

Team 5 Final Project Design

Team Number: Team 5

Team Name: JAARC JAARC I'm a Shark

Team Members and Email Addresses:

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Team Meeting Time: Wednesdays 1:10 pm

Lab Meeting time: Wednesday 1:00 pm - 2:50 pm

Contact: Colby Hughes

Project Sponsor: None

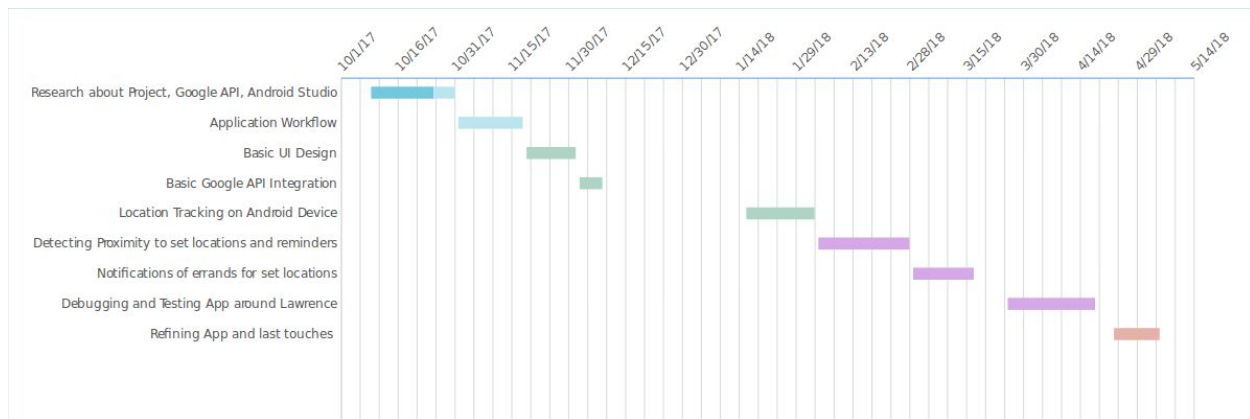
Project Description (150-250 words)

- We are making an Android application that will allow users to create errands and events and to receive reminders about them at the appropriate times. The app will then use those users' locations to send them reminders when they are in the vicinity of a place at which the errand can be completed. A person using the app will be able to select specific locations and assign a list of reminders for them. For example, the app should be able to pull up a shopping list when the user is travelling near certain grocery stores, and if the user is near a school building, the app can pull up a class schedule for that day, if one has been saved. The app will likely be able to keep track of the user's distance from a certain location, and the user will be able to "check things off" the errands list as the tasks are completed. Opening the app will allow users to store other reminders and notes as they pertain to the specific errands.
- The completed application should allow the user to keep track of all of their responsibilities in a convenient and organized way. This project is intended to surpass the limitations of basic Calendar and Notes applications by providing a visual and interactive environment in which smartphone users can play their daily tasks.

Project Milestones

- First Semester
 - Research (September - October 31st)
 - Java and Android Studio
 - Google Maps API
 - Complete Basic Application Design (i.e. visualization of app) (November 1st - December 15th)
 - Application Workflow
 - Basic UI Design
- Second Semester
 - Base App Functionality (January - March)
 - Initial UI implementation and screen navigation
 - Basic Google API Integration
 - Basic Ability to Assign Desired Locations via Google Maps
 - Basic Ability to Assign List of Errands / Tasks to Locations
 - Base implementation of account system
 - First Documentation Milestone (Mid-March)
 - Location Tracking and Notifications (March - April)
 - Location Tracking on an Android Device
 - Detecting Proximity to Set Locations
 - Notifications of Errands for Set Locations
 - Social Networking Component (i.e. sending and receiving errands to/from other users of the application)
 - Debugging and Testing App (April - May)
 - Testing for Set Locations in Lawrence
 - Demo video
 - Polishing (May)
 - Continuation of Bug Fixes
 - Refining UI and App Navigation
 - Tuning User Input and App Functionality

Gantt Chart



Estimated Completion Dates

- End of February
 - UI and navigation between all screens of the application
 - Ability to create accounts and log-in/log-out of the application
 - Basic database functionality for saving events
 - Google Maps API integration (not necessarily fully implemented)
- End of March
 - Majority of code documentation
 - Creation of errands and ability to assign locations via Google Maps API
 - Location tracking and notifications based on proximity to locations
- End of April
 - Social component for sending/receiving errands to/from other users.
 - Final App Testing
 - Finalized Documentation

Project Budget

- We shall be testing the application on an Android smartphone, which we have at our disposal, and Android Studio, a free software development platform.

