Leibniz Universität Hannover

Mobile Interaction

Auditorium Exercise 9

Human-Computer Interaction Group

Shashank Ahire
shashank.ahire@hci.uni-hannover.de

Leibniz Universität Hannover

LIVE SESSION

Difference between Location and Place?

Difference between Location and Place?

- Location is a point or area
- Location: 52N 13E

- Place describes characteristics of a location
- Place: university main building

Difference between Absolute and Relative Location?

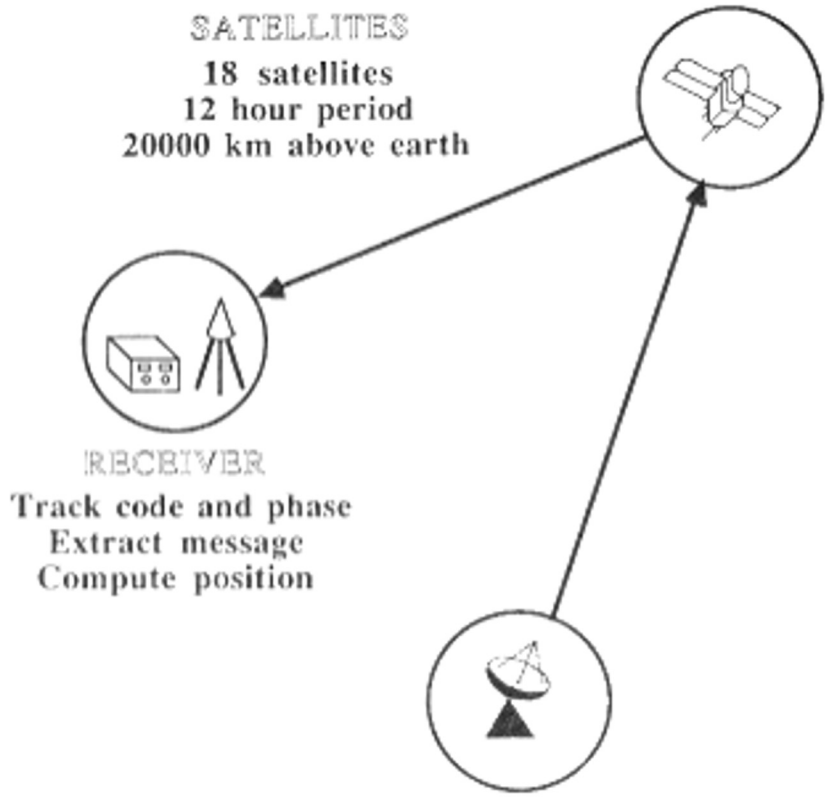
Difference between Absolute and Relative Location?

- Absolute location: 52N 13E
- Relative location: 10 km west of where I am

Examples of outdoor location technologies?

Examples of outdoor location technologies?

