TECHNISCHE UNIVERSITÄT DRESDEN

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

Application Development for Mobile and Ubiquitous Computing

Initial Presentation

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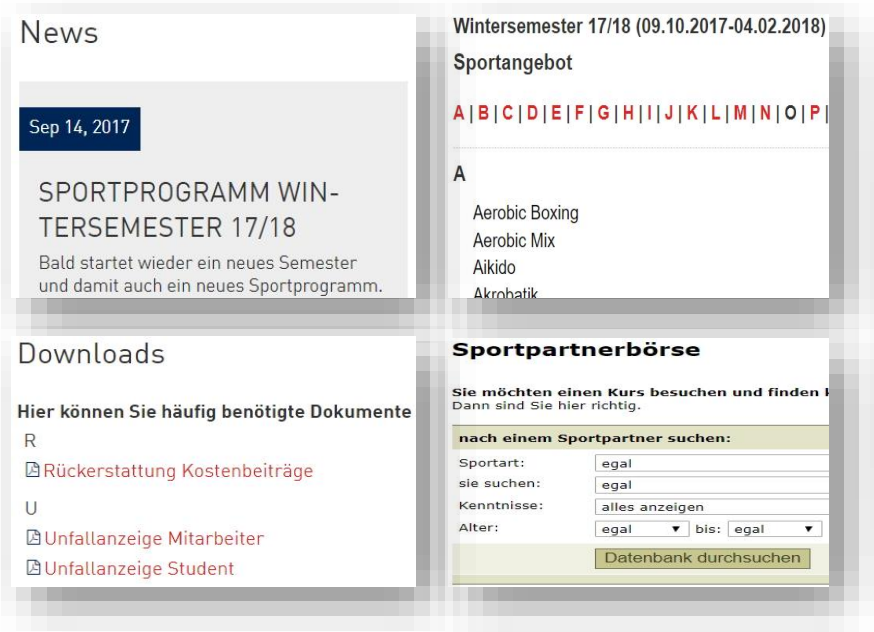
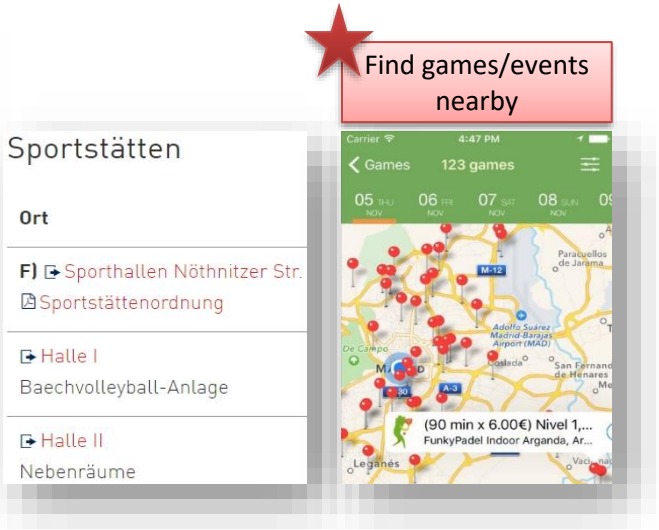
EXAMPLE

Sporty, Sports App

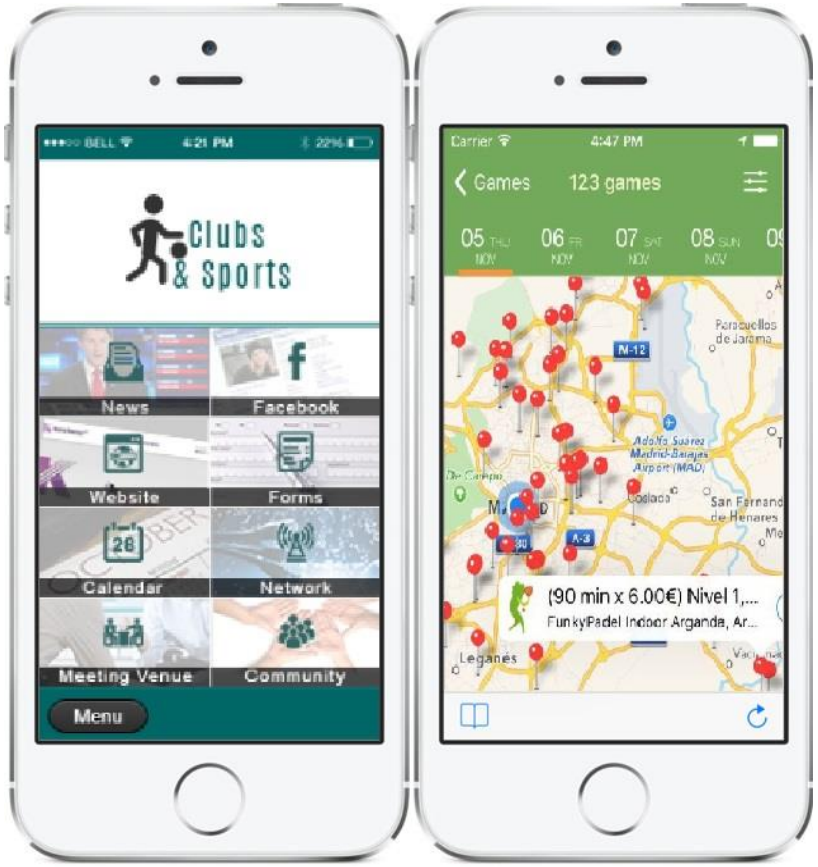
App idea

- The University Sports Center (abbreviated to USZ) has the task of providing students and employees of the TU Dresden with a variety of sports program.
- **Problems:** many websites ⇒ user has to search each site
- **Solution**: convenient UI for reaching results effectively





Mockups


Clubs & Sports
News
Facebook
Website
Forms
Calendar
Network
Meeting Venue
Community
Menu
Games
123 games
(90 min x 6.00€) Nivel 1,...
Funky Padel Indoor Arganda, Ar...

