely new standard. Standards such as 3G. In addition, all 4G networks will be digital and will provide higher bandwidths of up to 100Mbps.

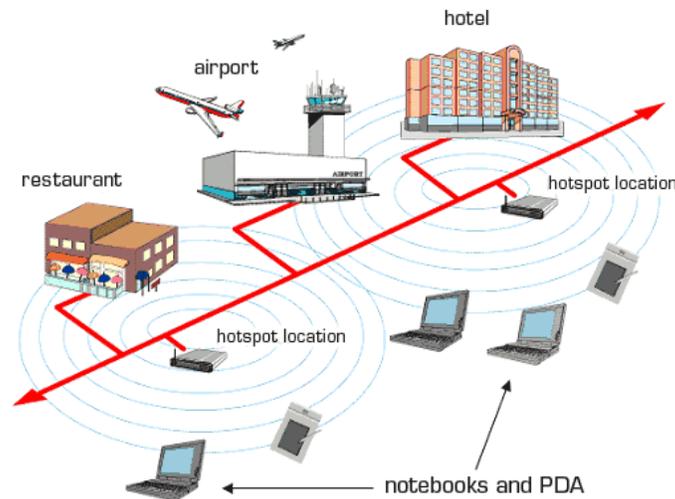
Features:

- Support for interactive multimedia, voice, streaming video, Internet, and other broadband services.
- High speed, high capacity, and low cost per bit.

Wi-Fi

Wi-Fi uses two types of radio technology over a spread spectrum to prevent interference, jamming and detection. The two types of radio technology are single carrier direct-sequence spread spectrum (DSSS), and multi-carrier Orthogonal Frequency Division Multiplexing (OFDM). The purpose of Wi-Fi was to develop a communications technology that was fast, efficient, and did not require cables.

Wi-Fi can be applied several ways. It can be used in homes, academic settings or businesses for Internet connectivity. Hotspots typically cover a room, but can be extended to cover entire buildings.



Bluetooth

Bluetooth developed to literally make the wires we are so use to, disappear. Although, it is new to most people the technology has been around for years. There are Bluetooth versions of PDAs, laptop computers, and mobile phones. Bluetooth connects electronic gadgets by a short-range radio signal that is inexpensive, and easy to use. It transmits data at 720 kilobits second and up to 100 meters in range. Bluetooth is slower than Wi-Fi it is a great wireless alternative. The maximum range for Bluetooth connectivity is limited to thirty two feet. Bluetooth is just one way to connect electronic devices.



ADVANTAGES

- It is the fastest way to communicate all around the world.

- Mobile technology is playing an increased role in disaster awareness.
- Video calling has become popular these days due to the availability of 3G services.

DISADVANTAGES

- Symptoms caused due to mobile radiations are one of the most argued problems.
- Cyber Bullying is another issue among the disadvantages of mobile phones.
- Emergence of mobile phones is losing good habits such as punctuality.

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