Introduction to Mobile Computing

G. Pradeep, AP

Introduction to Mobile Computing

- A technology that is capable of providing an environment which enables users to transmit data from one device to other device without the use of any physical link/cables is known as **Mobile Computing**.

- It means, data transmission is done wireless-ly with the help of wireless devices such as mobiles, laptops etc.

- Whenever any device is connected to a network without being connected physically over a link or cable, data transmission such as messages, voice recording, videos etc. can be done be done by using the concept of mobile computing.

Introduction to Mobile Computing

- Mobile Computing technology helps users to access and transmit data from any remote locations without being present there physically.

- Thus, having such a big coverage diameter, it is one of the fastest and most reliable sectors of computing technology field.

The **major elements of mobile computing** are mobile communication, mobile hardware, and mobile software.

- **Mobile Communication -** refers to the communication infrastructure

- **Mobile Hardware -** Mobile computing devices and supporting devices

- **Mobile Software -** Operating system, which is the brain of any computing system

Challenges in mobile computing

- Mobility means changes
- **Hardware**
  - ✔ Lighter, smaller, energy management, user interface
- **Low bandwidth, high bandwidth variability**
  - ✔ Kbit/s to Mbit/s, bandwidth fluctuation
- **Security risk**
  - ✔ Devices more vulnerable, endpoint authentication harder
- **Heterogeneous network**
  - ✔ Different devices, interfaces and protocols
- **Location awareness**
  - ✔ Locality adaptation
- **Higher loss-rates, higher delays, more jitter**
  - ✔ Connection setup time, hand-off

Introduction to Mobile Computing

Advantages

- Portability

- Increased Productivity

- Affordability

- Data Access

- Entertainment

- Cloud Computing

Applications

□Vehicles

- transmission of news, road condition, weather, music via DAB
- personal communication using GSM
- position via GPS
- local ad-hoc network with vehicles close-by to prevent accidents, guidance system, redundancy
- vehicle data (e.g., from busses, high-speed trains) can be transmitted in advance for maintenance

□Medical

- Nurses/Doctors in Medical offices are now using Wireless Tablet PCs/WLAN to collect and share patient information.

□Sales

- Sales representatives are using Tablet PCs with Smart phones for presentation, transmitting/access information among office, hotel, and customer location.

□Emergencies

- Early transmission of patient data to the hospital, current status, first diagnosis
- Provide mobile infrastructure in dealing with Natural Disaster (earthquake, hurricane, fire), terrorist attacks, war, ...

THANK YOU