TECHNISCHE UNIVERSITÄT DRESDEN

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

MOBILIS LOCPAIRS
– The location-based version of the pairs game for Android

Komplexpraktikum „Entwicklung mobiler und verteilter Systeme“ Winter semester 2010/11
Dresden, 12/11/10

DRESDEN concept
Exzellenz aus Wissenschaft und Kultur

Outline

1. Task
2. Architecture
3. Mobilis
4. MapBiquitous
5. Barcode Scanner
6. Game Concept

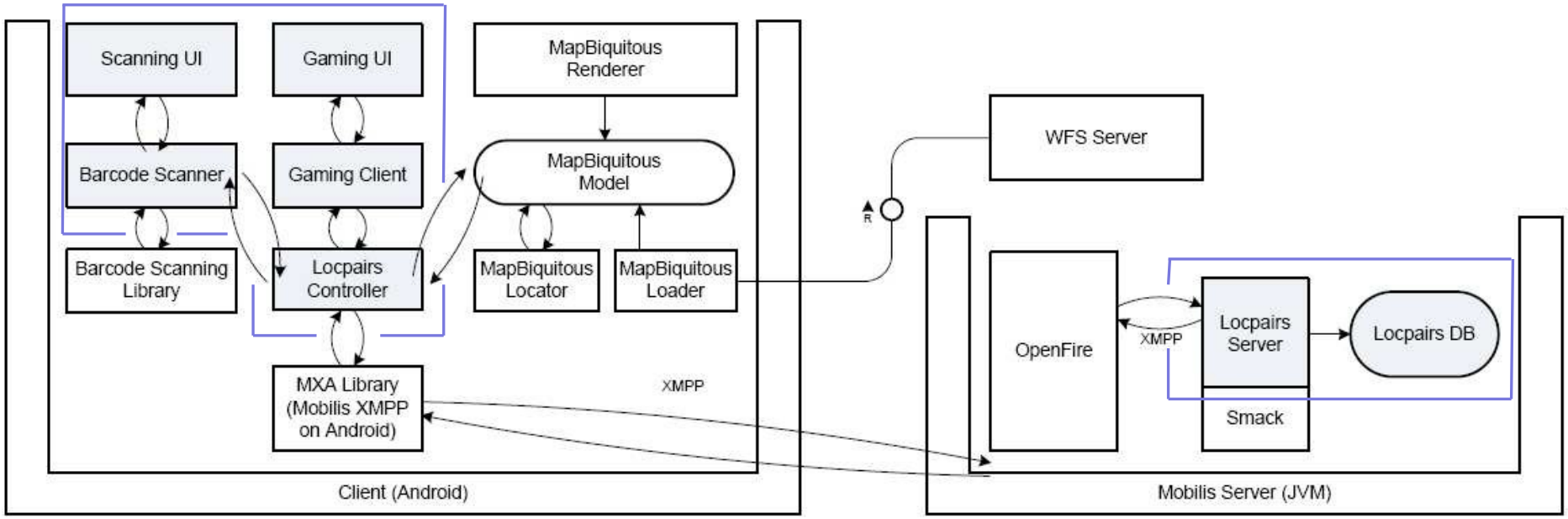
Task

- basis of the task is the game pairs (Memory):
  - pairs of pictures are turned bottom-up and mixed at the table
  - in each round a player has to turn 2 cards, if he turns two identical cards (a pair) he can keep it

Task

- now:
  - create a location-based game the playground will be a building where
  - the rooms are visualized to the players on mobile devices
  - game server assigns randomly the picture pairs to the rooms that are marked with 2D barcodes
  - in teams of two players they have to scan the 2 barcodes, the corresponding pictures are uncovered and become visible on the screens of all players
  - as added value of the game, the users collect information about available access points and the strength of the signal at defined reference points

