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A PATH FOR HORIZING YOUR INNOVATIVE WORK

MOBILE COMPUTING

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Abstract*:* Advances in wireless networking have prompted a new concept of computing, called mobile computing in which users carrying portable devices have access to a shared infrastructure, independent of their physical location. This provides flexible communication between people and (ideally) continuous access to networked services. Mobile computing is revolutionizing the way computers are used and in the coming years this will become even more perceptible although many of the devices themselves will become smaller or even invisible (such as sensors) to users. Mobile computing offers significant benefits for organizations that choose to integrate the technology into their fixed organizational information system. Ranging from wireless laptops to cellular phones and Wi-Fi/Bluetooth enabled PDA's to wireless sensor networks, mobile computing has become ubiquitous in its impact on our daily lives. Mobile computing is a versatile and potentially strategic technology that improves information quality and accessibility, increases operational efficiency, and enhances management effectiveness. This research paper gives a brief introduction to mobile computing and also it point out the limitations, importance, applications and issues of mobile computing.

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INTRODUCTION

Mobile voice communication is widely established throughout the world and has had a very rapid increase in the number of subscribers to the various cellular networks over the last few years. An extension of this technology is the ability to send and receive data across these cellular networks. This is the principle of mobile computing.

Mobile data communication has become a very important and rapidly evolving technology as it allows users to transmit data from remote locations to other remote or fixed locations. This proves to be the solution to the biggest problem of business people on the move - mobility.

Mobile computing is human–computer interaction by which a computer is expected to be transported during normal usage. Mobile computing involves mobile communication, mobile hardware, and mobile software. Communication issues include ad hoc and infrastructure networks as well as communication properties, protocols, data formats and concrete technologies. Hardware includes mobile devices or device components. Mobile software deals with the characteristics and requirements of mobile applications.

Available Technology

There are many communications technologies available today that enable mobile computers to communicate. The most common of these technologies are: (a) Wireless Local Area Networks (WLANs) (b) Satellite (c) Cellular Digital Packet Data (CDPD) (d) Personal Communications Systems (PCS) (e) Global System for Mobile communications (GSM) (f) RAM and ARDIS data networks (g) Specialized Mobile Radio (SMR) service (h) one and two-way paging (i) plain old telephone system (POTS) (j) Internet (k) infra-red (l) docking (serial, parallel, LAN) and (m) disk swapping. These diverse communications technologies make available a continuum of connectivity that provides communications capabilities ranging from manual-assisted batch transfers to high-speed continuous communication.

Devices used for Mobile Computing

Some of the most common forms of mobile computing devices are as follows.

- Portable computers, compacted lightweight units including a full character set keyboard and primarily intended as hosts for software that may be parametrized, as laptops, notebooks, notepads, etc.

- *Mobile phones* including a restricted key set primarily intended but not restricted to for vocal communications, as cell phones, smart phones, phonepads, etc.

- Smart cards that can run multiple applications but typically payment, travel and secure area access

- *Wearable computers*, mostly limited to functional keys and primarily intended as incorporation of software agents, as watches, wristbands, necklaces, keyless implants, etc.

Security issues involved in mobile computing

- **Mobile security** or **mobile phone security** has become increasingly important in mobile computing. It is of particular concern as it relates to the security of personal information now stored on the smartphone.

- More and more users and businesses use smartphones as communication tools but also as a means of planning and organizing their work and private life. Within companies, these technologies are causing profound changes in the organization of information systems and therefore they have become the source of new risks.

- All smartphones, as computers, are preferred targets of attacks. These attacks exploit weaknesses related to smartphones that can come from means of communication like SMS, MMS, wifi networks, and GSM.

- Different security counter-measures are being developed and applied to smartphones, from security in different layers of software to the dissemination of information to end users. There are good practices to be observed at all levels, from design to use, through the development of operating systems, software layers, and downloadable apps.

Importance of Mobile Computing

The importance of Mobile Computers has been highlighted in many fields of which a few are described below:

- **For Estate Agents - E**state agents can work either at home or out in the field. With mobile computers they can be more productive.

- **Emergency Services -** Ability to receive information on the move is vital where the emergency services are involved.

- **In courts -** Defense counsels can take mobile computers in court. Mobile computers allow immediate access to a wealth of information, making people better informed and prepared.

- **In companies -** Managers can use mobile computers in, say, critical presentations to major customers. They can access the latest market share information.

- **Stock Information Collation/ Control -** In environments where access to stock is very limited ie: factory warehouses. The use of small portable electronic databases accessed via a mobile computer would be ideal.

- **Credit Card Verification -** This can speed up the transaction process and relieve congestion at the POS terminals.

- **Taxi/Truck Dispatch -** Mobile computing allows the taxis to be given full details of the dispatched job as well as allowing the taxis to communicate information about their whereabouts back to the central dispatch office..

Limitations of Mobile Computing

 Resource constraints: Battery

 Interference: Radio transmission cannot be protected against interference using shielding and result in higher loss rates for transmitted data or higher bit error rates respectively

Bandwidth: Although they are continuously increasing, transmission rates are still very low for wireless devices compared to desktop systems.

 Dynamic changes in communication environment: variations in signal power within a region, thus link delays and connection losses

 Network Issues: discovery of the connection-service to destination and connection stability

 Interoperability issues: the varying protocol standards

CONCLUSION:

With the rapid technological advancements in Artificial Intelligence, Integrated Circuitry and increases in Computer Processor speeds, the future of mobile computing looks increasingly exciting. Mobile computing is made possible by portable computer hardware, software, and communications systems that interact with a non-mobile organizational information system

while away from the normal, fixed workplace. Mobile computing is a versatile and potentially strategic technology that improves information quality and accessibility, increases operational efficiency, and enhances management effectiveness. Mobile computing may be implemented using many combinations of hardware, software, and communications technologies. The technologies must be carefully selected and the applications designed to achieve the business needs required from the overall organizational information system. Here in this paper we have in term identified some of the challenging issues, applications of mobile computing along with few of the characteristics of Mobile computing.

REFERENCES

1. MH Repacholi, "health risks from the use of mobile phones", Toxicology Letters, 2001 - Elsevier

2. Landay, J.A. Kaufmann, T.R., "user interface issues in mobile computing", Workstation Operating Systems, 1993.

3. T Imielinski, BR Badrinath "mobile wireless computing, challenges in data management- Communications of the ACM, 1994 - portal.acm.org

4. Roth, J. "Mobile Computing - Grundlagen, Technik, Konzepte", 2005, dpunkt.verlag, Germany

5. "Cellular Digital Packet Data (CDPD): What makes it Reliable?" Article by Vasilis Koudounas 1996.

6. Network Switching Techniques-Circuit, Packet and Datagram: Halsall, Fred. Data Communications, Computer Networks and Open Systems. 4th edition 1996.

7. Asynchronous Tranfer Mode , Solution for Broadband ISDN, Third edition 1993, By Martin de Prycker Communication Systems , Third edition 1994, By Simon Haykin ,