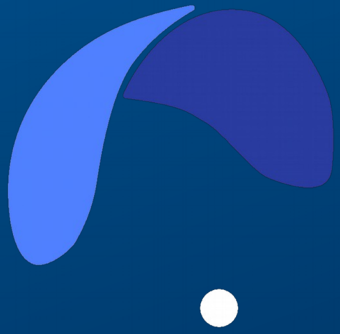
TECHNISCHE UNIVERSITÄT DRESDEN

DRESDEN concept

Application Development for Mobile and Ubiquitous Computing

GliderMate
A paragliding tracking app



Group 14: Jonathan Seitz

Application scenario

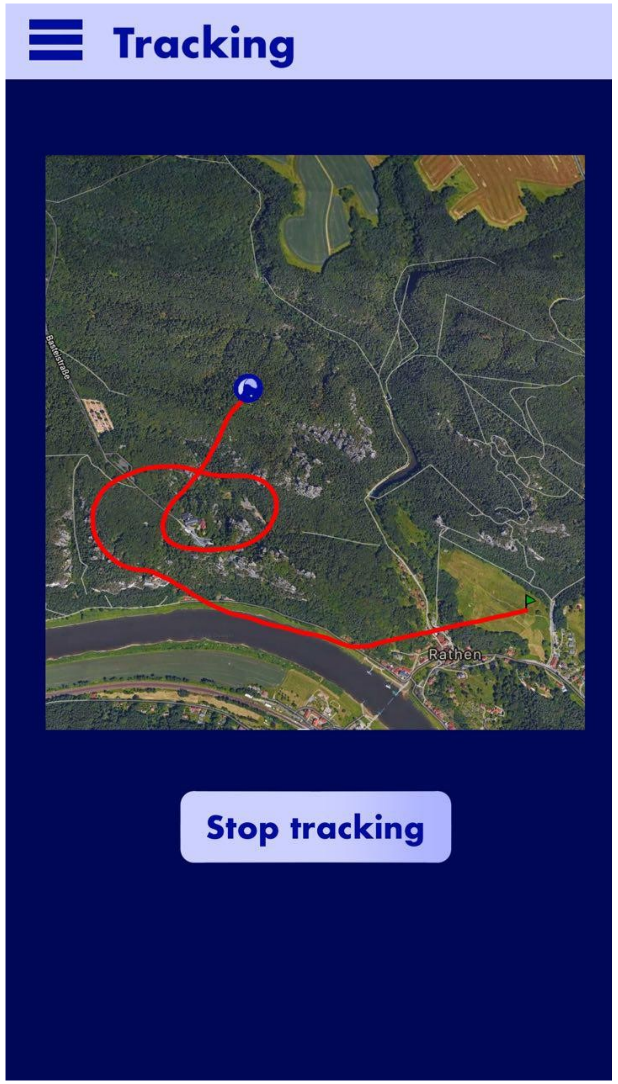
Use cases

Application scenario

A native Android-Application to support paraglide pilots during and after their flights.

Core features:

- During the flight:
    - Map view with current position marked
    - Compass
    - Track and store flights
    - Show current flight information (speed, distance, ...)
- After the flight:
    - Show flight route
    - Display flight summary (average speed, time, ...)
- Settings:
    - Allow customization (speed unit, map zoom, ...)



Application scenario
User story

A paraglide pilot wants to know during a flight:

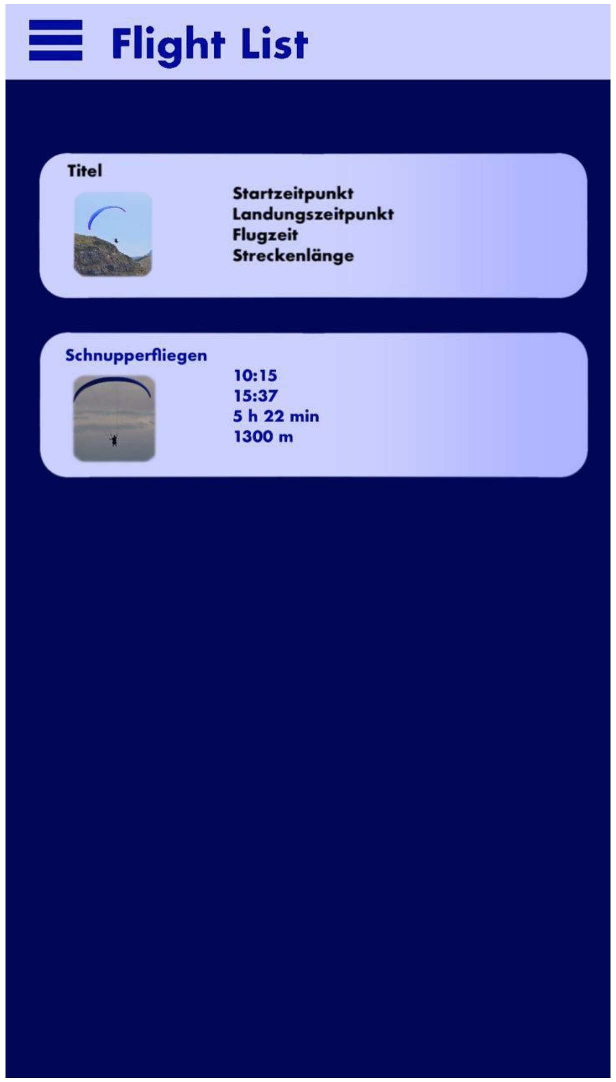
- Location
The higher the pilot is over ground, the harder he can estimate his location. (There are no references in the sky)

- Speed, Time, Distance
Additional flight information can support the pilot to make better decisions during the flight (estimate remaining time/distance, find good landing spots).

→ With this App the pilot can fly longer and safer.

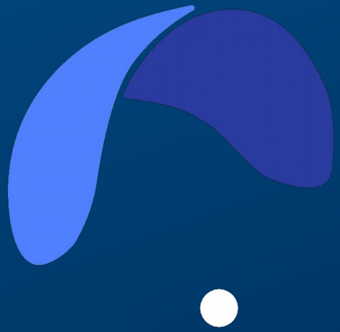
After the flight:

- Flight route
The pilot can analyse the flight, compare it with other flights, and learn or improve his flight skills.


Flight List

Titel	
	Startzeitpunkt Landungszeitpunkt Flugzeit Streckenlänge
Schnupperfliegen	
	10:15 15:37 5 h 22 min 1300 m

Challenges & adaption



Challenges
& Adaption

Energy vs precision

Depending on the battery status caluates the App the gps sampling rate. The lower the battery the less accurate the tracking will be.

→ Self-Adaption

Offline challenge

If the phone loses internet connection, the tracking should still work. Even if the map can not be loaded the gps-Tracker can store the locations and add them to the map later.

