APPLICATION DEVELOPMENT FOR MOBILE AND UBIQUITOUS COMPUTING

FeelHome

Group #3

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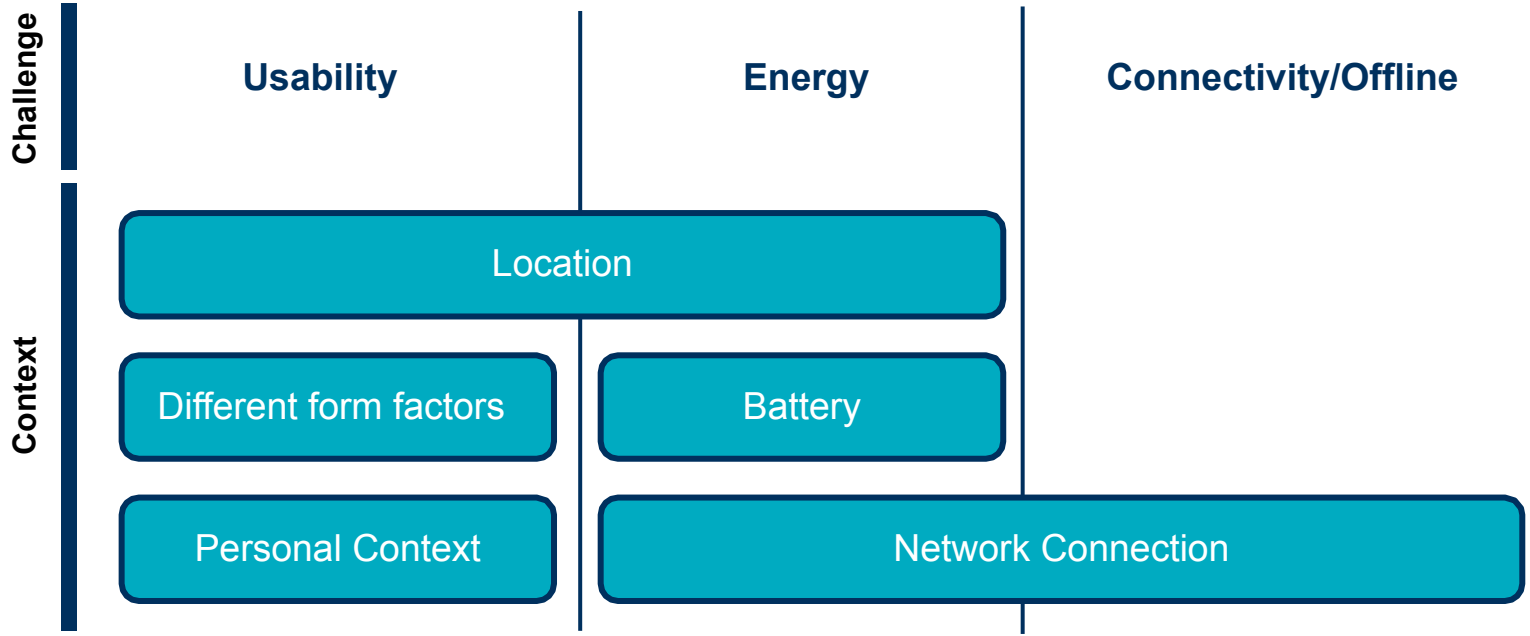
App Scenario

- Find nearby Grocery shop / Restaurant on the basis of the desired Country / Region
- Also can Find nearby all Grocery shop and Restaurant

Context and Challenges



Adaptations - Network Connection

Connectivity/Offline Challenge

- **Network awareness:**
  Capture if the device has a network connection, using **android.net.ConnectivityManager** and **android.net.NetworkInfo** class.

- **Adaptation:**
  In case Internet connection is lost - use pre-fetched information about cached nearby Grocery shops / Restaurants.

If **(online**) **{**
- **Prefetching** based on map interaction and keyword/filter search
- **Reduction** of image and comment information

}Else **{**
- **Queuing** of requests (update and fetch data)
- **Usage** of locally saved data (maps, grocery shops, restaurants)

}

Adaptations - Location

Usability/Energy Challenge

- **Location awareness:**
  Capture the user's current location, using **android.location.LocationManager**, show locations of desired nearby grocery shops and restaurants on the map using Google Maps API and query.