Work Plan

- Research Android Studio and Google Maps API, Brush Up on Java Programming (All Members)
- Documentation → (All Members)
- Front-End
 - Event Creation → (Alex, Richard)
 - Location Selection (Google Maps) → (Alex, Richard)
 - Page Design and Navigation → (James)
 - Viewing Lists of Events and Lists of Contacts → (Colby)
- Back-End
 - Database/Account System → (Colby, James)
 - Location Tracking → (Alex, Richard)
 - Privacy and Verifying Contacts → (Ashli)
- Testing and Debugging → (All members)

Final Project Design

Our application will provide a way for people to create text-based reminders, notes, and/or events for themselves. The application will also provide a means of setting reminders for other people through a form of social networking.

When a user opens the application, they will be prompted to either login to an existing account or set up a new one. After providing their login credentials, the user will be directed to the main screen of the application (see illustration below). The homepage screen will list the names/titles of all of the events and reminders currently set by the user. From this screen, users will be able to select from a variety of options. As of now, these options include creating new reminders, viewing existing reminders that users have created for themselves, viewing the contacts that users have added to their accounts, and adding reminders for buddies or viewing reminders that buddies have set for them.

Choosing to create new reminders will open a page that resembles a notepad. This notepad page will provide fields for the user to enter a name, a description, and a time for the new event. Various buttons will be present on the page from which the user will be able to add more detail to their new event. One of these buttons will open a map of the user's vicinity. From this map, the user will be able to choose a location which the app will then associate with that new event. The Google Maps API will be integrated on this screen of the application. A map of the user's general vicinity should be displayed. Known locations, such as nearby businesses, should be easily distinguishable on the page, and the user should be able to search for more generic terms, such as "supermarket" and "library," without having to scroll through an entire city map and manually looking for a location. Clicking on a building within the map page should prompt the user to confirm that the selected location is to be associated with the event or errand.

The page for creating reminders will also contain a second button allowing the user to assign a time period to the new event. Specifically, a calendar graphic will be available for the user to select a date, and a clock graphic will let the user set the time duration of the event. The user will also be able to select a timeframe in which they will begin receiving reminders for the event. Both the time and location specifications will be optional, and the name and expanded description will be all that are required before the event can be saved.

Selecting to view existing reminders will direct the user to a scrollable page that contains the names of existing events (see illustration below). Clicking on each reminder will open the page containing a more detailed description of the reminder. Important times and dates associated with the event will be easily viewable on this page, and a button will be present to view the event's location in Google Maps (if the location has been specified.) If the selected event is a recurring one, then this characteristic will be displayed. If the reminder is not recurring, it will be removed from the user's list of reminders once the appropriate time has passed. Otherwise, the reminder will be temporarily dismissed to be reactivated at a later time.

If the user allows the application to access the location services on their device, then this will enable the application to send notifications to the user's phone based on their geographic location. The user will be sent a notification when they are within a certain proximity of the location associated with one of their reminders. Location-related services offered by this application will be provided by Google Maps, which provides an API for Android integration.

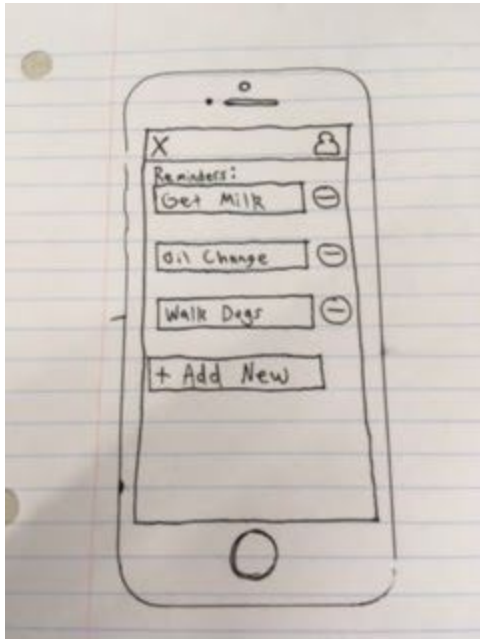
The user will also have the option to add "buddies" to their account. These buddies will be other users that have a registered account with our application. When a buddy is added, a request will be sent to that person's device. If the request is accepted, then they will be added to one another's contacts list in order for them to be connected within the application and share events amongst each other. This will allow both users the option to send reminders and notes to each other. If the "add" request is rejected, then the request itself will be discarded and no changes will be made to the related parties' contacts list. While setting up an account, or available to change in settings, a user can allow the rejected individual to be notified of such a cold-hearted slap in the face. Once the "buddy request" has been approved, they receive the privilege of celebrating their friendship by sending one another requests to add reminders to each others' events lists. After the request has been made, the buddy receiving such and either accept or reject it. Accepting such a fantastic gift will add it to their events list, along with reminders, but rejecting it shall send it to the abyss of spurned requests, also along with the related reminders. A user will also be able to see a list of all of the buddies that they have added inside the application (see illustration below).

