TECHNISCHE UNIVERSITÄT DRESDEN

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

# Application Development for Mobile and Ubiquitous Computing

## Seminar Task
## First Presentation

GroupNo. 6
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Felix Verworner

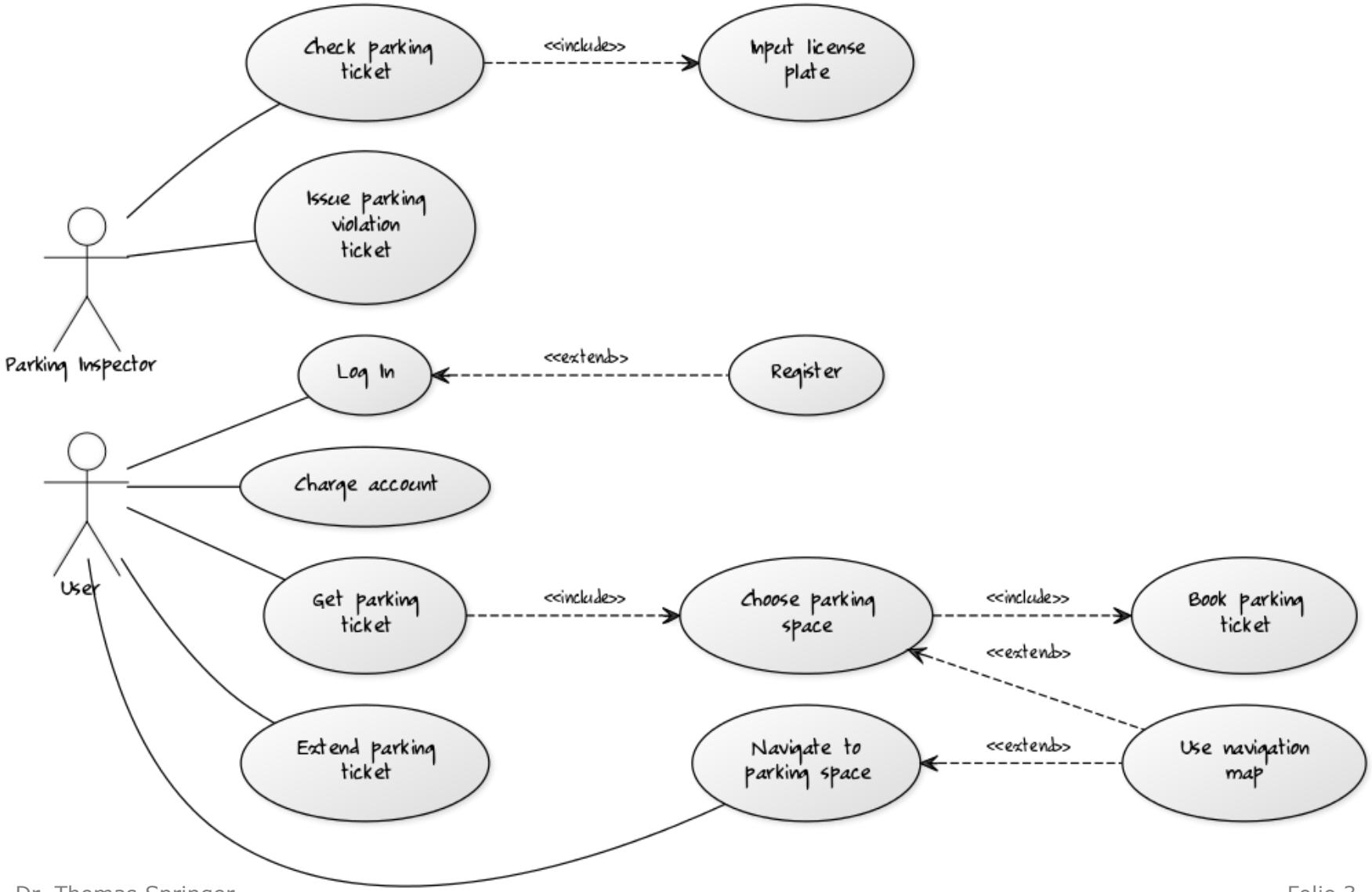
# Application Scenario

- App-Name: FlexPark (Paperless Parking)