- **Adaptation:**
  Show desired nearby shops and restaurants inside of a fixed radius, centered at the user's location. Searching implemented with the help of nearby_search_requests:

```
https://maps.googleapis.com/maps/api/place/nearbysearch/json?location=latitude,longitude&radius=1500&type=restaurant&keyword=cruise&key=MY_API_KEY
```

Adaptations - Battery

Energy Challenge

Capture the battery level of the device, using **BatteryManager.EXTRA_LEVEL**

If (**battery < 15%**) **{**

- Suggest **disabling GPS functionality**
- Update location on map only periodically
- Use GSM or WiFi for position tracking

} Else **{**

- Use **GPS**

}

Further Adaptation Contexts

Usability Challenge

- **Personal Context**

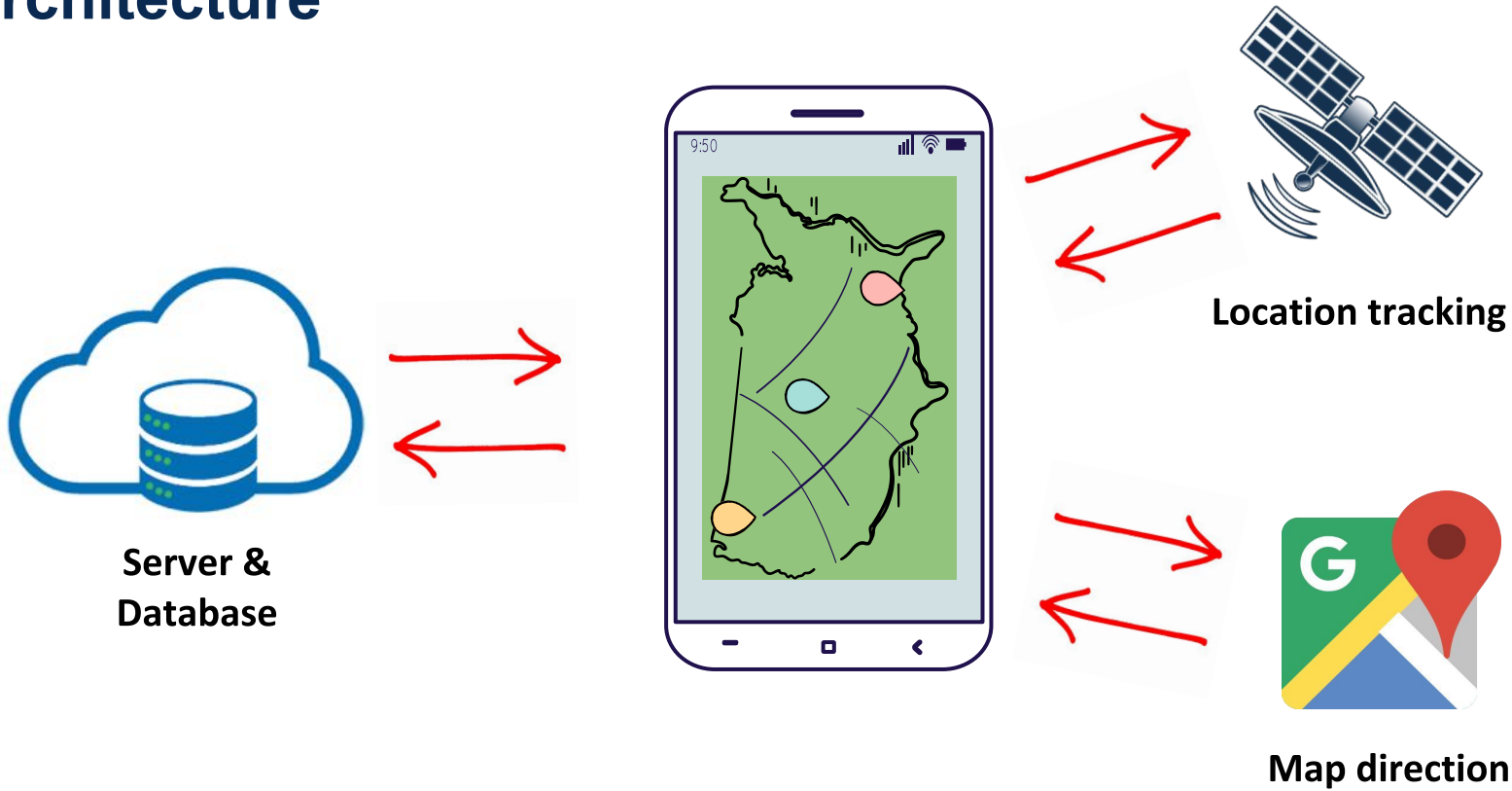
  Switch (**preferred_search_properties**) **{**