The most important part of our design is making sure that we get the social aspect of the application working. If we feel that we have enough time, there are more functions that we would consider implementing:

- In addition to having a reminder go off when you reach a location, the app could be able to set a reminder when it detects that a user has left a certain location. The time and date functionality can be helpful for various uses depending on the users and their needs.
- Other ideas that we were considering were reminders for when a user leaves work or school, or if more than one chore needs to be completed, then a reminder could be sent after each step. In order to have this work properly, the user would have to label the places in an order or by preference for the app to be able to alert for the next reminder.
- Moving on, the user could set a distance from a set location so that the app would know when to activate and therefore not be sending unwanted notifications. When the user's distance from a location has entered a certain range, the app will send the reminder to help the user.
- Another idea can be getting reminded to go to certain places after they have left a store or other location. This can be updated by others in their friends list by the social side of the app.
- One last added functionality would be to branch off the social aspect of our project to support group interactions, allowing a number of people to create their own sets of events and reminders that all could see.

- There would be different categories and different threads for each category. For example, we could organize threads by city to aid in narrowing down topics at which the app is being perused. A user could use the app to use that person's current location to find potential groups to join. One group page could include notes about good places to eat in a certain city. Another group could be suggested trails in a park or even suggested activities to do in the area. All these could be updated by users and accessed by anyone with the app since these types of groups would need to be publicly accessible.

Application Homepage (After Login) (Preliminary Design)



Buddy Screen (Preliminary Design)



Adding New Reminders (Map Button Not Present) (Preliminary Design)



Ethical Issues

- One of the major ethical issues that we have identified pertains to the privacy of our users. Our app will essentially obtain the locations of our users, which could be considered as sensitive information. In order for our app to get access to such information, we would, undoubtedly, have to make sure that users freely give our application permission to do so. Our application integrates Google Maps specifically for the purpose of sending location-based reminders for users. When creating events, we will allow users to opt out of specifying the locations on their events if they so choose. We plan to make this apply to events and notes created by other users as well. Lastly, if we expand the social aspect of the application to include public, location-centric groups, then the user would likely not be able to access that portion of the app.
- Since users are able to create and view reminders set for other people, users may not want certain notes that they have created to be viewable by other people. To solve this issue, we could add a “viewability” setting for each event when it is created. This way, the user can be rest assured that their events will remain private if that is what they wish.

Intellectual Property Issues

- As anticipated from our research, our idea is not the most unique. For instance, Apple has an app, “Reminders,” that allows users to tie a location, time, and/or date to an item if they so choose. One of the differences between that app and ours would be us allowing a list of reminders to be tied to a location, instead of just a single item. We may also elect to include a map-based view of existing events to display for our users. Furthermore, we plan to add a social aspect, meaning we allow users to have “buddies” and share their lists with them. We believe that features such as these will help to differentiate our application from existing ones.

Change Log

- Project Description
 - We have chosen to add the social aspect to our project to better distinguish it from any apps that already exist. We were not planning to do this at the time that we wrote our Initial Project Description.
- Project Milestones
 - Minor updates were made to the milestones to reflect changes to our timeline as well as how our group has discussed approaching the project. More separation of duties may come at a later date.

- Work Plan
 - We have now divided project responsibilities among our group members.

- Project Budget
 - This section was updated to reflect our group's research into integrating Google Maps into an Android application.

GitHub Link: (https://github.com/EECS-581-Capstone-Team-5/Capstone_Project)