TRINITY COLLEGE FOR WOMEN NAMAKKAL

Department of Computer Science

MOBILE COMPUTING

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INTRODUCTION TO MOBILE COMPUTING

- Mobile computing systems are computing systems that may be easily moved physically and whose computing capabilities may be used while they are being moved.
- ***Examples*** are laptops, personal digital assistants (PDAs), and mobile phones.
- There are many things that a mobile computing system can do that a stationary computing system cannot do; these added functionalities are the reason for separately characterizing mobile computing systems.

HISTORY OF MOBILE COMPUTING

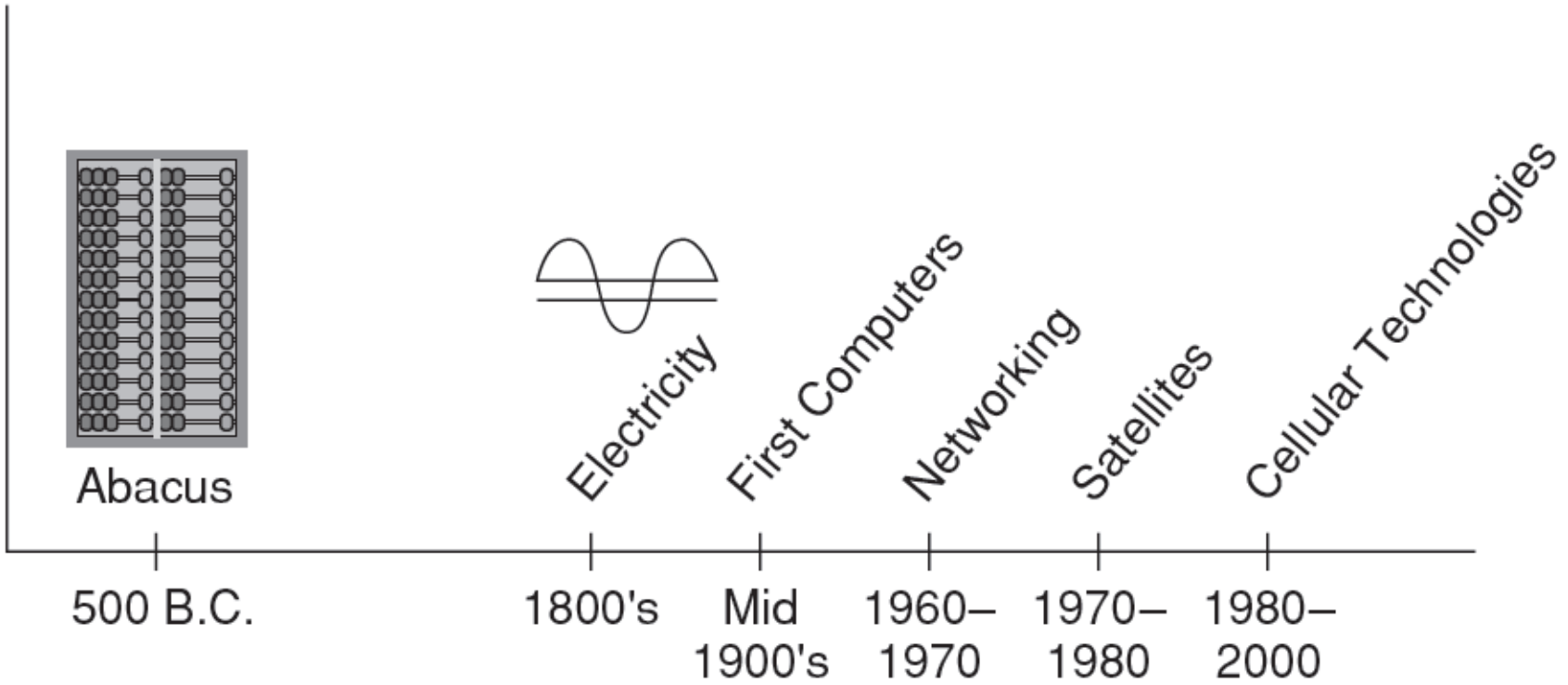


FIGURE 1.1. A Timeline of Mobile Computing.

HISTORY (Cont..)