Architecture

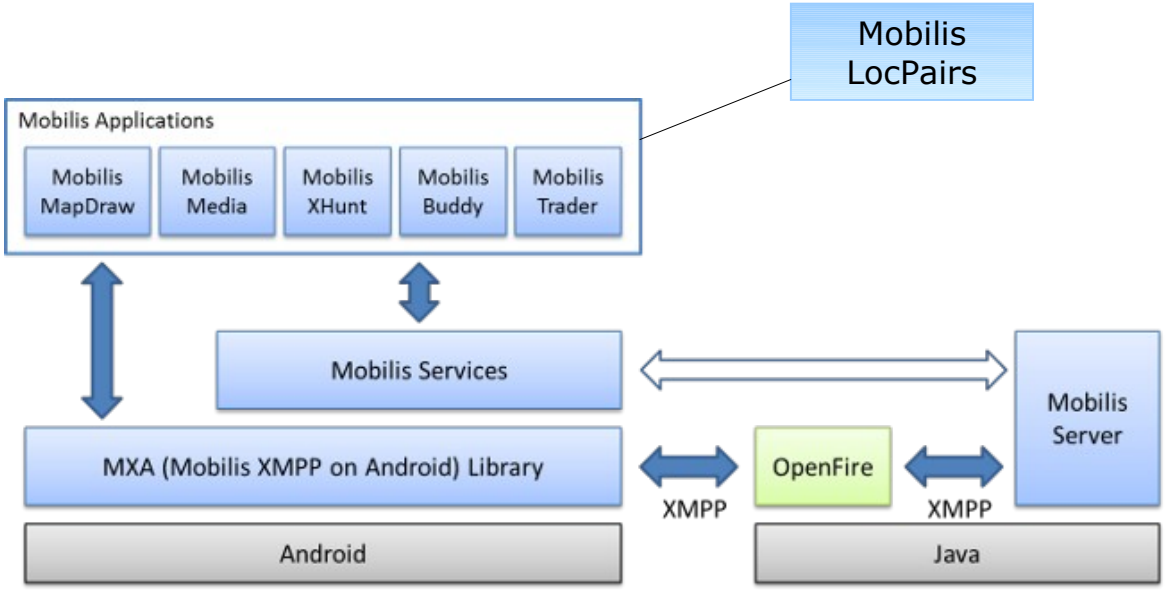


Architecture

- Gaming Client
  - gaming logic on client side
  - managenent of UI messages
  - scanning, gaming and location
- LocPairs Controller
  - protocol messages are built, sent and received
  - consistency of the data
- LocPairs Server
  - component where all players connect to
  - implements the gaming rules, assigns the teams
  - receives events from the players and sends back commands and events
  - collects signal strength

