Home360 mHealth Lab3 App Report

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Abstract—An Application named Home360 made to help people find houses for rent. Home360 is a user friendly application made by involving functionalities such as GeoFencing, Calendar, Webview, Buttons etc. The main goal of this app was to provide user the satisfaction of finding houses with least user input and easy navigation thorough the application.

Index Terms—GeoFence,Android Calender,WebView.

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1 INTRODUCTION

The research question we were exploring in this lab was how to use Geofencing with Calendar and Webview elements to create an application for people who are looking for Houses to Rent/Lease in and around the city of Cleveland,OH.

Home360 is an application which helps a user to find houses to rent by showing a user the details of the house/suite like availability of rooms etc(Using WebView) when the user is in proximity to the House area. It also adds a calendar event on request so the user can keep track of all the places they have visited and the time they have visited.

This application can be extremely useful for people who are travelling often,Students joining nearby colleges,Families who have job transfers etc. and the ones who tend to look for many options before deciding on a place to call home.

2 RELATED WORK

Airbnb, Inc[1]. is an online marketplace for arranging or offering lodging, primarily homestays, or tourism experiences. The company does not own any of the real estate listings, nor does it host events; it acts as a broker, receiving commissions from each booking. Airbnb is frequently used application for people who are looking for temporary stay till they find a house.We were influenced by this app and wanted to implement a similar idea for houses in a better way using the idea of geofencing in android. Upon further exploration we found a blogpost[2] discussing the advantages of implementing geofencing in house hunting apps which helped us lay a foundation for the basic requirements needed for building Home360.

3 SYSTEM DESIGN

This application contains three activities :

- Splash Screen
- Maps Activity
- Web activity

The splash screen can be used as a loading screen to load the geofences from the database to the map in future

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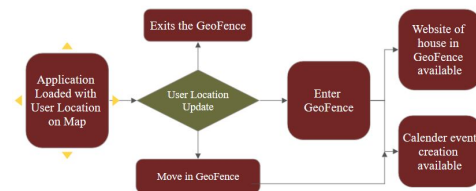 *E-mail: ming-chun.huang@case.edu*

Fig. 1. Flowchart

improvements. Maps activity uses google map api to display maps and uses GeoFire to create the GeoFences and maintain the activities of user location with GeoFences such as Enter GeoFence, Movement within the GeoFence and Exit the GeoFence. MapsActivity also uses Notification components in order to give GeoFire messages. It also uses Functions like "*CalendarContract*" and "*ContentResolver*" to add events to the calendar. The map design and color was changed using a json file in raw folder[6] and this code snippet "*boolean success = googleMap.setMapStyle(MapStyleOptions.loadRawResourceStyle(this, R.raw.mapstyle));*"[7] and the marker icon was changed using "*.icon(BitmapDescriptorFactory.fromResource(R.mipmap.map_icon))*"

In Web Activity in order to display the webpage directly to the webview we had to put "web.setWebViewClient(new WebViewClient());" So that it does not open another app to display the web page.

4 USER GUIDE

This application (Home360) is used by people looking for houses to rent or lease.It gives you the details of the house or apartment when you are in close proximity to the property as well as allowing you to add a visit event to the calendar with the time and location visited. It will also allow the user to check the website to see finer details of the property within the application without the hassle of changing apps.

When launched the application displays a map with user location and the properties they can visit around them.When the user enters or is near any house/apartment they can have a look at the website of the property by clicking the "Website" button and at the same time if they want to record the visit in the calendar they can do so by clicking the "save visit" button.
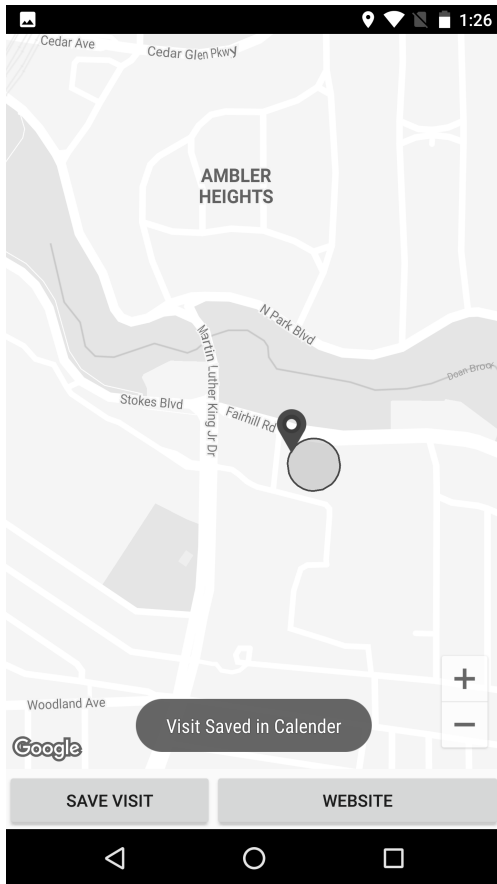
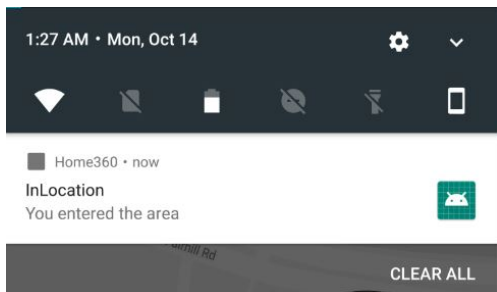Fig. 2. Maps Activity with Calendar Toast