  - filter shops/restaurants based on user preferences

  }

- **Different Form Factors**
  - Using “wrap_content” and “match_parent”
  - Using RelativeLayout
  - Generating density-specific resources (mipmap-drawable)

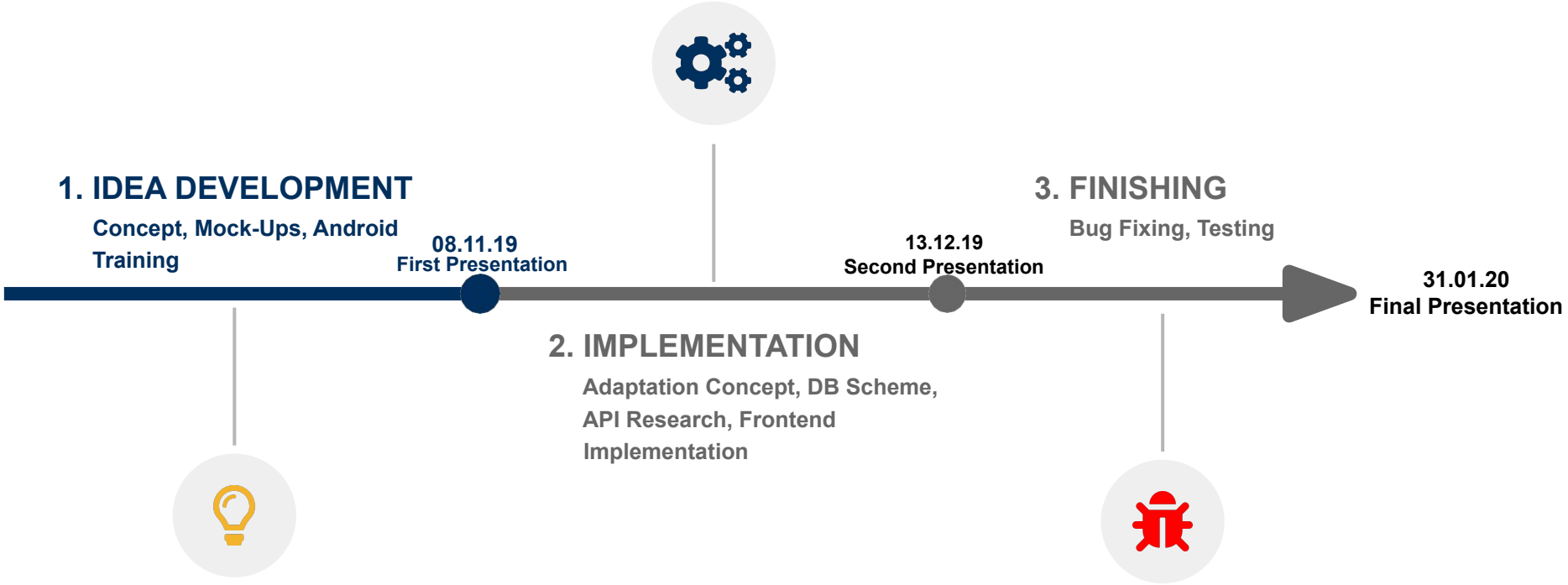
Architecture



Technologies

- OS: Android OS
- Language: Java
- IDE: Android Studio
- Version Control System: Git
- Google APIs:
  - Maps API
  - Location and Context APIs

Work Plan


1. IDEA DEVELOPMENT
Concept, Mock-Ups, Android Training
08.11.19
First Presentation
2. IMPLEMENTATION
Adaptation Concept, DB Scheme, API Research, Frontend Implementation
13.12.19
Second Presentation
3. FINISHING
Bug Fixing, Testing
31.01.20
Final Presentation


How?
Where?
When?
Which?
What?
Why?
Who?