- One of the very first computing machines, the **abacus**, which was used as far back as 500 B.C., was, in effect, a mobile computing system because of its small size and portability.
- Most calculators today are made with an entire slew of mathematical functions while retaining their small size and portability.
- The **abacus and calculators** became important parts of technology not only because of their ability to compute but also because of their ease of use and portability.

DIMENSIONS OF MOBILE COMPUTING

- It should be obvious that any mobile computing system can also be stationary!
- If we stop moving it, it is stationary.
- The dimensions of mobility; the tools that allow us to qualify our problem of building mobile software applications and mobile computing systems.

DIMENSIONS (Contd...)

Dimensions of mobility are as follows:

1. location awareness,
2. network connectivity quality of service (QOS),
3. limited device capabilities (particularly storage and CPU),
4. limited power supply,
5. support for a wide variety of user interfaces,
6. platform proliferation, and
7. active transactions.

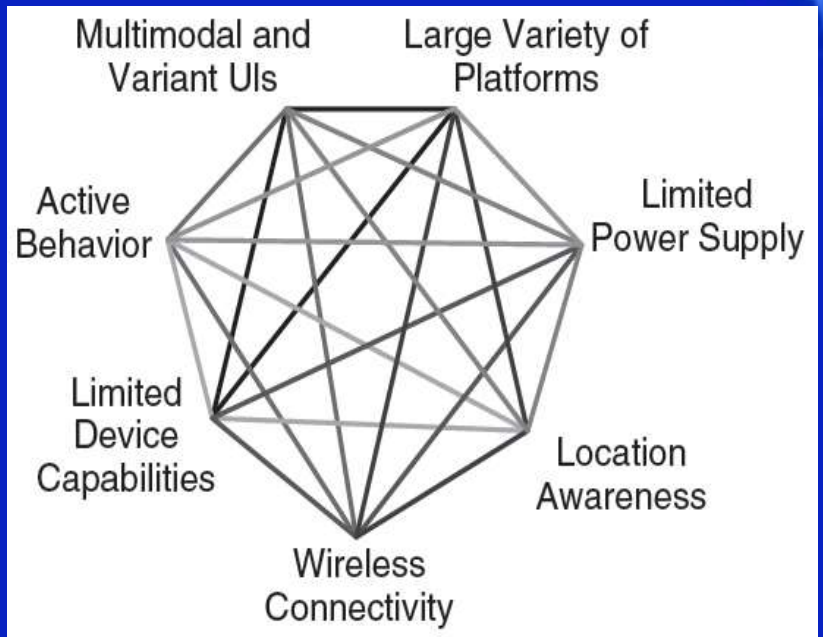


FIGURE 1.3. Dimensions of Mobility.

Location

- A mobile device is not always at the same place: Its location is constantly changing.
- The changing location of the mobile device and the mobile application presents the designers of the device and software applications with great difficulties.
- These challenges and opportunities can be divided into two general categories: localization and location sensitivity.

LOCATION(Cont..,)

Localization:

❖Localization is the mere ability of the architecture of the mobile application to accommodate logic that allows the selection of different business logic, level of work flow, and interfaces based on a given set of location.

Location sensitivity:

❖Location sensitivity is the ability of the device and the software application to first obtain location information while being used and then to take advantage of this location information in offering features and functionality.

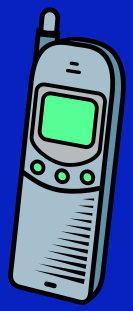
User interfaces are difficult to design and implement

1. Designers have difficulties learning the user's tasks.
2. The tasks and domains are complex.
3. A balance must be achieved among the many different design aspects, such as standards, graphic design, technical writing, performance, social factors, implementation time, etc.
4. The existing theories and guidelines are not sufficient.
5. Iterative design is difficult.
6. There are real-time requirements for handling input events.
7. It is difficult to test user interface software.

MOBILE DEVICES

Sensors, embedded controllers

PDA
- graphical displays
- character recognition
- simplified WWW



Mobile phones
- voice, data
- simple graphical displays

Palmtop
- tiny keyboard
- simple versions of standard applications

Laptop/Notebook
- fully functional
- standard applica-tions

THANK YOU

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