- GPS: System Schema

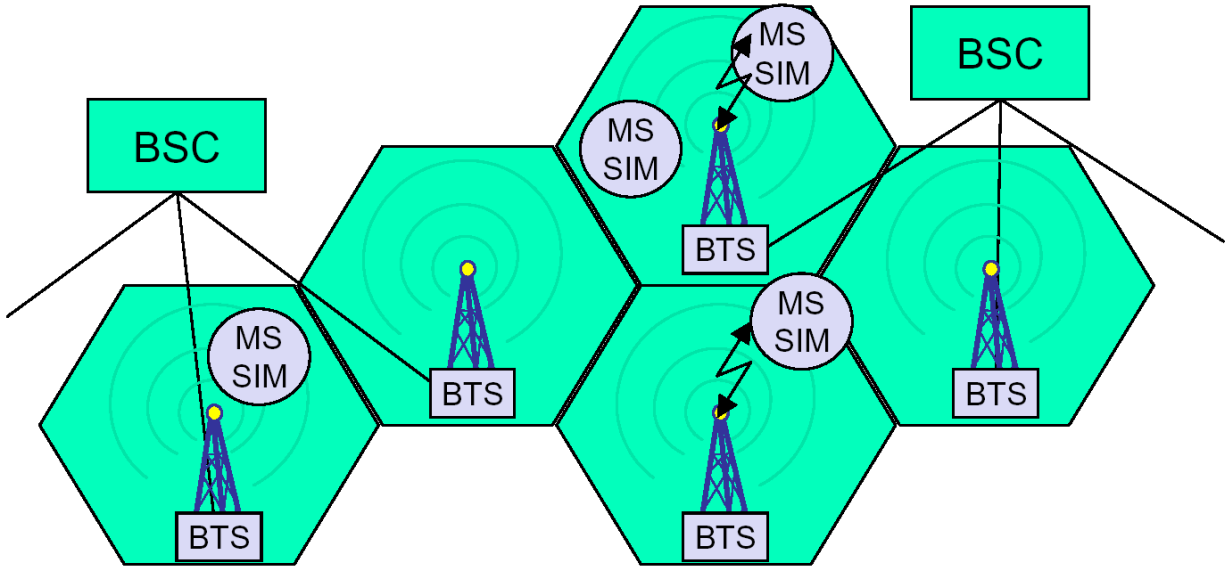


Example of outdoor location technologies?

- Odometry and Inertial Systems

Example of outdoor location technologies?

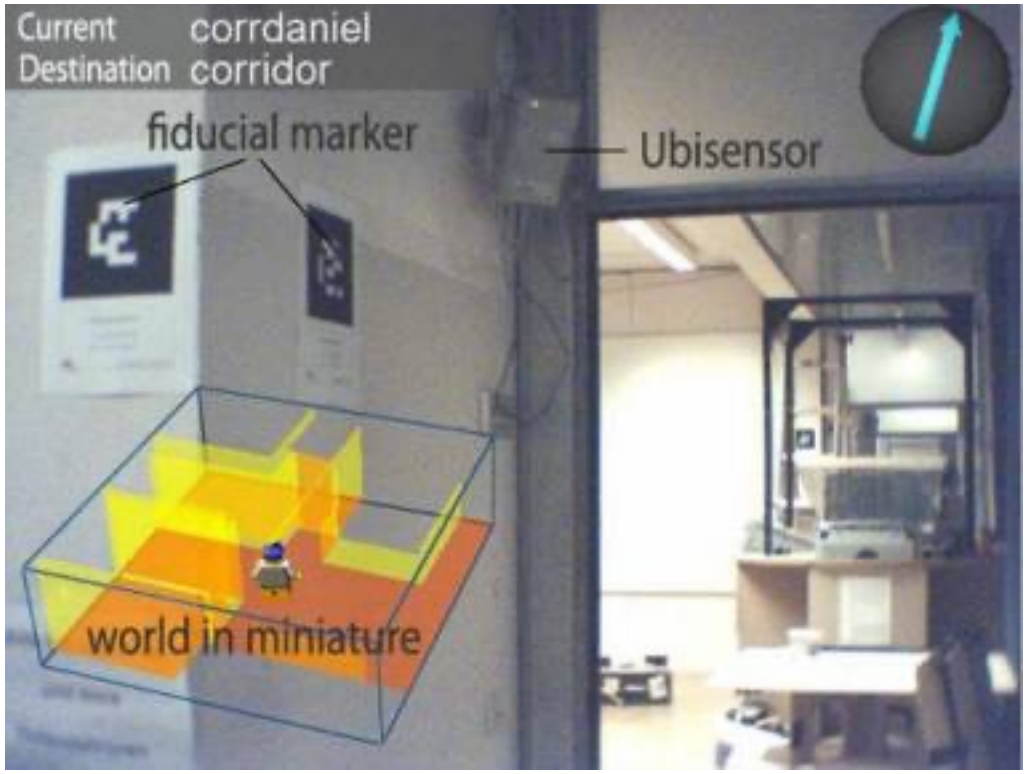
- Odometry and Inertial Systems
- Cell-Based Positioning



Example of indoor location technologies?