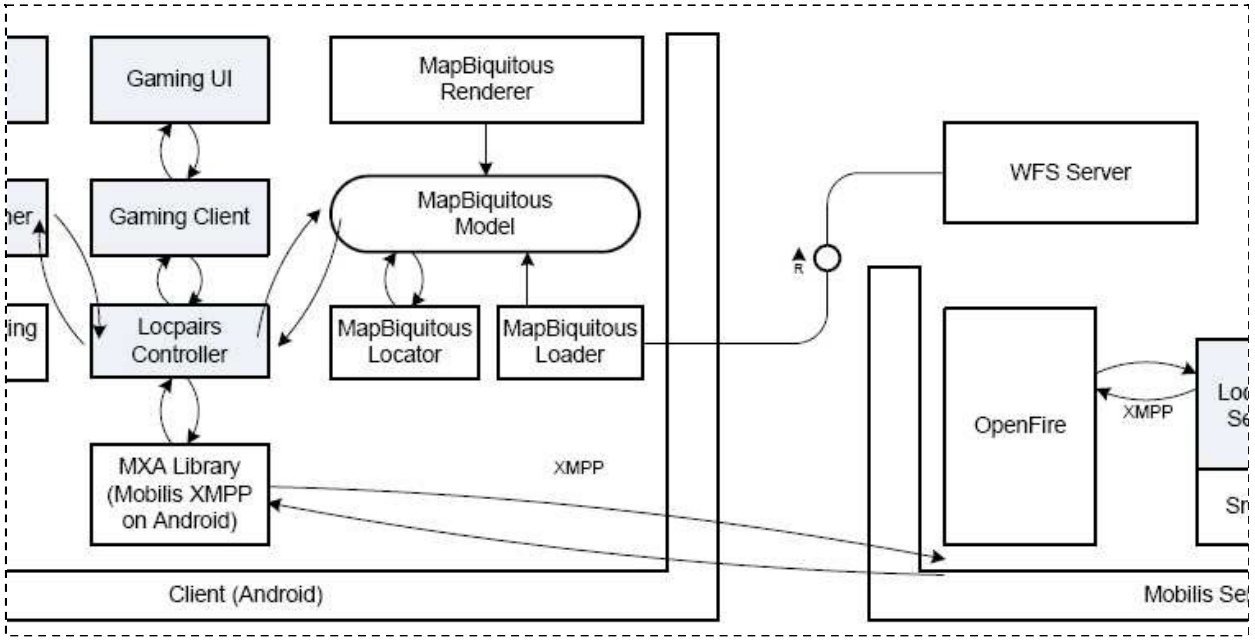
Mobilis

- service platform for collaborative social applications
- offers a set of basic collaboration services like group management and multi-user chat
- message format between client and server is XMPP
- the OpenFire server is only used for mediating the XMPP messages



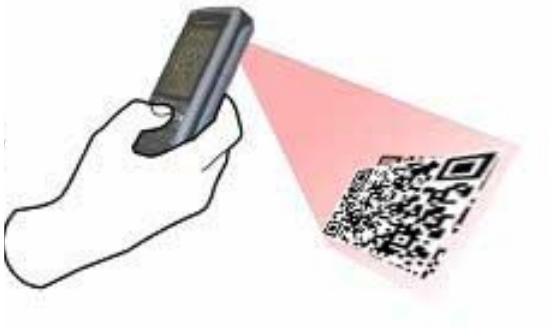
MapBiquitous

- implementation of the visualization of the current position of the players will be set up on the MapBiquitous system
- GPS used for outdoor positioning, Wifi for indoor positioning
- WFS server provides the building geometry and assigned room numbers



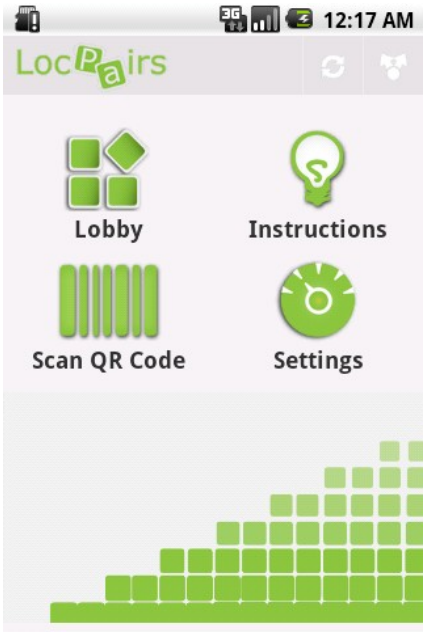
Barcode Scanner

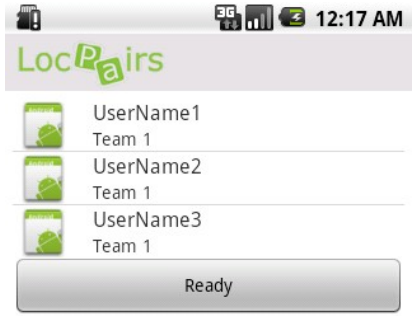
- responsible for scanning the barcode and sending the extracted information via the Locpairs controller to the Locpairs server
- With the barcode scanner the players make a picture of a 2D barcode with the built-in camera of the smartphone

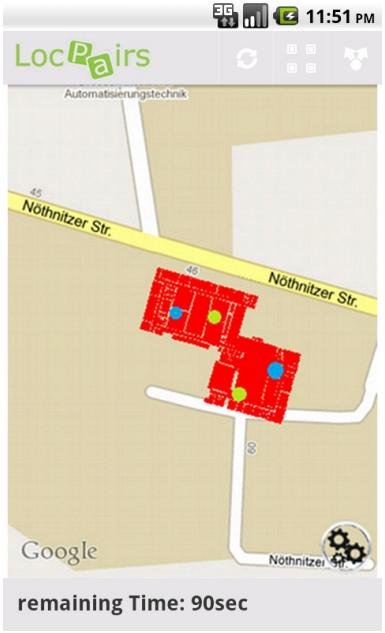


Game Concept

- starting the game
  - instructions, settings, start game
  - players reach the lobby
    - teams are build here
    - Ready
    - the rounds
      - first team starts, the others can see the results
      - change the active team if the pair does not match







What's next?

- add communication between server and client side
- lobby functionality
- connect gaming UI to gaming client
- the actual game
  - show the map in an appropriate resolution
  - add timer to the game
  - implement the different views of the teams