Application Development for Mobile and Ubiquitous Computing
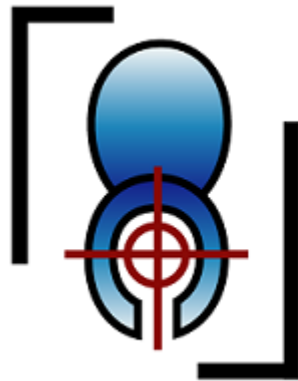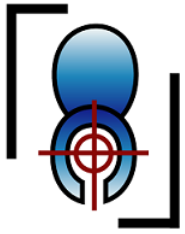

LooLo
loo locator

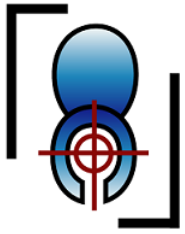Group 8

Lukas Siedel, Kevin Seppelt

- User gets all toilets nearby on the map

- User gets additional information about the single toilets

- Handicapped user can filter for wheelchair-accessible toilets

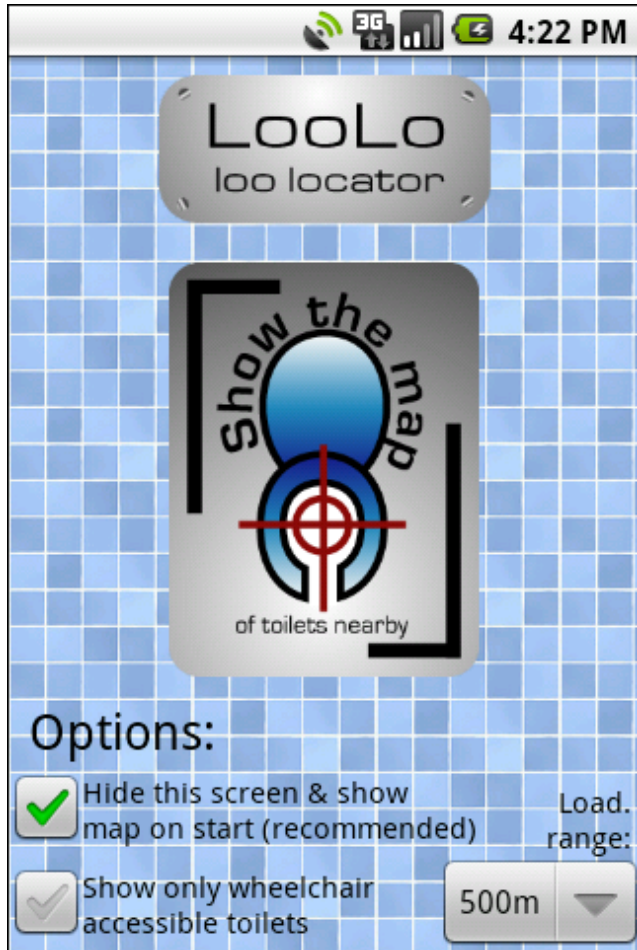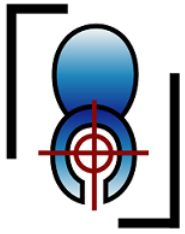- User gets a compass, pointing on the nearest toilet

UI Screenshots

Menu Screen

Options:

- Get the map

- Hide Menu Screen on startup

- Specify Loading Range of

toilets around

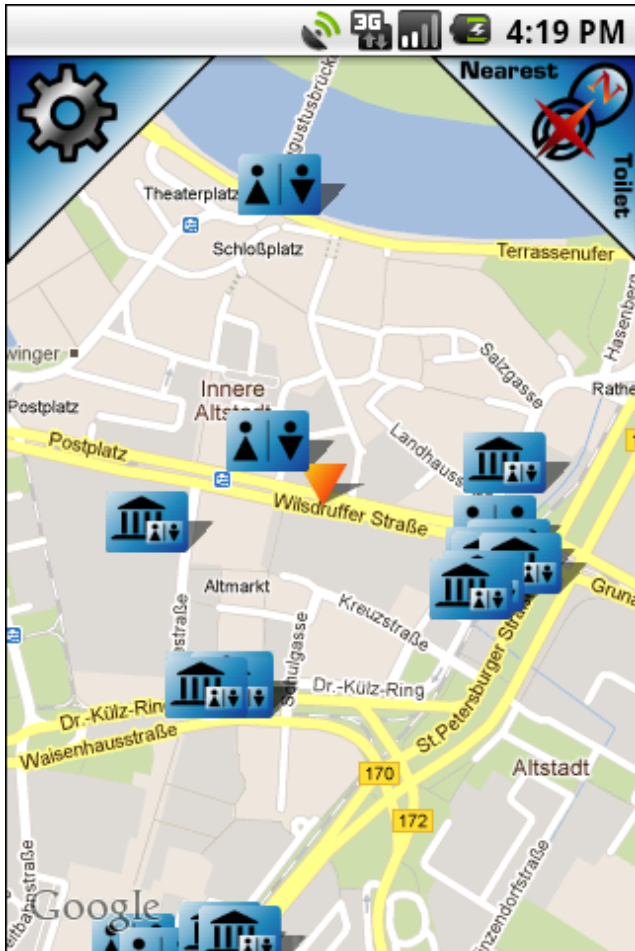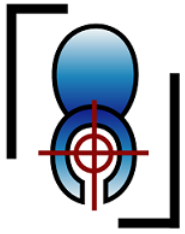- Show only wheelchair

accessible toilets

UI Screenshots

Map Screen

- Shows all nearby found toilets (different icons for: public standalone and toilets inside buildings) →Tapping one toilet will open the Detail Screen

- Buttons to get back to the Menu Screen (left corner) and to show the compass that points to the nearest toilet (right corner)
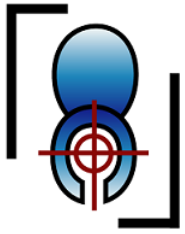
UI Screenshots

Compass Screen

- Points to the nearest toilet

- Updates in Real Time

- Makes it possible to be directed straight to the nearest toilet, without reading the map.
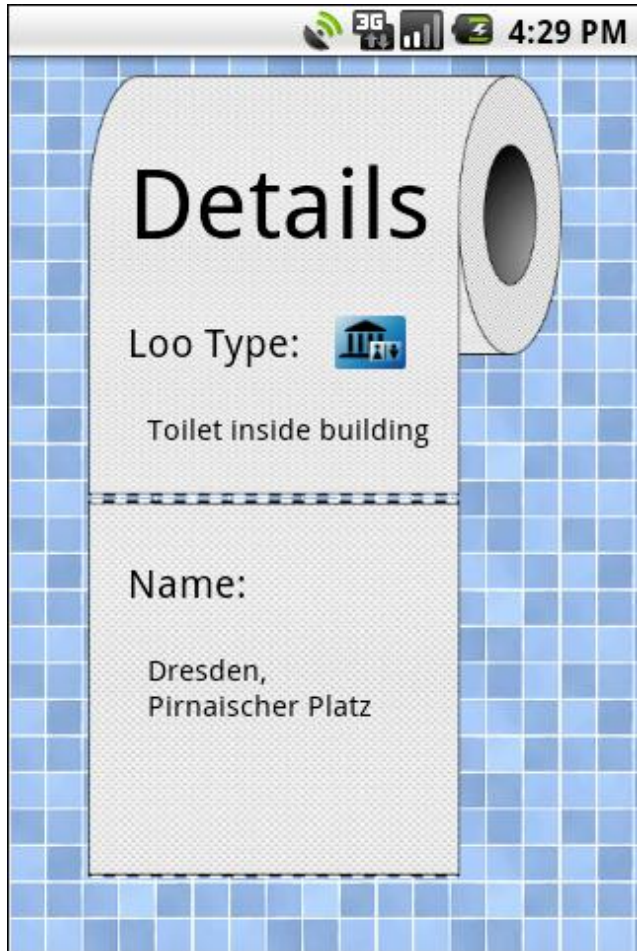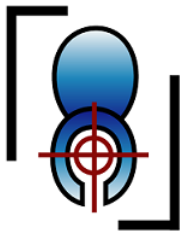
- For "special" situations