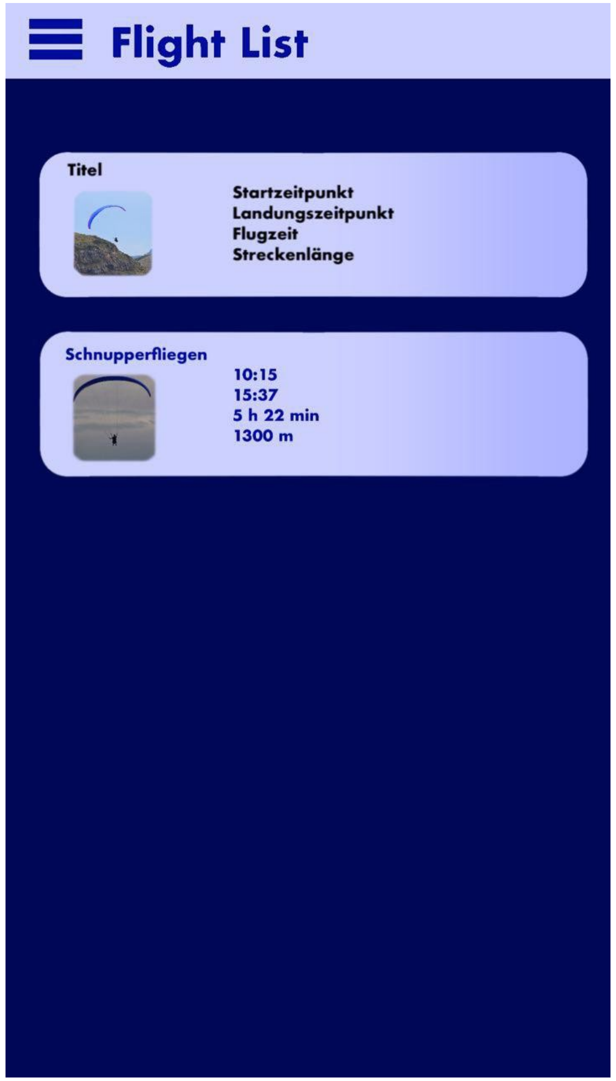
Usability challenge

Simplify navigation:

- View that are used during the flight should be reachable within three clicks.

Standart UI-Components:

- App uses Material Desgin components



Titel	
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5 h 22 min	
1300 m	

Architecture and technologies

Use cases

Architecture

MVVM-Pattern (special form of MVC)

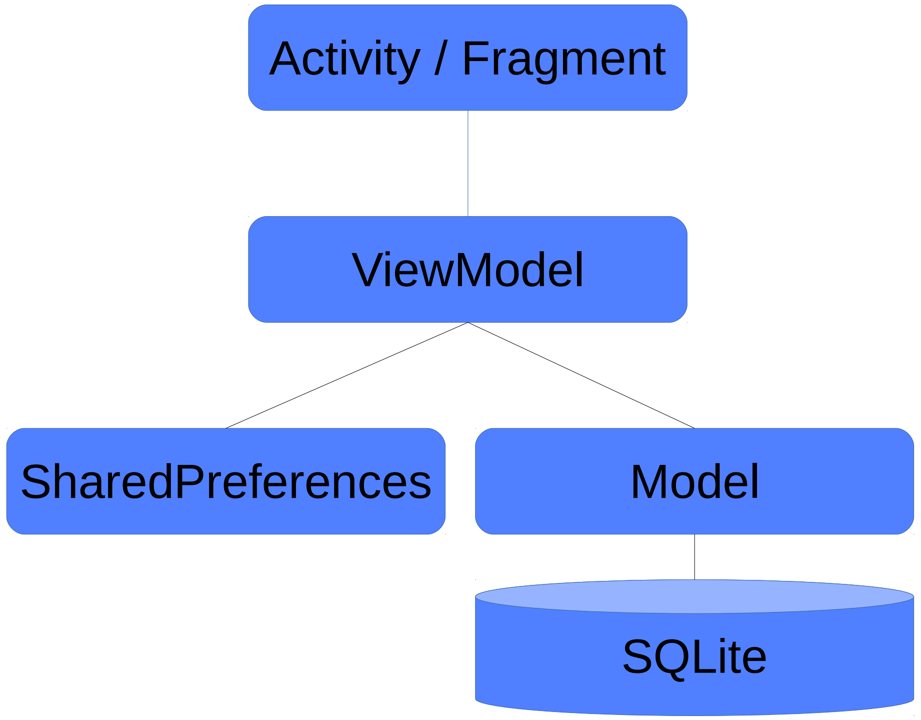
Model: represents the data (Flight, GPS-Point, …)

View: Cares about the UI and user interaction
(basically the front-end, see mockups)

ViewModel: The buisness logic and binder between
data (Model) and View

Room Database: Persistence of the model data.

SharedPrefeneces: Setting that the user can configure.



Work plan

- native Android-App (Android Studio)
- Java
- Versioning with Git
- agile, ticket-based Workflow (Github Issue- & Bugtracker)
- Unittests and UI-Integrationtest with JUnit4 & Espresso
- Continous Integration with Travis CI