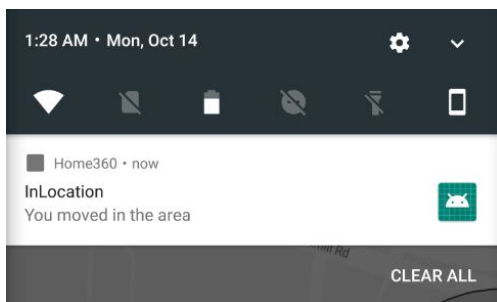Fig. 3. Notification Entered GeoFence

Fig. 4. Notification Moved inside GeoFence

When viewing the website,if the user wants to view the map again they can do it by either clicking on the "go back" button or by clicking back.
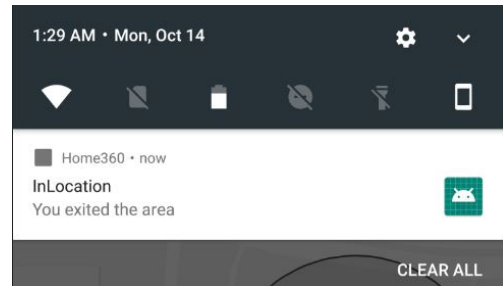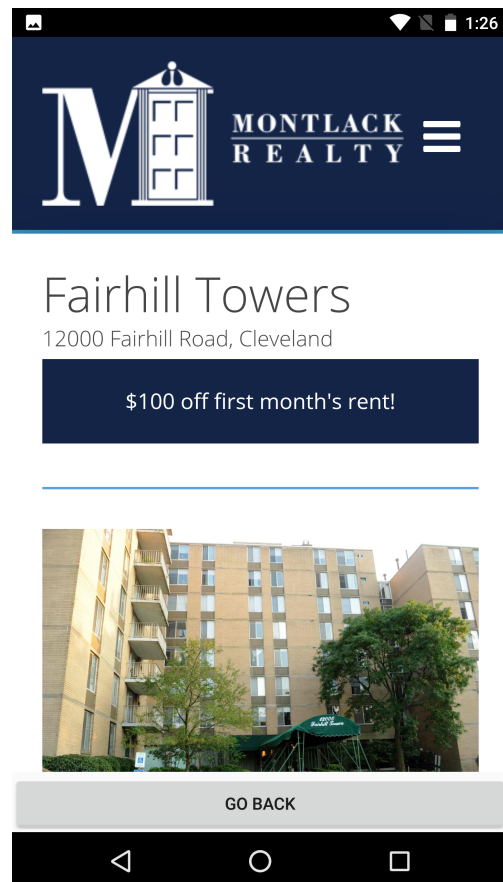

Fig. 5. Notification Exited GeoFence

Fig. 6. Webview

5 CHALLENGES FACES AND TRADEOFFS

The main challenge was in integrating geofencing with live-location.To solve this challenge,we had to remove service class for live-location and integrate the code with code of geofencing in the same class.Another significant challenge was syncing the calendar with the web.In order to overcome this challenge we had to save the event in calendar on device rather than save it to the web.The last challenge was to create a simple,attractive and user friendly UI in order to achieve all these,we designed the UI in such a way that it takes the least input from the user.To make it simple yet attractive,we made it monochromatic which increased the readability of the design.

6 CONCLUSION AND FUTURE WORK

This application helped us understand the working nature of geofencing while being integrated with live location in the same

class.We even learnt how to handle calendar events through java and how the web view is a simple yet a very efficient tool for handling web activities within the application. This prototype version of this application has a single geofence to demonstrate the functionality of the final product.Future versions will include multiple geofences within a city maintained using a database so the user can be provided with more options.The future version will also contain better calendar functionality like reducing the delay for event addition and being able to sync to the web so that the users can view his visits in any house device.

7 CITATIONS

[1]https://www.airbnb.com/how-it-works   [2]   http://www.dgtl-factory.com/blogs/6-geo-fencing-and-apartment-house-hunting
[3]https://www.youtube.com/watch?v=CwxdfamaCrkt=1847s
[4]https://developer.android.com/guide/webapps
[5]https://developers.google.com/calendar
[6]https://mapstyle.withgoogle.com/
[7]https://developers.google.com/maps/documentation/android-sdk/styling