MoGreen

“Clean My Campus” Mobile Application

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Ana Paula Chaves Steinmacher

Ellen Vaughan and Brock Brothers

Clients

Ellen Vaughan

- Higher Education Sustainability Professional
- Former sustainability manager with NAU's Office of Sustainability
- Currently at UC Santa Cruz, Water and Climate Action Manager

Brock Brothers

- Manages NAU's Moving and Recycling department
- Oversees trash and recycling efforts at NAU
- Handles general NAU maintenance problems

Problem Statement

- Community involvement is difficult for those who are interested
- More people, more waste, more need for green solutions
- Current reporting method is outdated and unintuitive
- NAU needs to utilize current technologies to solve problems

Our Solution

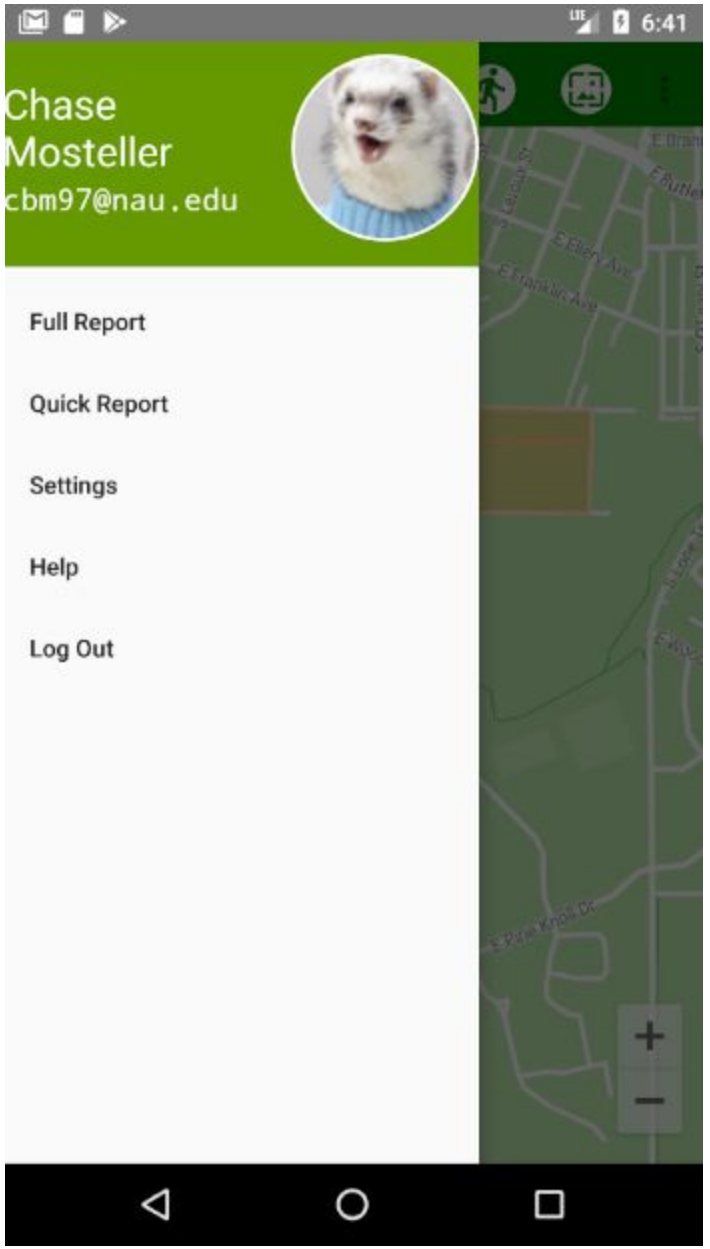
Mobile Application

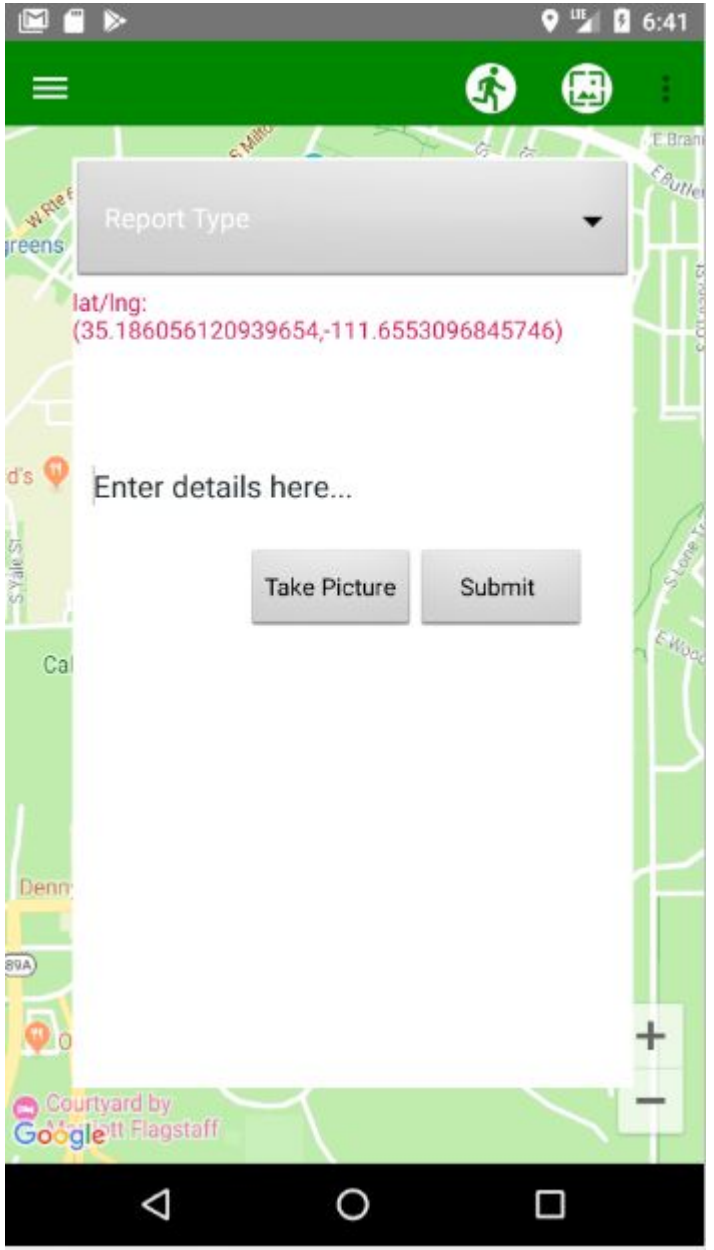
- Allows users to report issues
- Enables the community to get more involved
- Portable new solution for NAU

Administrative Web Portal

- Gives campus administrators control on how to maintain campus
- Shows a broader view of incident traffic

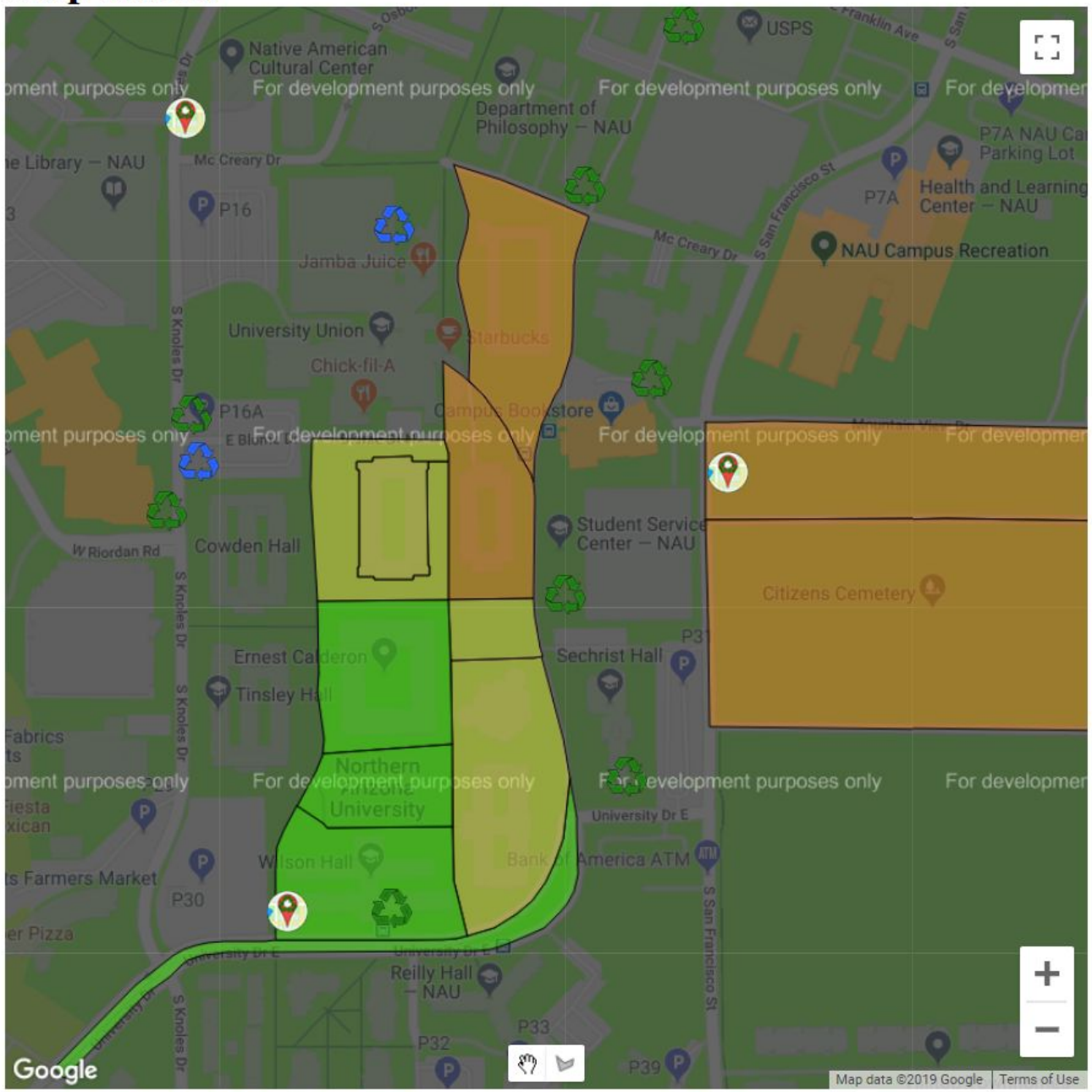
7:49
E Franklin Ave
S Agassiz St
Mc Cleary Dr
versity Union
E Blome Dr
Mountain View Dr
Northern
Arizona
University
S San Francisco St
University Dr E
Hilltop Townhomes
Runke Dr
Google


