20XW61- MOBILE COMPUTING
Assignment Presentation

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TOPIC : **General Packet Radio Service (GPRS)**

RECAP :

- GPRS is a mobile data service that allows for the transmission of data over a mobile network.It enables users to send and receive data over the internet using their mobile phones or other mobile devices.
- Main advantage of GPRS : It allows for an always-on connection to the internet, enabling users to access data and information quickly and easily.

Salient Features of GPRS :

1) **Important step on the path to 3G**:

It introduced packet-switched data transfer to mobile networks, enabled more efficient use of network resources, and paved the way for always-on data connections, mobile internet, and other data-intensive applications.

2) **Standardized by ETSI** (**European Telecommunications Standards Institute**):

By standardizing GPRS, ETSI ensured that different network operators and manufacturers could develop and deploy compatible equipment and services, which helped to drive the widespread adoption of mobile data services in the early 2000s.

3) **GPRS is an overlay network over the GSM**:

GPRS uses the existing GSM network infrastructure to provide mobile data services, while adding new elements and functionalities to the network.

4) **Provides Data Packet delivery service**:

Provides a packet-switched data delivery service that allows mobile devices to transmit and receive data in the form of small packets over the cellular network.

5) **Support for leading internet communication protocols:**

GPRS Supports the leading Internet connection protocols such as TCP/IP, which are essential for enabling data communication between mobile devices and the internet by assigning IP addresses to mobile devices, using a packet-switched network architecture, providing a gateway between the GPRS network and the internet, and supporting QoS parameters for reliable data transfer.

6) **Utilizes existing GSM authentication and privacy procedures:**

GPRS utilizes the existing GSM authentication and privacy procedures to secure the data transfer between the mobile device and the GPRS network.

High Data Rate :

- GPRS uses radio channel i.e. 200 kHz wide
- Divided into 8 time slots each carrying 34 kbps per time slot
- Radio channel carries digital data stream of 271 kbps
- Data rate 14 kbps per time slot achieved after corrections
- GPRS can combine of 8 time slots giving data rate of 114 kbps

GPRS Terminals:

There are three classes of GPRS terminals based on their maximum output power, which determine the range of their wireless communication capabilities:

Class A :

Mobile Station(MS) supports simultaneous operation of GPRS and GSM services This is the most advanced type of GPRS terminal. It can transmit and receive data at the same time, and has the highest power output, which means it can communicate over longer distances. Class A GPRS terminals are used in devices such as mobile phones and wireless modems.

Class B :

MS is able to register with the network for both GPRS & GSM services simultaneously. It can only use one of the two services at a given time.This type of GPRS terminal can also transmit and receive data, but not at the same time. It has a lower power output than Class A, which means it can communicate over shorter distances. Class B GPRS terminals are used in applications such as vehicle tracking systems and wireless alarm systems.

Class C :

MS can attach for either GPRS or GSM services.This type of GPRS terminal can only either transmit or receive data at any given time. It has the lowest power output of the three classes, which means it can only communicate over very short distances. Class C GPRS terminals are used in applications such as remote sensors and other low-power, low-bandwidth devices.