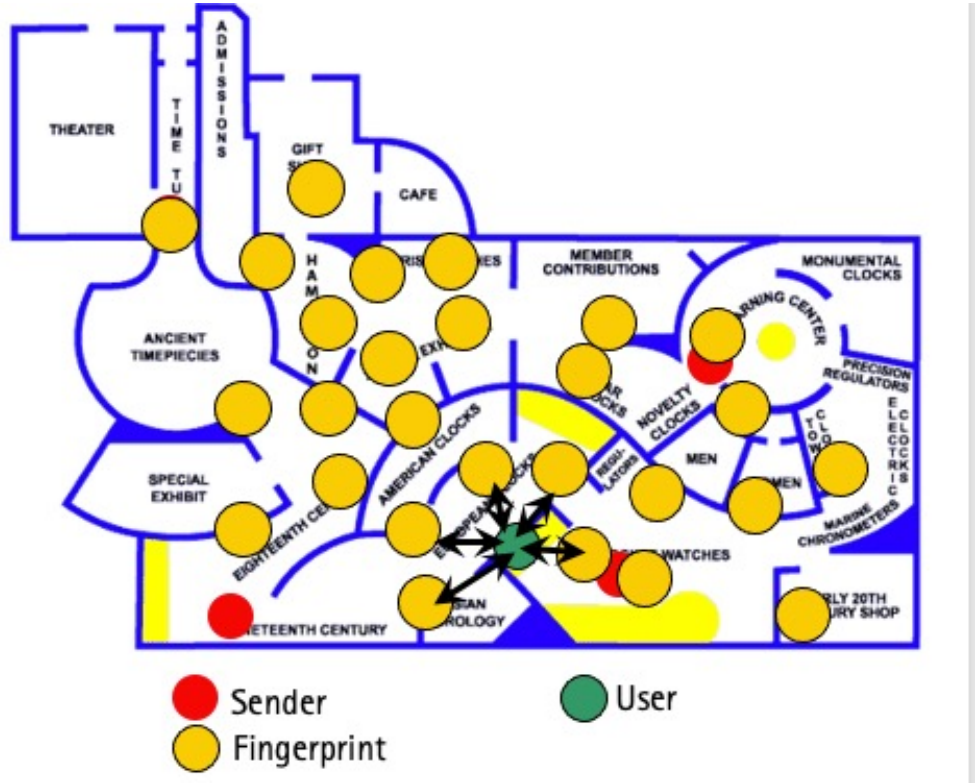
Example of indoor location technologies?

- Computer Vision-Based Tracking



Example of indoor location technologies?

- Wifi



Applications of indoor positioning?

Applications of indoor positioning?

- Airport, shopping center, grocery center
- Way-finding for visually challenged.

Context: Example of context-aware mobile app?

Context: Example of context-aware mobile app?