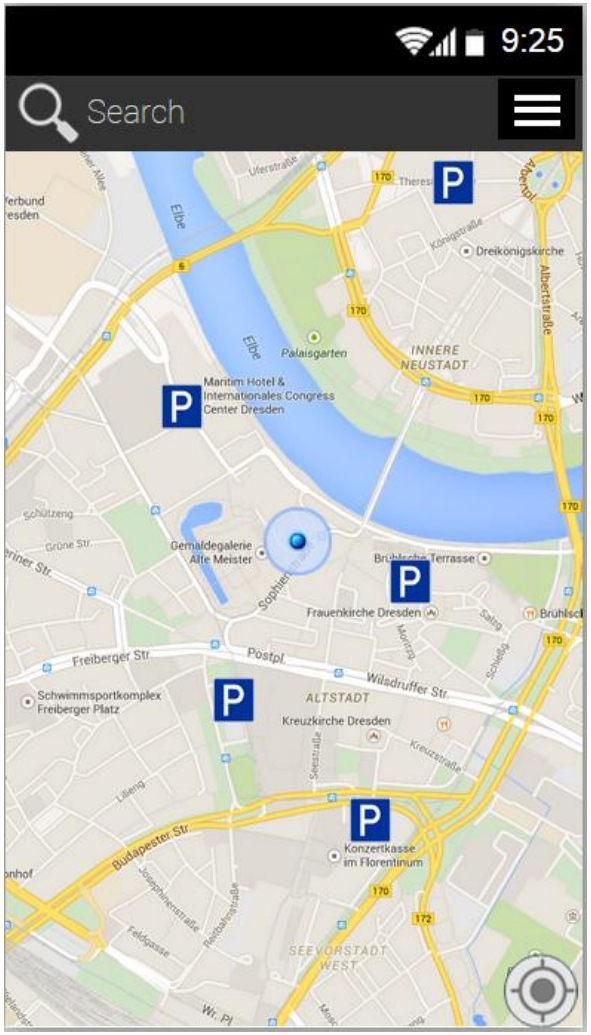
- User Scenario
  - User parks on a fee required / charged parking place
  - Uses Smartphone-App to get paperless parking ticket
  - Can easily extend parking time later

- Parking Inspector Scenario
  - Checks cars by license plate
  - (Issue parking violation tickets via app)

# Use Cases


Check parking ticket
<<include>>
Input license plate
Issue parking violation ticket
Parking Inspector
Log In
<<extend>>
Register
Charge account
User
Get parking ticket
<<include>>
Choose parking space
<<include>>
Book parking ticket
<<extend>>
Extend parking ticket
Navigate to parking space
<<extend>>
Use navigation map

# Mockups


9:25
Search
Elbe
Palaisgarten
INNERE NEUSTADT
Maritim Hotel & Internationales Congress Center Dresden
Dreikönigskirche
Albertstraße
Gemäldegalerie Alte Meister
Brühlsche Terrasse
Frauenkirche Dresden
Freiberger Str.
Postpl.
Wilsdruffer Str.
Schwimmsportkomplex Freiberger Platz
ALTSTADT
Kreuzkirche Dresden
Budapester Str.
Konzertkasse im Florentinum
SEEVORSTADT WEST

9:25
Search
Navigate to...
Get parking ticket
Maritim Hotel & Internationales Congress Center Dresden
Dreikönigskirche
Albertstraße
Gemäldegalerie Alte Meister
Brühlsche Terrasse
Frauenkirche Dresden
Freiberger Str.
Postpl.
Wilsdruffer Str.
Schwimmsportkomplex Freiberger Platz
ALTSTADT
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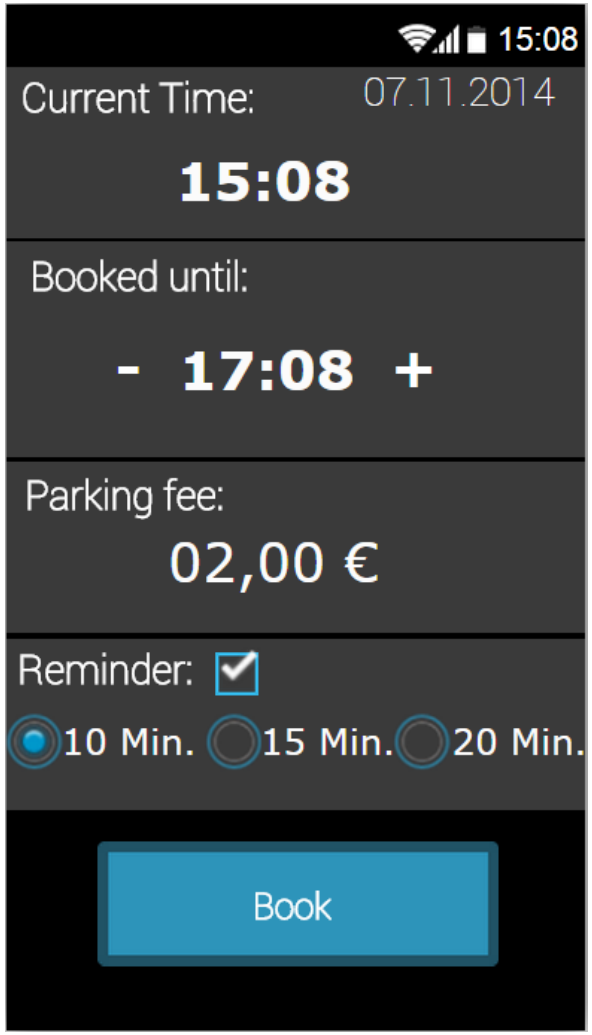
Budapester Str.
Konzertkasse im Florentinum
SEEVORSTADT WEST


15:08
Current Time:
07.11.2014
15:08
Booked until:
- 17:08 +
Parking fee:
02,00 €
Reminder:
10 Min.
15 Min.
20 Min.
Book

