TECHNISCHE UNIVERSITÄT DRESDEN

Department of Computer Science Institute for System Architecture, Chair for Computer Networks

Application Development for Mobile and Ubiquitous Computing

Seminar Task

Second Presentation

GroupNo. 9

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Campus Navigator - Agenda

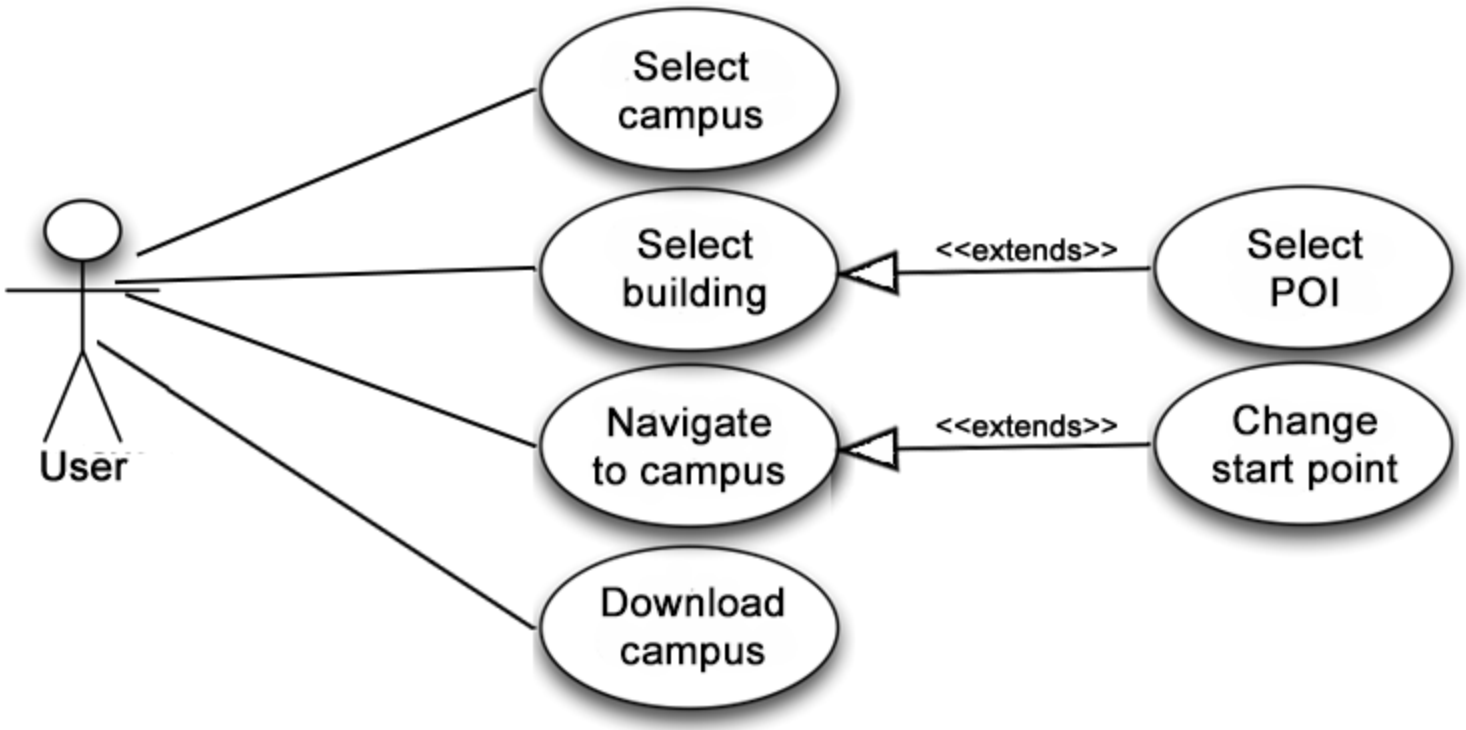
1. Application Scenario
2. Architecture and Technologies
3. Challenges
4. Adaptation and Context
5. Work Plan

Campus Navigator

- Help visitors/freshmen/rookies to find their way on large campuses
- Define Campus in XML to make the application extensible to any campus
- Users shall be able to search for buildings by name, address or shortcut and see it on a map
- Show navigation route between current position and destination
- Show distance and estimated time between two locations, based on type of transportation