UI Screenshots

Detail Screen

- Shows all available information for the chosen toilet

- Every single information is written on a single sheet of paper

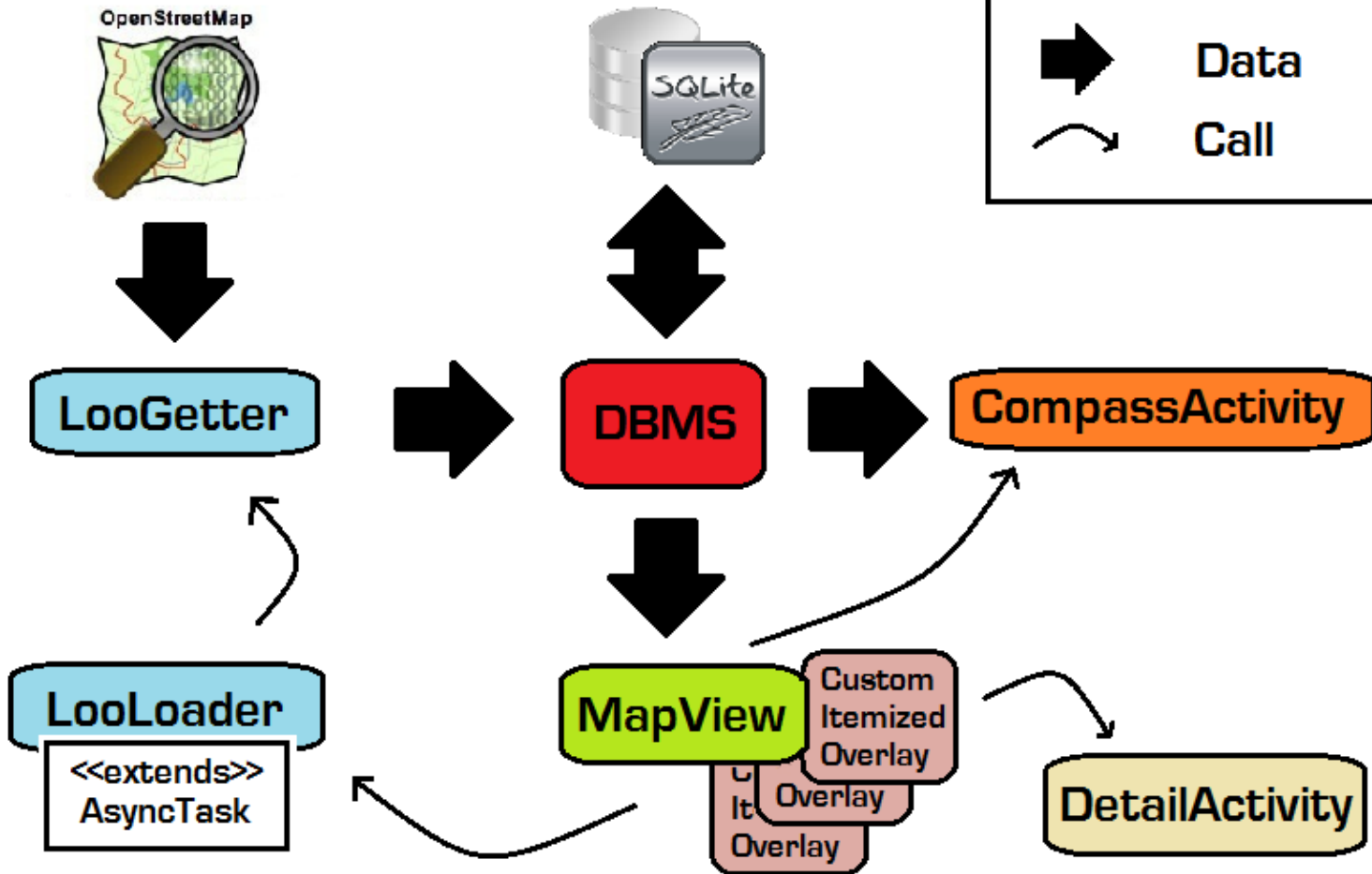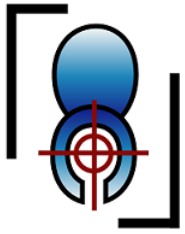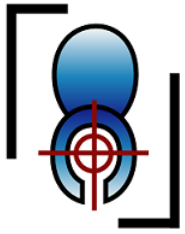- All sheets are added to the scrollable roll of papers

