

Types of mobile computing computer science essay

[Technology](#), [Computer](#)



The object of mobile computing is to develop system, add more features to mobiles and hand hold things which make life easier and application level software, which is working with battery or battery powered terminals equipped with the wireless network connection. Companies are spending billions of money on these things to developing new technology and buying spectrum in the recent PCS auctions cause of their rapidly growing interest in this field. In present time mobile computing becomes a very important paradigm. Ranging of mobile computing, laptops, PDAs and Wi-Fi/Bluetooth have become ubiquitous in its impact on our daily lives. We will investigate standard protocols and platforms, the capabilities of today's commercial devices, and proposed next-generation solutions. In the process, we will seek to gain an improved understanding about where the field is headed, and what are the important remaining unanswered technical questions and challenges.

INTRODUCTION

Mobile Computing is a technology that allows to user for transmission of data via a computer and it has not need to connect to a fixed physical link.

Portable and small computing devices in wireless enabled networks that are provide wireless connections to a central main server. These devices include laptops, notebook PC's palmtops, personal digital assistant (PDAs) and other hand held devise. A radio-signalling deviceis installed inside these devices.

Mobile computing is the discipline for creating an information management platform. It is free from spatial and temporal constraints. The freedom from these constraints allow its users to access and process desired from

anywhere in the space. A user can continue to access and manipulate desired data while traveling on plane, in car, on ship etc. Mobile computing devices generally use wireless technologies such as LAN, Wi-Fi, GPRS and the more recently introduced MAN.

The discipline of mobile communication has its origin in personal Communications Services(PCS). These PCS refers to a wide variety of wireless access and personal mobility services, which is provided through a small terminal like cell phone and the main goal of it has o enabling communications at any time , at any place and in any form.

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 data and receive data across these cellular networks. This is the main principle of mobile computing.

Mobile data communication has become a very important and rapidly evolving technology, because it allows users to transmit the data from one place to another or 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.

Finding

Mobile computing has different categories but it i broadly classified into two categories which are portable computing and mobility computing.

Portable computing: - It is refers to wired communication. We can move the portable devices themselves any ware, but in order to access them one needs to connect them to a network port. It means we can move these devices any ware ant time but have to need a connection to connect them with a network port or where the network portable available.

Mobility computing: - It is also called simply mobile computing, this is true wireless communication. In these devices people not can move the devices they also can use it without any portable connection. In other word they can use it anywhere any time and at anyplace without any limited area or coverage. Mobile computing has made its foray into almost every aspect of human life. In normal present life, mobile computing is a boon to people on the move; whether top check their emails or using other services such as SMS and MMS and these are famous in new younger generation. Mobile computing has become an indispensable extension of technology in these days.

Types of Mobile Computing Devices

The mobile devices which are able to connect to internet all are the parts of mobile devices, but some people classify that the standard MP3 payers and digital cameras are also the pats of mobile computing. The term mobile devise covers a very large area or wide range of consumer electronics. The category of mobile devices includes the following devices, as well as others:

1. Personal Digital Assistant: It also knows as pocket computers, a device which have all the features like computing, computing, telephone/fax,

Internet and networking is called personal digital assistant. A typical PDA can function as a cellular phone, fax sender, Web browser and personal organizer. In these days mostly personal digital assistant began as pen-based and these are using a stylus rather than a keyboard for input. This means that they also incorporated handwriting recognition features. Some of these are controlled by the voice and these are voice controlled which are based on voice recognition technologies. At present time personal digital assistant are available in either a stylus or keyboard version which is called a data pad.

It supposed to be have some features which are following as:

Short Messaging Service (SMS). A technology, in existence since 1991, that allows for the sending of short text messages (up to 160 characters in 2005) on certain cell phones. Data are borne by the radio resources reserved in cellular networks for locating mobile devices and connecting calls. SMS messages can be sent or received concurrently, even during a voice or data call. Used by hundreds of millions of users, SMS is known as the e-mail of commerce.

Enhanced Messaging Service (EMS). An extension of SMS that is capable of simple animation, tiny pictures, and short melodies.

Multimedia Messaging Service (MMS). The next generation of wireless messaging, this technology will be able to deliver rich media.

Bluetooth. A chip technology wireless standard designed for temporary, short-range connection (data and voice) among mobile devices and/or other devices (see bluetooth. org).

Wireless Application Protocol (WAP). A technology that offers Internet browsing from wireless devices.

Wi-Fi (short for Wireless Fidelity). Refers to a standard 802. 11b on which most of the wireless local area networks (WLANs) run.

WLAN (Wireless Local Area Network). A broad term for all 802. 11 standards. Basically, it is a wireless version of the Ethernet networking standard.

2. Smartphone: Those devices which have both features mobile phone features and it can also use as computer are called smartphone in other words a mobile phone with brain. These devices give you authority to install programs, store information etc. along with using only a mobile phone in single device.

A Smartphone could be a mobile phone with some PDA functions integrated into the device or vice versa. 3G and latest 4G mobiles are a good example of smartphones.

3. Tablet PC: Those notebook computers which are not movable and also use a stylus to write in it, the handwriting is digitized and can be converted to standard text through handwriting recognition or it is written in text form. The stylus also can be used to type on a pen-based key layout where the

lettered keys are arranged differently than a standard QWERTY keyboard. For input these computer also have a keyboard and a mouse.

