Block Diagram

SS_6

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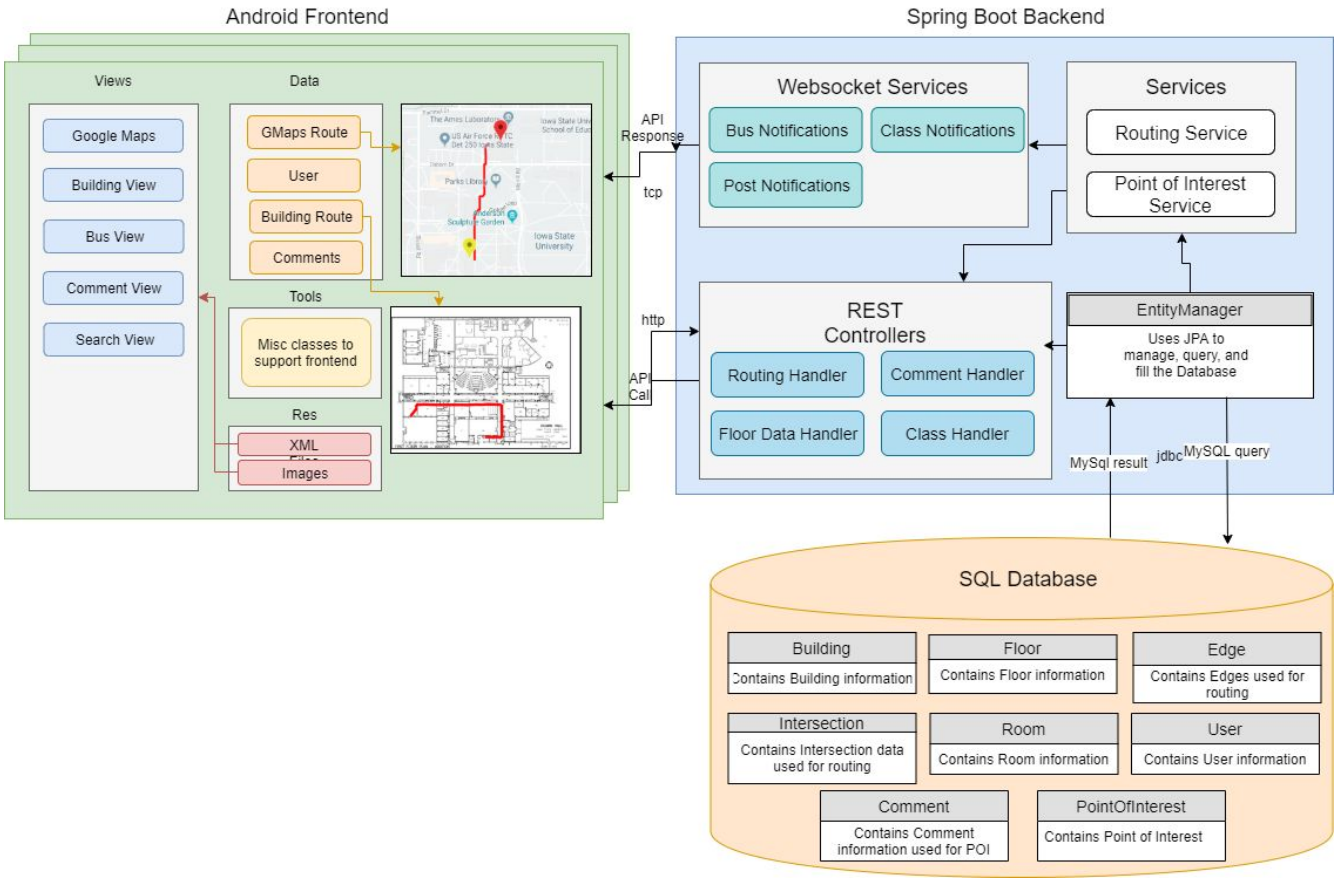
ISUView


Android Frontend
Views
Google Maps
Building View
Bus View
Comment View
Search View
Data
GMaps Route
User
Building Route
Comments
Tools
Misc classes to support frontend
Res
XML
Images
API Response
tcp
http
API Call
Spring Boot Backend
Websocket Services
Bus Notifications
Class Notifications
Post Notifications
Services
Routing Service
Point of Interest Service
REST Controllers
Routing Handler
Comment Handler
Floor Data Handler
Class Handler
EntityManager
Uses JPA to manage, query, and fill the Database
MySql result
jdbc
MySQL query
SQL Database
Building
Contains Building information
Floor
Contains Floor information
Edge
Contains Edges used for routing
Intersection
Contains Intersection data used for routing
Room
Contains Room information
User
Contains User information
Comment
Contains Comment information used for POI
PointOfInterest
Contains Point of Interest

Design Description

Modules

- **Bus Module**
    - On device view bus stop locations and times. Create push notifications for when bus is near a certain stop.
    - Websocket send test for bus locations and send out push notifications when bus is within users criteria.
- **Google Map Module**
    - Displays google map with additional routes and points of interest on the map. Allows scrolling and zooming as well as current location marker.
    - Calls are made to google api services where locations, routes, and searches are computed and returned.
- **Comment Module**
    - Displays user comments in list style for certain places of interests. Also allows Posting, following, and deleting comments.
    - All actions that overall used for grabbing, posting, and deleting comments need to reach the backend to communicate between the frontend and backend.
    - When a user posts a comment everyone who is following that interest will be notified through websockets.
- **Search Module**
    - Textview to actively search locations on campus and see where they are located on the map.
    - Calls will be made to google maps search API given preference to buildings on Iowa State's campus
- **Building Module**
    - Clicking on a building will allow you to go to this module. On load it will allow the user to view said floor plans for this building. If they have a route through the building the correct route is displayed. They are allowed to pinch, zoom, and drag the floor plan around along with switching between floors.
    - Routing between rooms will be computed on the server using Djikstra's mapping algorithm and be sent to the device when the module is first loaded. When is floor is switched the request to the server is made for the route to be drawn on the floor plan.

List of Tables and their fields

Table: Building
Fields
-id -> primary key
-buildingName
-longitude
-latitude
-floors

Table: Edge
Fields
-id -> primary key
-intersection1Id -> References Intersection(Id)
-intersection2Id -> References Intersection(Id)
-floorId -> References Floor(Id)

Table: Floor
Fields
-id -> primary key
-buildingId -> References Building(Id)
-floorNumber

Table: Intersection
Fields
-id -> primary key
-x
-y
-floorId -> References Floor(Id)

Table: Room
Fields
-id -> primary key
-floorId -> References Floor(Id)
-intersectionId -> References Intersection(Id)
-roomNumber

Table: User
Fields
-id -> Primary key
-name
-password

Table: Comments

Fields

-id -> primary key
-authorID
-building
-commentText
-followers

Table: PointOfInterest

Fields

-name -> primary key
-location
-x
-y