Use Cases


User
Find news about USZ
look up and register for sport courses
Find a sport partner
Find sport events nearby
Find sport venues
Find useful docs (Insurance etc.)

Challenges

- Connectivity Challenge
  - Reduce the amount of data to be transferred via the wireless link (use server component for search, processing and aggregation of data to reduce network traffic over wireless link)
- Context:
  - Detect type and speed of network
- Adaptation:
  - Introduce proxy on server side for data fetching and preprocessing
  - Reduce quality and size of images
  - Lazy evaluation on client side (text first, images later)

Challenges

- Offline Challenge
  - Provide some functionality when offline (e.g. Bookmarked sports, offline-notifications, booked events in calendar
- Context:
  - Detect if your App is online or offline
- Adaptation:
  - Caching of Data
  - Use cached data if application is offline, Update cache if connectivity is good
  - Persistently store information from cache

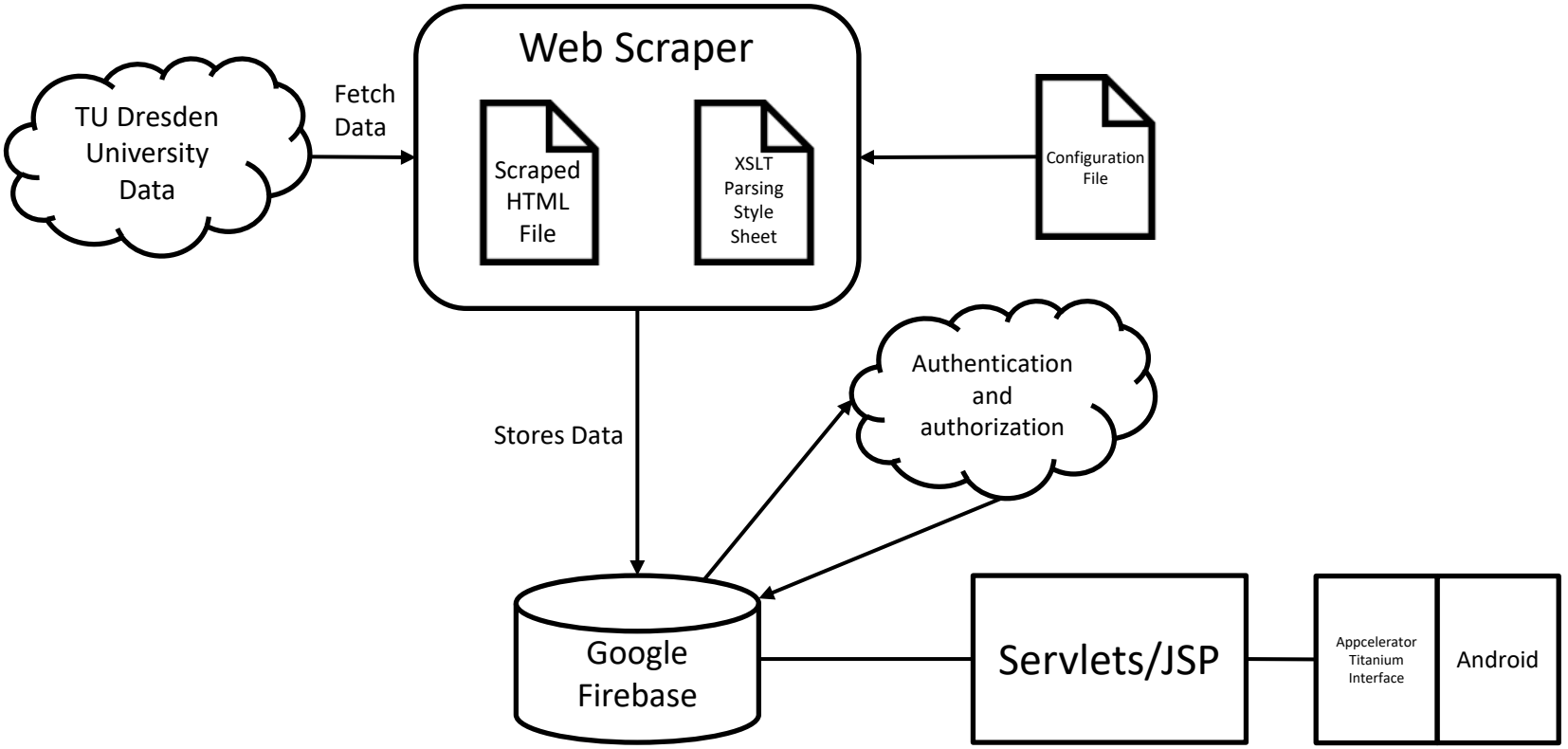
Challenges

- Usability Challenge
  - Present lift information properly on Nexus 5 and Pixel XL display
  - Minimize effort for user input
- Context:
  - Detect screen size and device type
  - Detect user location with GPS
- Adaptation:
  - Adapt layout for iPhone and iPad
  - Auto fill „Start field“ by using GPS location
  - Cache search queries

Technologies

- Client:
  - Android on Nexus 5S
  - (some additional HTML parsing on external websites)
  - we will keep to TU Dresden corporate design and style guide
  - GPS for location tracking
  - Use Facebook Graph API for searching events nearby
- Server:
  - Google Firebase

Architecture



Summary

- Sporty
  - Enroll in University Sport Courses, Find Sport Partner, Find Games Nearby
  - data scraped from USZ page