



Application Development for Mobile and Ubiquitous Computing

Location based ATM search

Final Presentation

Group #11

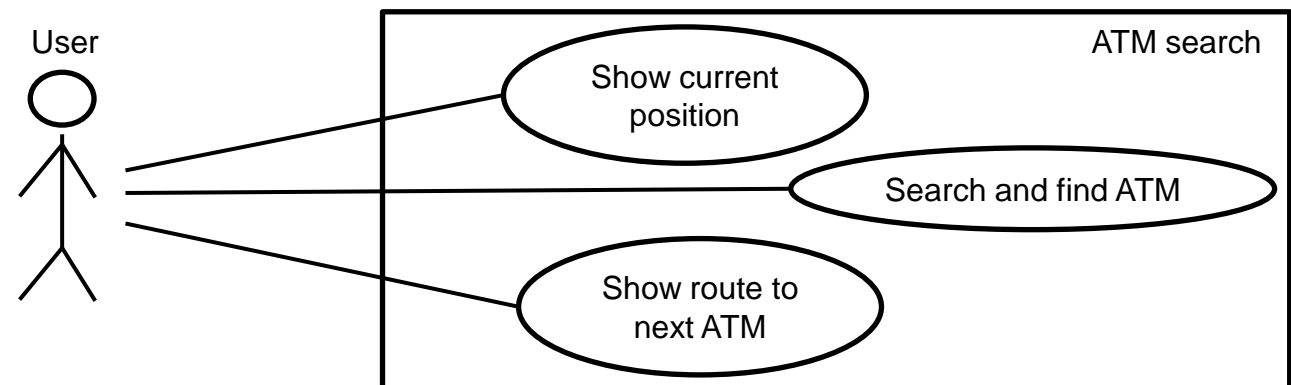
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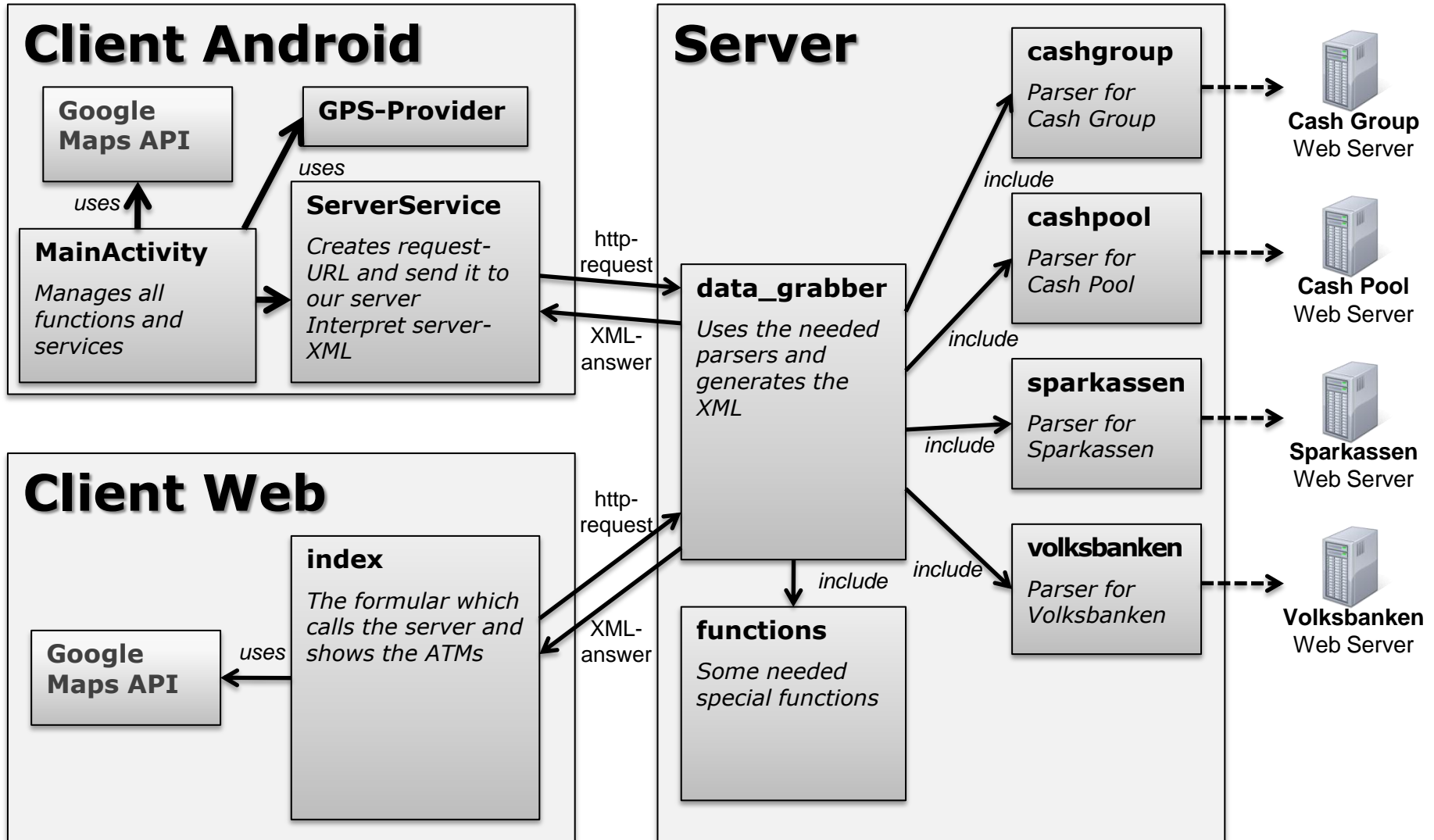
Problem:

- Customer wants to draw out money
 - without handling charges, if possible
 - Customer has no idea where the next ATM is located
- Find the next ATM near your current position

Solution:

- Creating a mobile application which searches the next ATM based on the current user position





- Server-Side
 - PHP 5.3
 - simpleXML
 - Bin-Co load() version 3.00.A

- Web-Formular
 - PHP 5.3
 - HTML Output optimized for mobile clients
 - Google Maps API – static maps
 - For wide device compatibility

- Android-Client
 - Android 1.6 / Java
 - Use of Android 1.6 as minimum version for wide device compatibility
 - GPS for location based information
 - Geocoding on device (due Google API limitations)
 - Google Maps API / Google Geocoding API

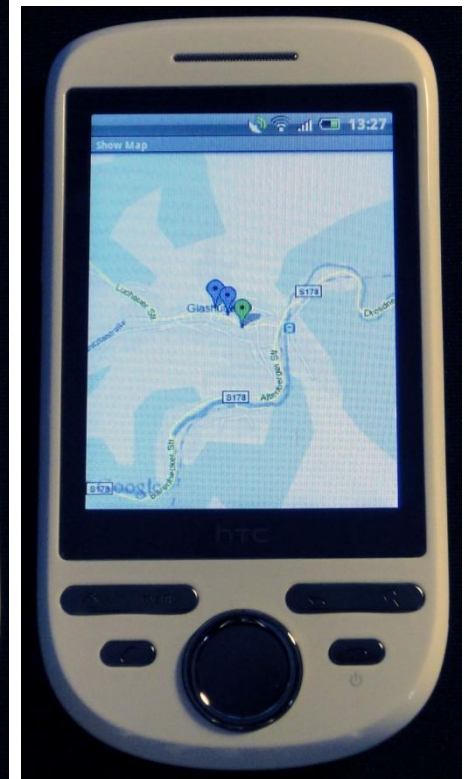
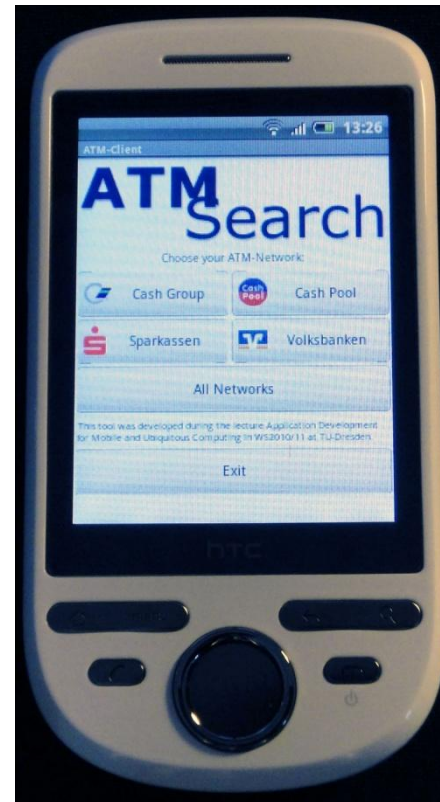
- Web-Client
 - Browser based
 - Optimized for mobile clients
- Usage
 - Surf to ATM-Search website
 - Enter address
 - Choose ATM-Network
 - Search for ATMs