6:41
Chase
Mosteller
cbm97@nau.edu
Full Report
Quick Report
Settings
Help
Log Out


6:41
Report Type
lat/lng:
(35.186056120939654,-111.6553096845746)
Enter details here...
Take Picture
Submit
Courtyard by
Google

Home | Heatmap & Stats | Tasks | Zone & Marker Editor | Admin Manager

Map Editor



Hide or Show markers:

Hide Show
Hide Show
Hide Show
Hide Show All Markers
Hide Show Zones

Choose a marker to place:

- None
-
-
-

Toggle Marker/Zone Deletion:

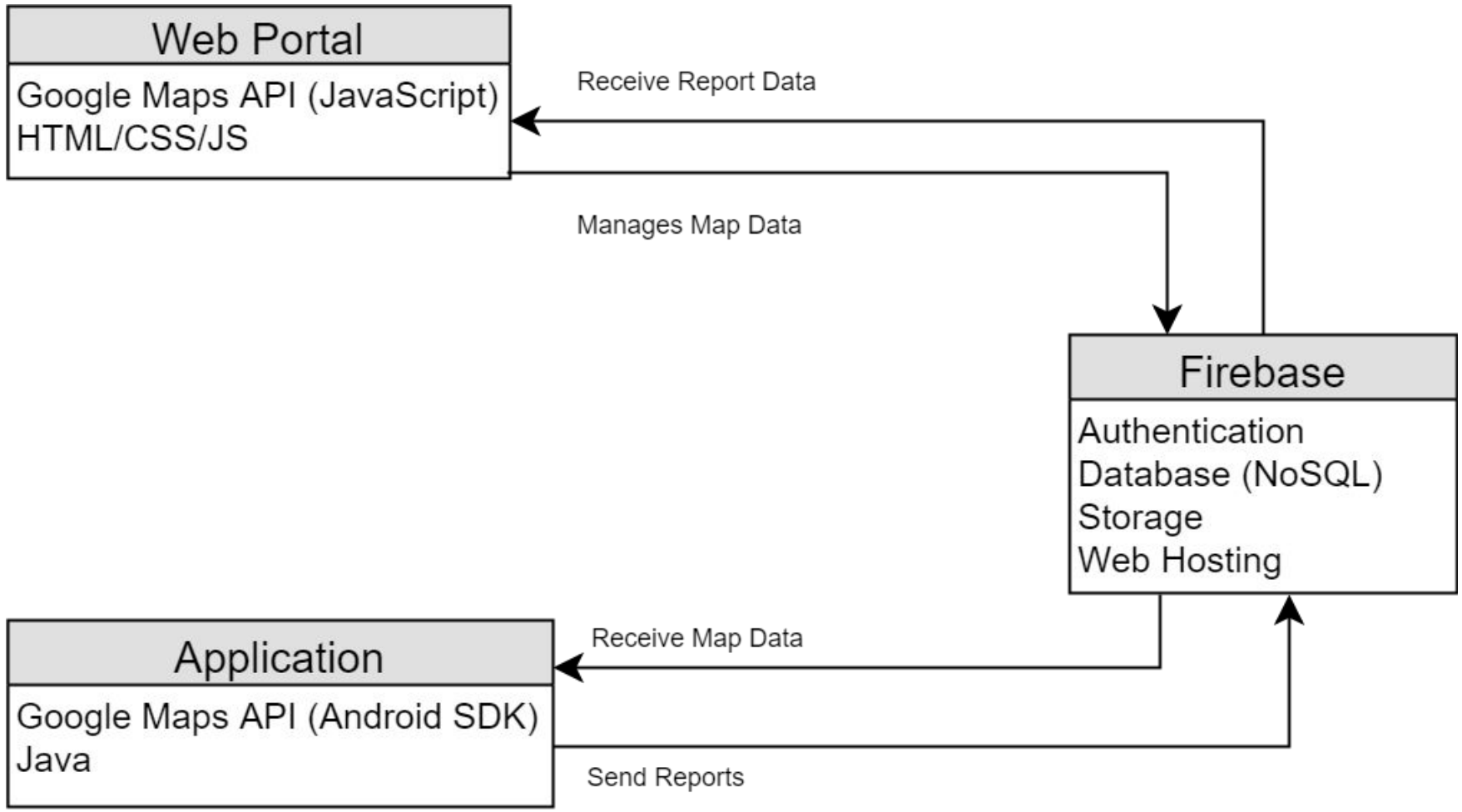
- Delete Zones/Markers

Toggle Editable Zones:

- Edit Zone

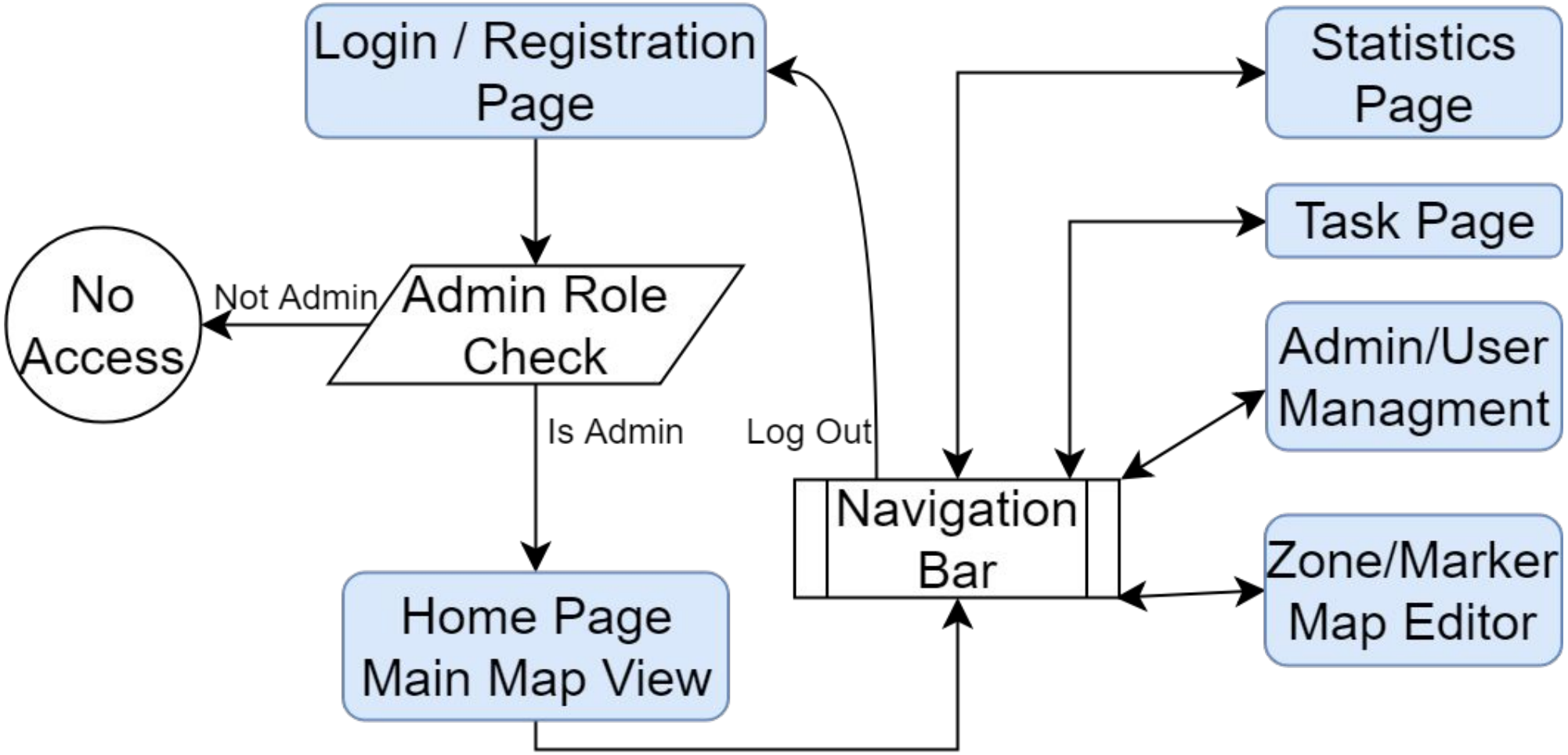
Submit Save Changes

Implementation Overview

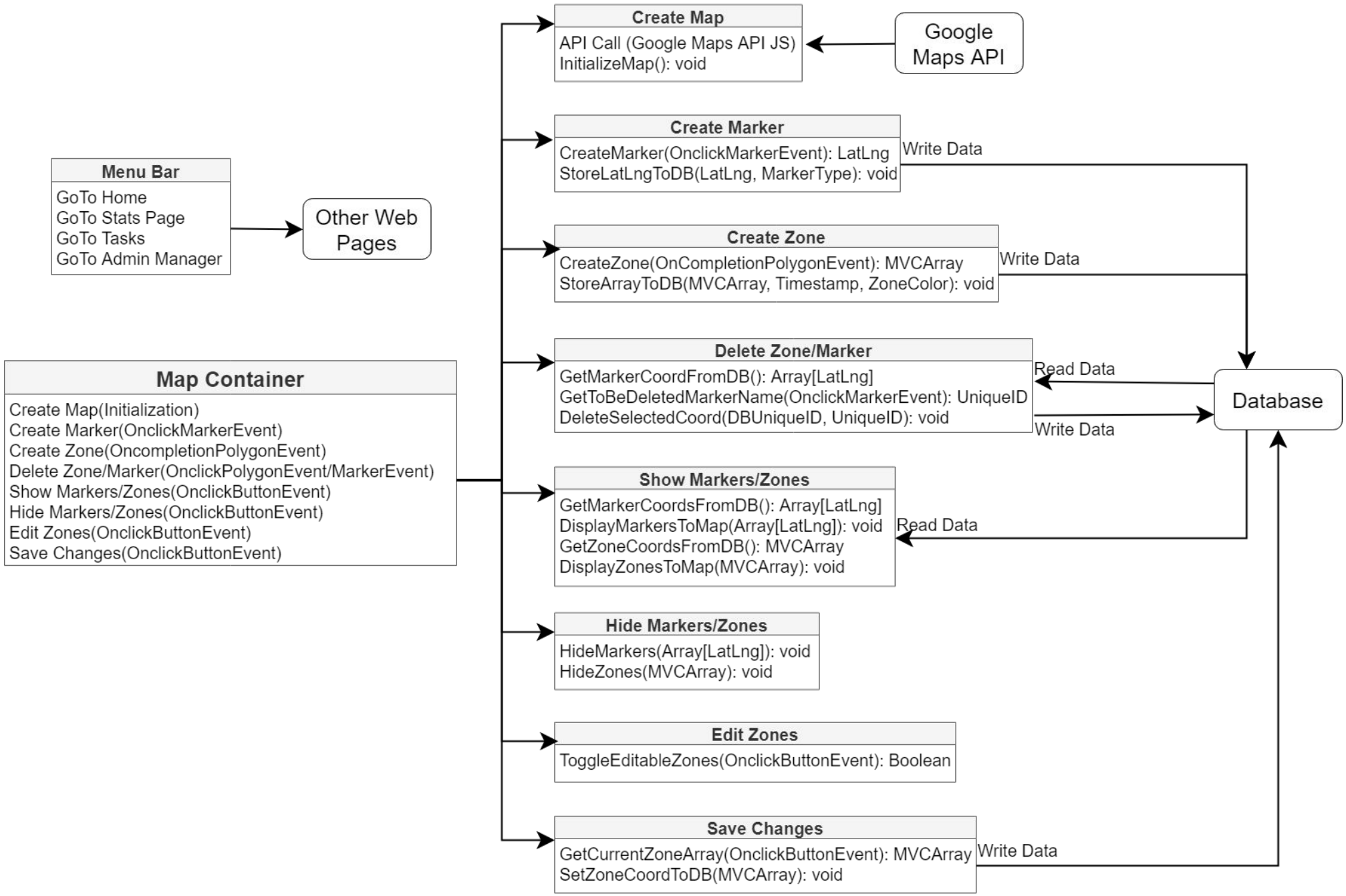


Architecture Overview

Web Portal Navigational Flow

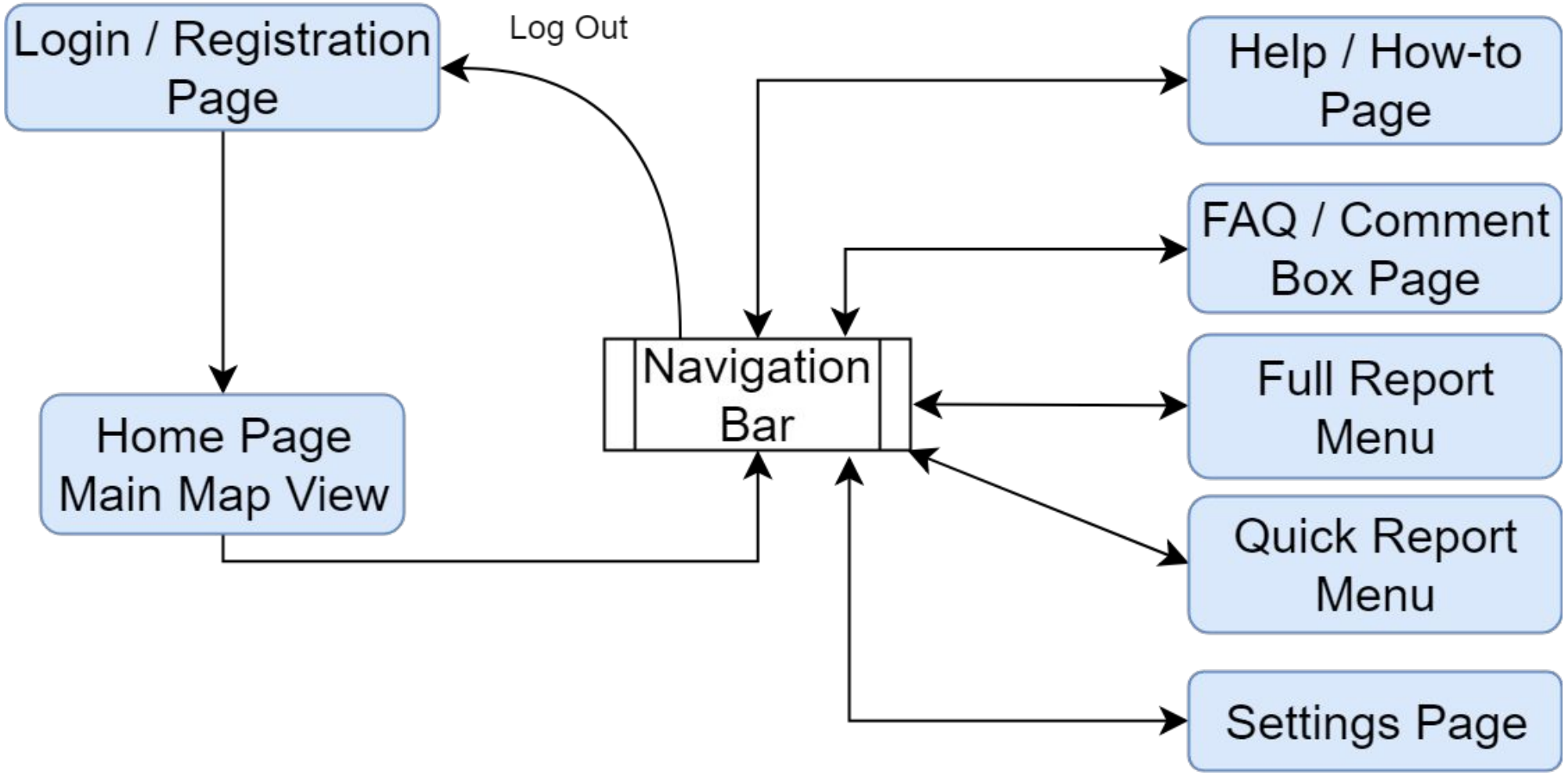


MapEditor.html UML

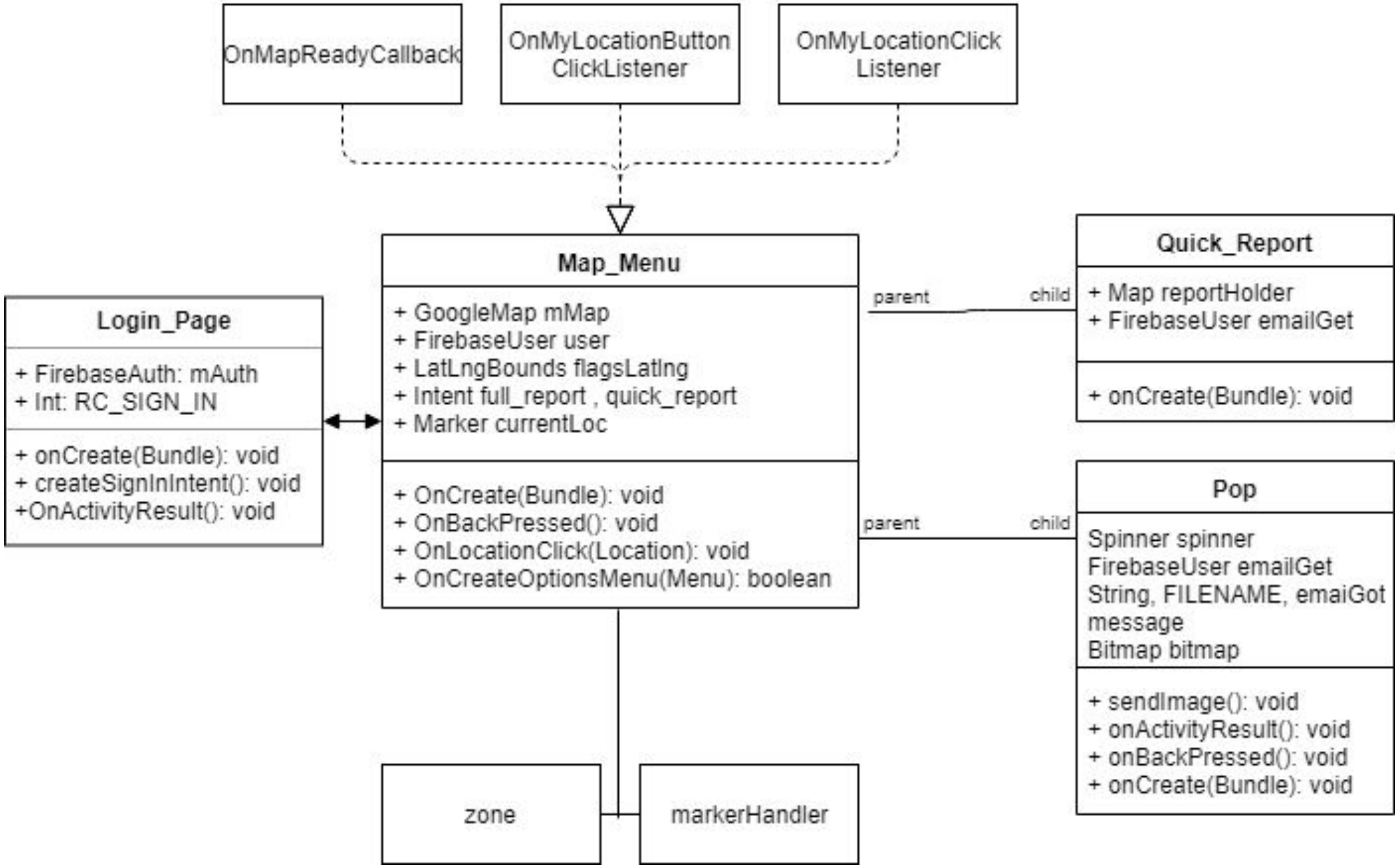


Architecture Overview

Application Navigational Flow



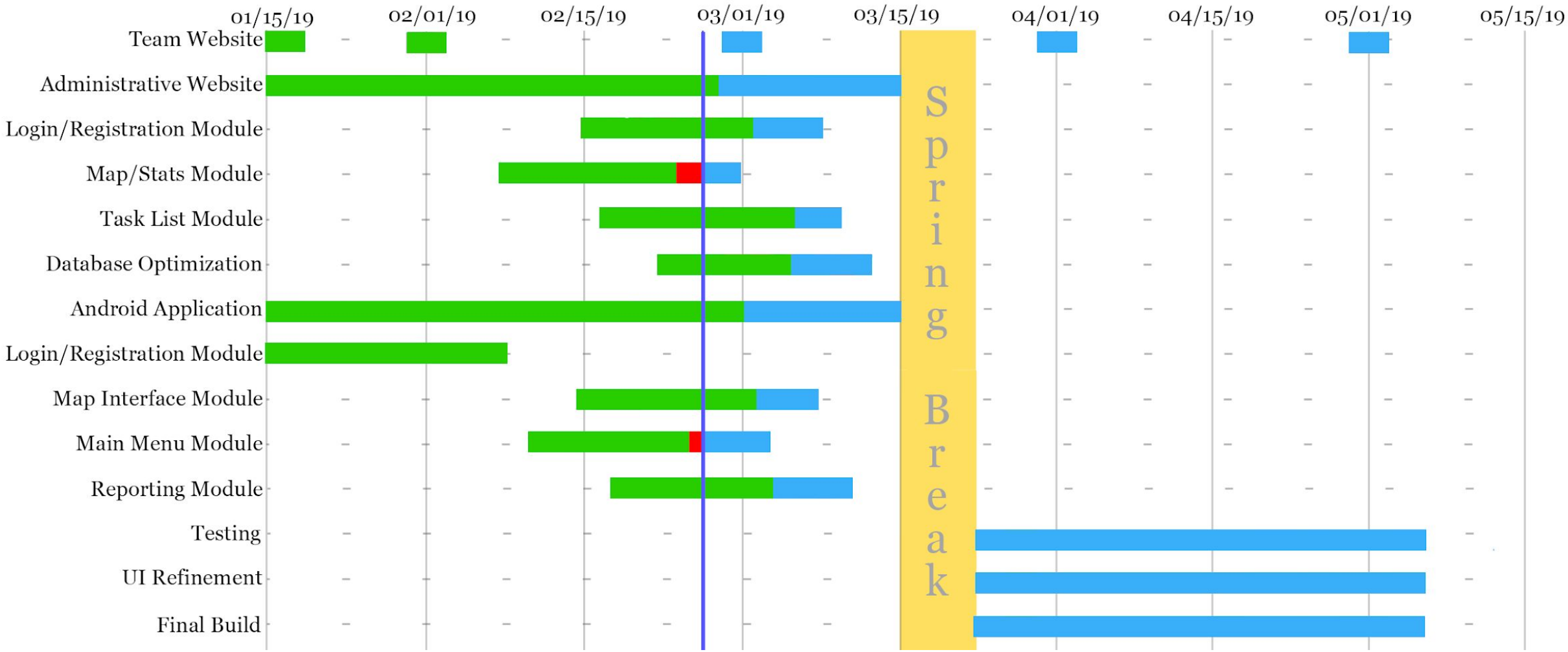
Map_Menu
UML


OnMapReadyCallback
OnMyLocationButton ClickListener
OnMyLocationClick Listener