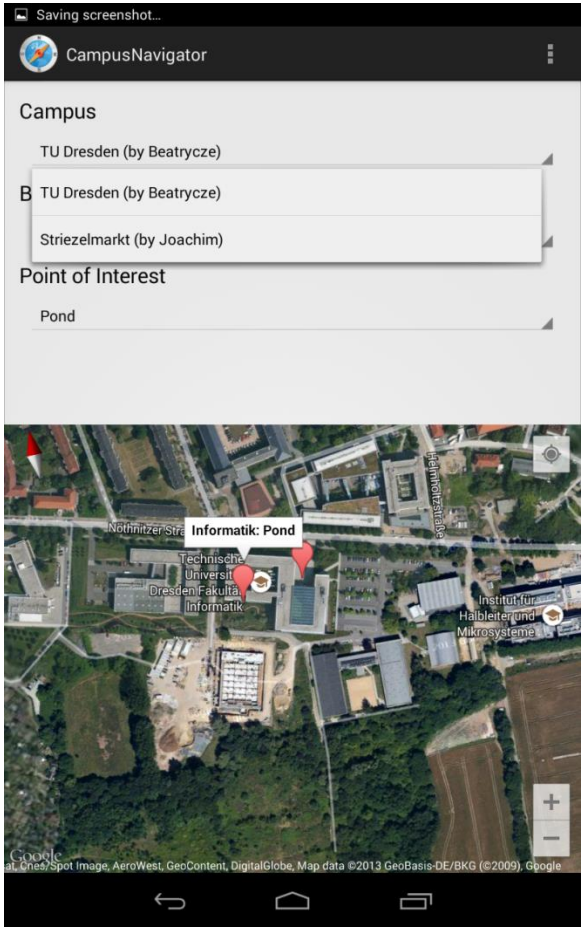
Application Scenario

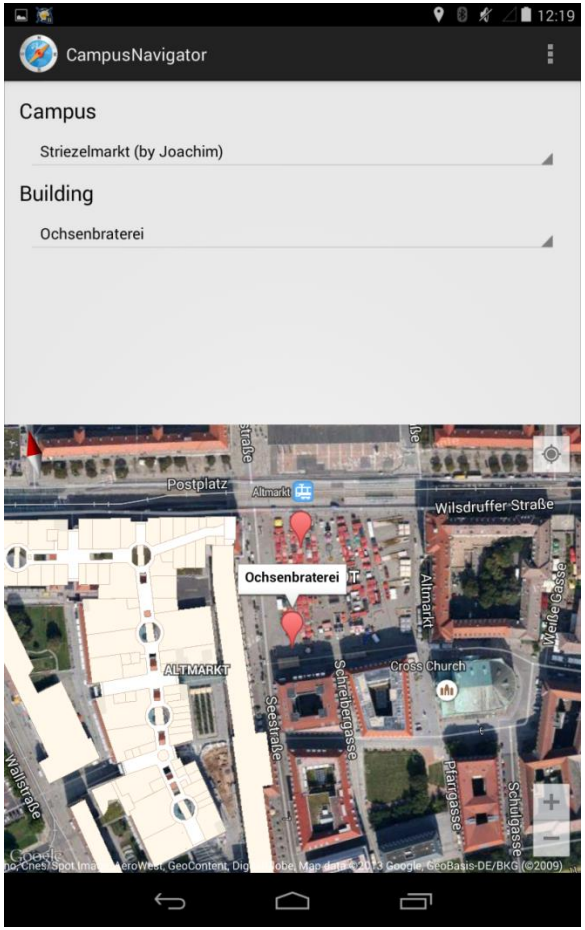
Use case diagram



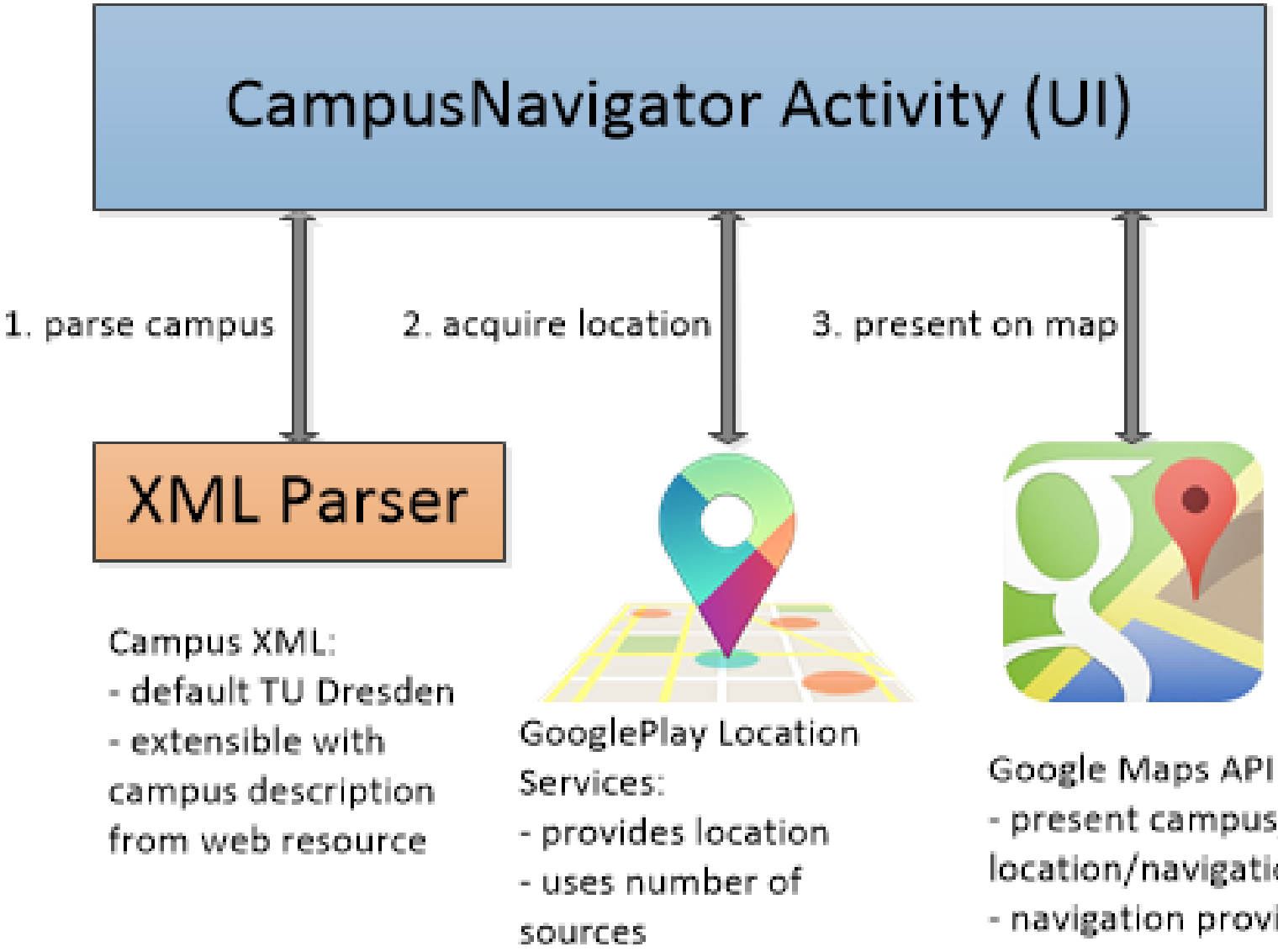
Application Scenario

Screenshots





Architecture and Technologies



Architecture and Technologies

- Operating system
  - ✓ Android 2.3 and higher
  - ✓ Current APIs through support library

- Campus data
  - ✓ XML + XML Schema

- Map Provider
  - ✓ Google Maps API v2
  - ✓ Requires API key

Architecture and Technologies

- Location
  - ✓ Awereness
  - ✓ Google Play Location Services
    - + works on device without GPS
    - + faster than GPS by using cell phone towers and wifi to locate

Challenges

1. Heterogeneity of resources
   - support devices with and without GPS
   - power saving, only locate while app in focus
2. Limitation of input devices
   - select from list rather than type
3. Heterogeneity of output devices
   - different screen sizes require different layout
4. Heterogeneity of software
   - compatible for Android 2.3 and all higher

Adaptation and Context

- Adaptation:
  - ✓ adjustment to different size of displays
  - ✓ download of campuses
- Context:
  - ✓ Physical (location):
    - ➢ pre selecting the closest campus
    - ➢ set up beginning of route on acutal position of user
  - ✓ Technical:
    - ➢ different size of device (cell phones, tablets)
    - ➢ possibilities to use GPS, WiFi or cell phone towers

Work plan

What we have….

1. Location awereness
2. Presentation on map
3. XML parsing

What we are missing…

1. Download of additional campus XMLs
2. Layout optimization (screen sizes & orientation)
3. Navigation