- Results
 - List with addresses and distances to ATMs
 - Static google map with own position and ATM position
 - Static for wide compatibility
- Optimization
 - Shows only important and relevant information
 - Small webpage size to lower bandwidth usage

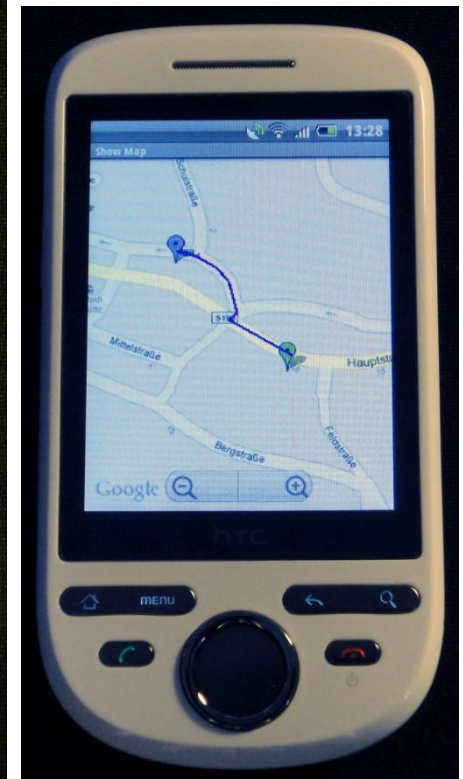
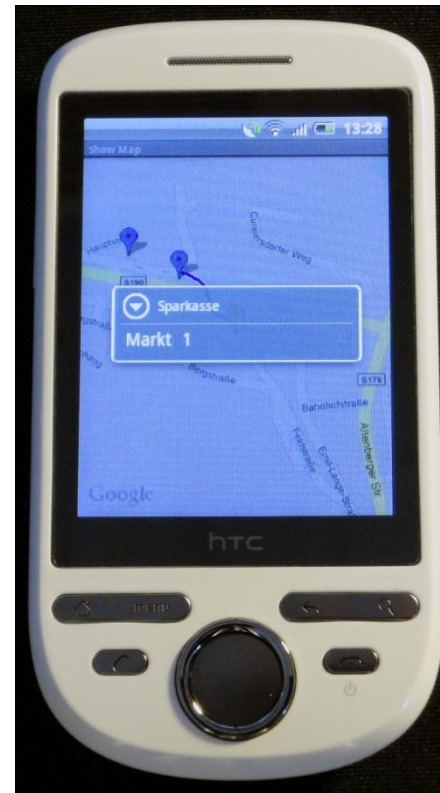


- Android Client
 - Simple to use interface
 - Client does everything important
 - Usage of GPS to locate user
- Usage
 - User must only select ATM-Network
 - After that he will see a map with
 - Own position
 - ATM positions



■ Results

- Touch on ATM:
 - Shows ATMs address
 - Calculates route to ATM
- After clicking ATM icon a route is shown to the ATM
- Own position: green marker
- ATM position: blue marker



- Location-based limits
 - You need GPS to use the Android-client

- Response time limits
 - It took some time till the server responds (about 2 to 5 seconds)

- Data connection required
 - You need a data connection to use the clients, no data is stored on the device

- Customer Satisfaction Challenge
 - Usability
 - Small Screen Size
 - Always find a ATM
- Device Challenge
 - Heterogeneity of software
because we use client-server-architecture with defined communication rules:
 - Android client and
 - platform-independent web client
- Energy Consumption
 - GPS and data connection are only used for a few seconds

- Geocoding on server not possible
 - Google geocoding api limited to a small amount of requests per 24 hours

- Problems with Android-SDK and SVN
 - After every checkout client had to be reconfigured to run in the simulator

- Android GUI-Programming is powerful and fast

- Emulator helps debugging