- Maps
- Shopping reminder app
- Dating applications

Leibniz Universität Hannover

ASSIGNMENT 10 PREVIEW

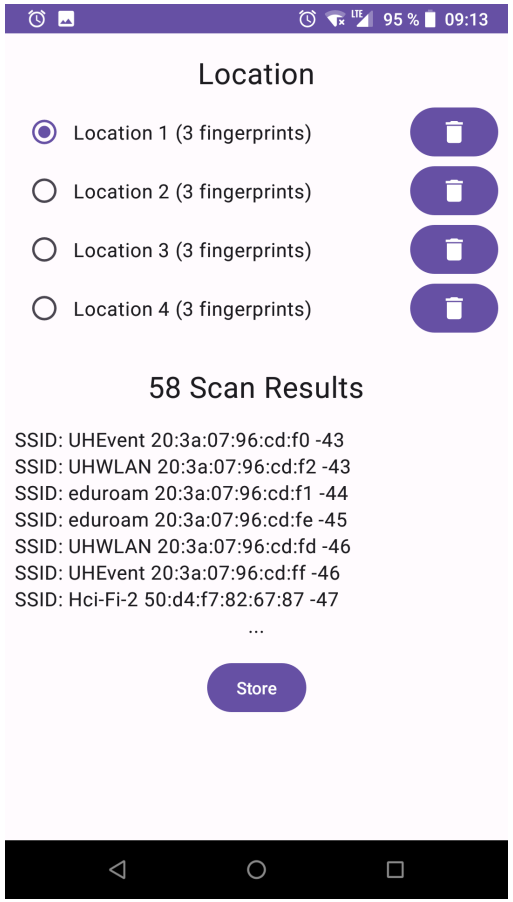
Exercise 1 – WiFi Positioning

a) Explain how WifiLocation::wifiScan performs WiFi scans.

Exercise 1 – WiFi Positioning

a) Explain how WifiLocation::wifiScan performs WiFi scans.

b) Implement measurement screen. Functionality should match screenshot.

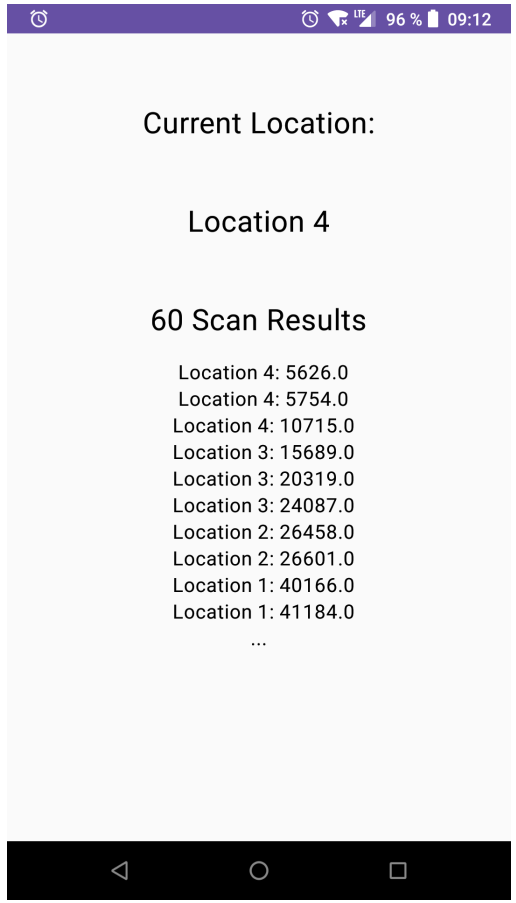


Exercise 1 – WiFi Positioning

a) Explain how WifiLocation::wifiScan performs WiFi scans.

b) Implement measurement screen. Functionality should match screenshot.

c) Implement of the locate screen. Functionality should match screenshot.



Exercise 1 – WiFi Positioning

a) Explain how WifiLocation::wifiScan performs WiFi scans.
b) Implement measurement screen. Functionality should match screenshot.
c) Implement of the locate screen. Functionality should match screenshot.
d) Describe how the method works, LocateViewModel::bestMatch

Exercise 2 – Evaluation of Accuracy

- Research Questions
  - How accurately can the location within an apartment be determined with your app?
  - How accurately can your app determine the location on a street within a residential area?
  - What factors influence the accuracy of location via WiFi fingerprinting?

Exercise 2 – Evaluation of Accuracy

a) **Design an experiment** to answer the above research questions

b) **Perform your experiment** according to the guidelines you have drawn up

c) **Evaluate your experiment** and use the data to draw conclusions on the above research questions

d) Are the research questions finally **clarified by your experiment**? If so, **why**?

QUESTIONS?