Mobile Operating Systems (Mobile OS)

A software platform in a mobile operating system that determines all the features and functions in your device it is same like a computer operating system such as keyboards, wireless, security, thumbwheel, and synchronization with applications, e-mail, text messaging and many more things.

Some of the well-known and more common Mobile operating systems include the following:

1. Symbian OS:- It stand for Symbian operating system Symbian OS has become a standard operating system for smartphones, and is licensed by more than 85 per cents of the world's handset manufacturers. The Symbian OS is designed for the specific requirements of 2. 5G and 3G mobile phones.
2. Windows Mobile: - The Windows Mobile platform is available on a variety of devices from a variety of wireless operators. You will find Windows Mobile software on Dell, HP, Motorola, Palm and i-mate products. Windows Mobile powered devices are available on GSM or CDMA networks.
3. Palm OS - Since the introduction of the first Palm Pilot in 1996, the Palm OS platform has provided mobile devices with essential business tools, as well as capability to access the Internet or a central corporate database via a wireless connection.

History

Year 1928: - The first mobile radio system went into operation in Detroit. It was used by the Detroit Police Department.

Year 1935: - Frequency modulation has been developed and tested.

Year 1943:- AT&T developed and introduced the Improved Mobile Telephone Service (IMTS). It consisted of a broadcast system with a higher-power transmitter. This system was followed shortly with limited cellular networks and the implementation of the first mobile radio system to connect with a fixed telephone number.

Year 1950: - Paging systems began to appear. During this period, Bell Labs continued to test the cellular techniques.

Year 1970: - Federal Communication Commission (FCC) allocated spectrum space for cellular systems. At this time, AT&T proposed the cellular system that is now known as the Advanced Mobile Phone System (AMPS).

Year 1983: - The cellular service was commercially implemented in Chicago and Baltimore.

Limitations of mobile computing

In addition to these technical challenges, mobile computing also faces business challenges. This is due to the lack of trained professionals to bring the mobile technology to the general people and development of pilot

projects for testing its capabilities. There are few limitations of mobile computing which are followings: -

Revising the technical architecture: Mobile users want more features in mobile according to their increases of need, so they are demanding, they are very important for the business world. Additional data architecture and application must also be revised to provide complete connectivity for users with present up to date communication technology, by mobile connectivity

Reliability cost, capacity, and coverage: -In these days wireless network has only limited geographic coverage and its cost is more than the wired network services. But is very slow and less reliable with reduced bandwidth. So it is really important to find a new way to use this resource more efficiently by designing innovative applications.

3. Integration with legacy mainframe and emerging client/server applications: Application development paradigms are changing. As a result of the IT industry's original focus on mainframes, a huge inventory of applications using communications interfaces that are basically incompatible with mobile connectivity have been accumulated..

4. End-to-end design and performance: Since mobile computing involves multiple networks (including wired) and multiple application server platforms, end-to-end technical compatibility, server capacity design, and network response time estimates are difficult to achieve.

5. Security: Wireless networks have relatively more security requirements than wired network. A number of approaches have been suggested and also the use of encryption is has been proposed.

Summary

Mobile computing can be broadly classified into categories.

Portable computing:- A portable device which we can move themselves anywhere but has to need a network port to connect them or where network portable is available and it is wired communication method.

Mobile computing: - A device which we can move anywhere without any portable connection it is work on large coverage area and easy to move anywhere , any time and it is also called wireless communication.

All the devise which are able to connect with the internet are includes in mobile computing.

And these have few categories which are followings: -

Personal Digital Assistant (PDA): - A devise which has features like computing, telephone/fax, internet and networking know as Personal Digital Assistant. A Normal PDA example is a cellular phone which has features is fax sender, web browser and it is personal organiser. It is also known as pocket computers. Now days all PDA assistant are available in either a stylus or keyboard version which is called a data pad. It is also have some more important features like short messaging Service (SMS), Enhanced messaging

Service (EMS), Multimedia messaging Service (MMS), Bluetooth, Wireless Application Protocol (WAP), wireless Fidelity(Wi-Fi) and Wireless local area network (WLAN).

Smartphone: - A device which has both features mobile phone and it can be used as computer, or computer application can be used in it and these kinds of phones have called " mobile with brain". In market lots of smartphone are available, new i-phone 4g is a big example of smartphone in mobile computing. It is kind of little computer and you can run all the computer programs in it.

Table PC: - Those devices which are not moveable and connected with a wired or is working with a limited connection area is called table PC. These devices are knows as desktop computer and a keyboard and a mouse is used t for input in this devise.

Mobile operating system (mobile OS): - A software platform in a mobile operating system which has all the features and functions , it is working same like a computer and it is also have keyboard, wireless connection , security, thumbwheel and synchronization , e-mail , text messaging and some more functions as following: -

Symbian OS:

Windows Mobile

Palm OS

Limitations of mobile computing: - There are few limitations of mobile computing which are followings: -

Revising the technical architecture

Reliability cost, capacity, and coverage

Integration with legacy mainframe and emerging client/server applications: -

End-to-end design and performance

Security.

Referencing

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