LooLo
loo locator

Architecture and Technologies

- LooLoader, the AsyncTask, runs from the beginning or later is started from the MapView, whenever change in location exceeds the specified radius
- LooLoader runs the LooGetter to fetch new toilets from Openstreetmap.org(HttpGet, XML→List of Toilet Objects)
- New toilets are stored inside the database
- MapView gets toilets from database
- If one Toilet Overlay is tapped, MapView starts DetailActivity and hands over the ID of the toilet
- If Compass Button is tapped, CompassActivity starts, gets nearest toilet and current location to align the needle
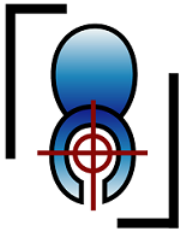
Used Technologies

- Android 2.1 (min SDK 7)

- Google Maps

- SQLite Database

- Internet Connection

- GPS

- Orientation Sensor (Compass)

LooLo
loo locator

<u>Wireless access issues</u>

- Async loading, fast display of known locations:
  Toilets from device database are loaded immediately on the opened map and new fetched toilets are added on the map when loaded.
- If no connection is available use only data from the device database
- GPS requires no Internet Connection
- → LooLo's Compass and the toilet positioning will still work without Internet Connection
- If recently loaded maps are still in cache, even the map will work.
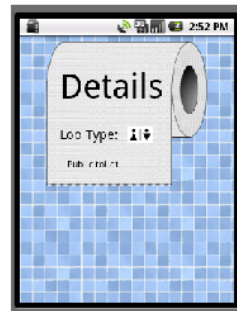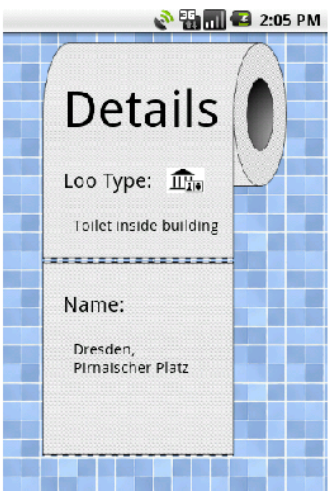 If not, you will at least see the toilet locations on a gray map.
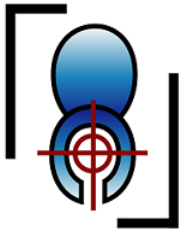
Challenge 2

Form factor of mobile device

- Screen size doesn't matter → every background, button, map is free scalable

- Relative layouts ensure right placement of menu components

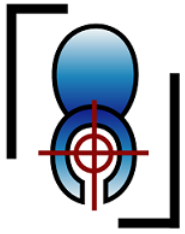→ Usable on every tiny Android Phone or big tablet

Varying Locations

- Toilets are updated when app is active and location is changed more then X meters in relation to the location where the last update was done

Usability

- Very simple usage

- Not so much options, just the most necessary to keep it as simple as possible

- easy to use when you are in "hurry":

    Map can be shown instantly on app start.

- Compass makes it easy to find the nearest

    toilet even without reading the map.