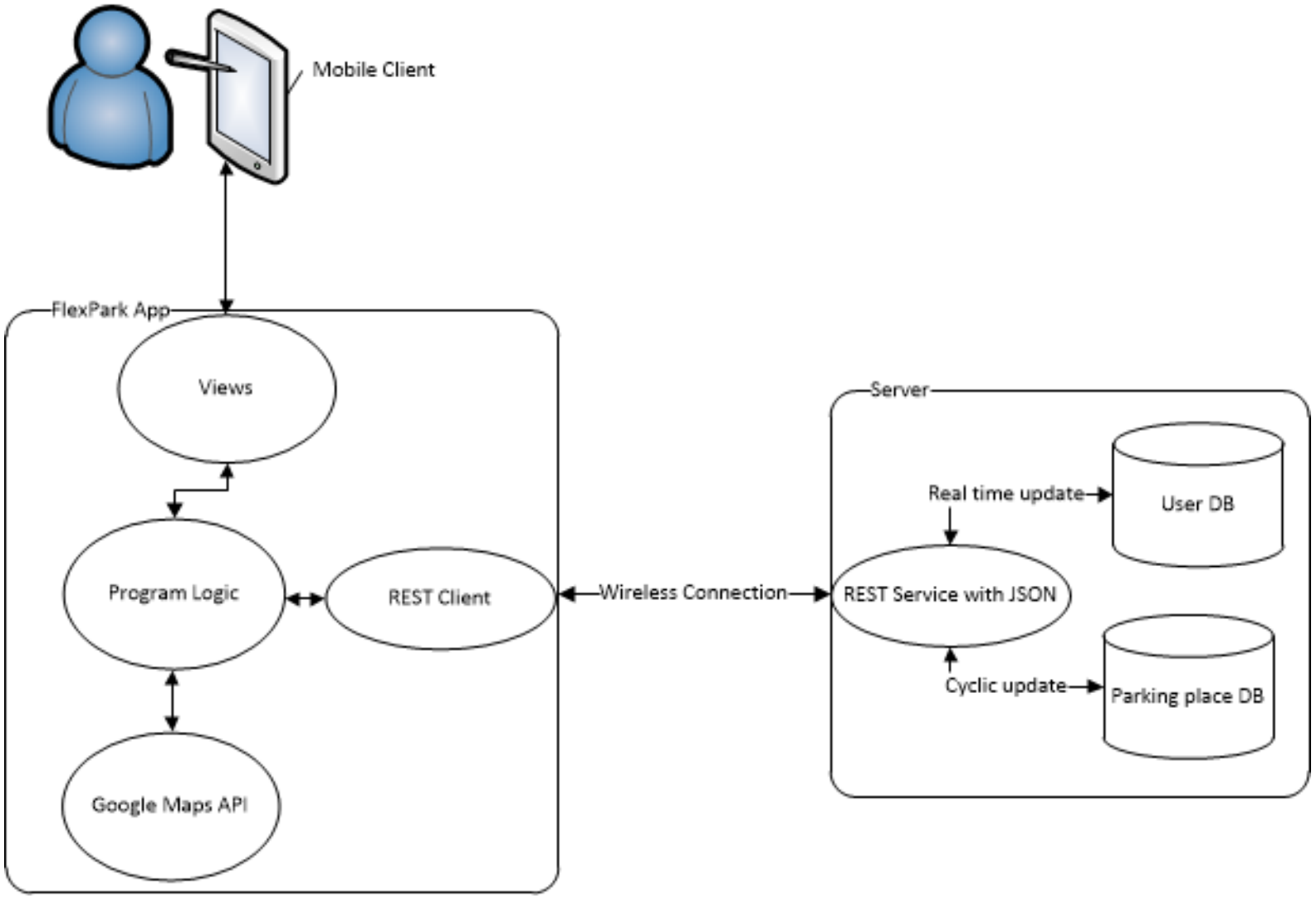
# Challenges

- Connectivity Challenge
  - Reduce data traffic and use pre-buffer technologies
- Offline Challenge
  - Parking place localization offline
    - To find parking places only GPS should be necessary
    - Parking places stored locally
    - Buffer Map to a certain degree
  - Offline extension of car park ticket
    - Extensions collected and cached by App and sent after re-establishing connection
    - cancel possible parking violation tickets issued in temporary improper parking time
- Usability Challenge
  - Adaptable layout (Smartphone, Tablet, …)
  - Decrease necessary user-input by reducing parking place choices (localization via GPS)

# Technologies

- Client
  - Android device
  - Java
  - REST Client
  - Google Maps API
  - GPS (for localization)
- Server
  - REST interface
    - Se-/Deserialization via JSON
  - MySQL Database

# Architecture



# Work plan

- Tasks until 19.12.2014:
  - Setup:
    - Server with REST interface
    - Android SDK
  - Define prototype of views and program logic
  - Iterative enhancing and refining of the app
  - Create adaptation concept document

- Tasks until 30.01.2015:
  - Test program logic, interfaces and usability
  - Continue Iterations of enhancing and refining the app
  - Bug fixing
  - Create final presentation