Map_Menu
+ GoogleMap mMap
+ FirebaseUser user
+ LatLngBounds flagsLatlng
+ Intent full_report , quick_report
+ Marker currentLoc
+ OnCreate(Bundle): void
+ OnBackPressed(): void
+ OnLocationClick(Location): void
+ OnCreateOptionsMenu(Menu): boolean
Login_Page
+ FirebaseAuth: mAuth
+ Int: RC_SIGN_IN
+ onCreate(Bundle): void
+ createSignInIntent(): void
+OnActivityResult(): void
parent
child
Quick_Report
+ Map reportHolder
+ FirebaseUser emailGet
+ onCreate(Bundle): void
parent
child
Pop
Spinner spinner
FirebaseUser emailGet
String, FILENAME, emaiGot
message
Bitmap bitmap
+ sendImage(): void
+ onActivityResult(): void
+ onBackPressed(): void
+ onCreate(Bundle): void
zone
markerHandler

Challenges & Resolutions

- Implementation of web page security and authentication
  - Google Authentication provided framework to build the protection of our web portal
- Reports from multiple accounts creating tasks for the same issue
  - Group tasks together based on a radius and the type of report to minimize redundancies
- Read/Write/Delete to database affects monthly pricing for clients
  - Efficient calls to database and implementing a cache

Schedule


01/15/19
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Team Website
Administrative Website
Login/Registration Module
Map/Stats Module
Task List Module
Database Optimization
Android Application
Login/Registration Module
Map Interface Module
Main Menu Module
Reporting Module
Testing
UI Refinement
Final Build
Spring Break

Conclusion

- Problems:
  - Outdated reporting methods
  - Lack of community involvement
  - Growing student population
- Solution:
  - New and modern!
- Outcomes:
  - Easier task control for maintenance employees
  - Data collection and display for labor allocation
  - Boosted visibility of campus resources
  - Facilitate community engagement and change how people view their communities

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