

# CSE 3200: System Development project

**Project Title : Safety App**

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## Introduction:

Safety app is built to help the users and their family members to remain safe while outside.

This app will track each and every users location so user's can know where their family member are at any moment .

The unique drive mode can help the users to have a disturbance free driving.

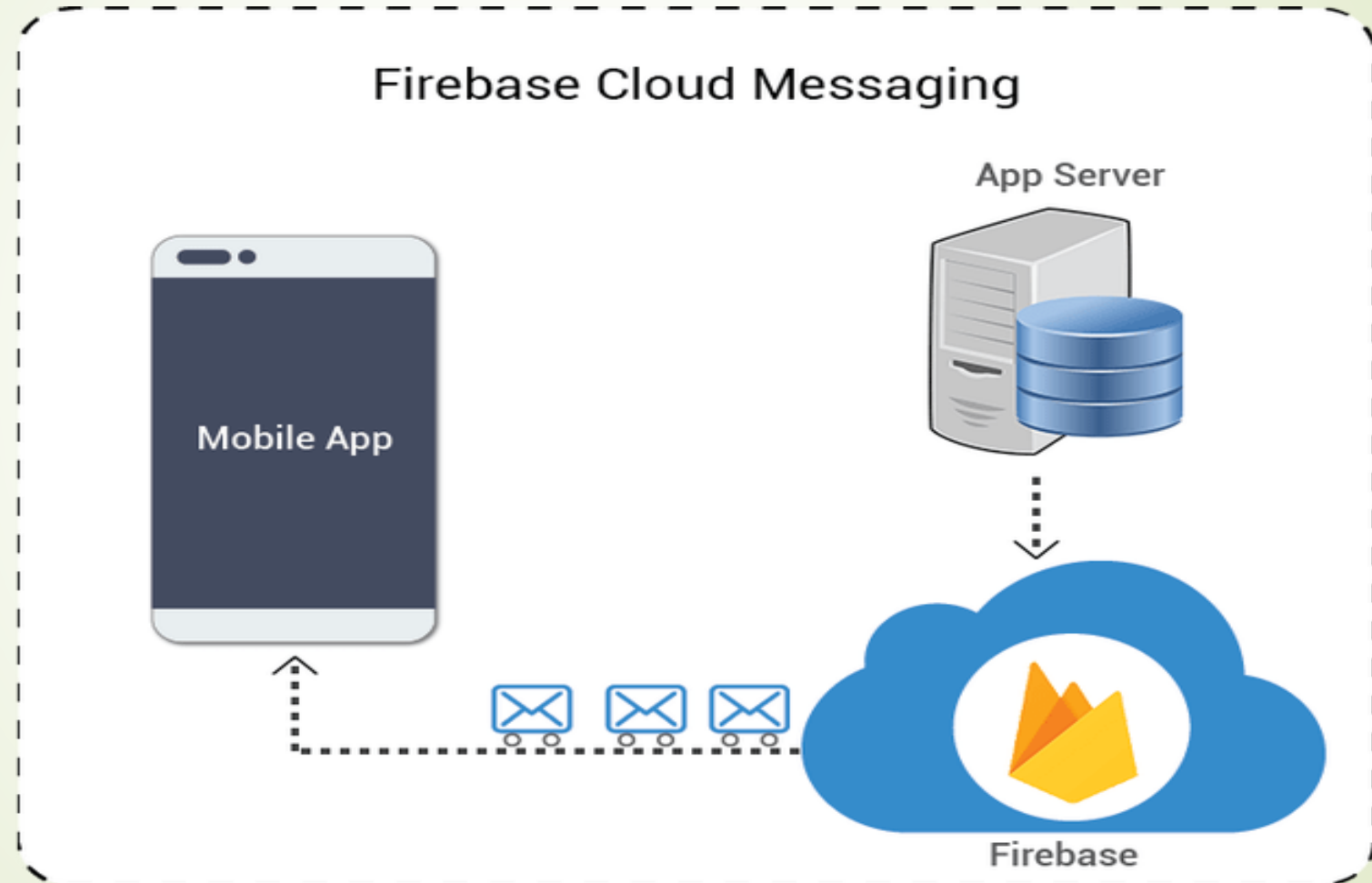
## Objectives:

- a. Real time location detection.
- b. Custom family circle for users.
- c. Nearest pathway between two users.
- d. Real time speed measurement during driving via GPS.
- e. Auto phone ringmode change with vehicle speed.
- f. Send SMS(user busy) automatically to caller while driving.

# Motivation:

- 1) To ensure the safety of our family members:
- 2) To ensure a disturbance free driving experience.
- 3) To reduce the accident rate caused by mobile disturbance during driving.

# System Overview:



# Why Firebase?

- 1) To store User Information
- 2) To validate user Authentication
- 3) To store user's Family member list
- 4) Real time User Location

# Firestore Data

Firestore family

## Authentication

Users Sign-in method Templates Usage

Search by email address, phone number or user UID

Identifier	Providers	Created	Signed In	User UID
pranto@gmail.com		12 Dec 2018	21 Dec 2019	01P6PQFNbR5HNTQcmAKj0poo...
abdullah@gmail.com		12 Dec 2018	12 Dec 2018	16055vstfaujHYzvYhmDovH7a02
alam@gmail.com		13 Dec 2018	13 Dec 2018	34DL4a5EivMr1lc2FY82c0YuuSE3
atikur@gmail.com		21 Dec 2019	21 Dec 2019	3Uu8QbMEorQqTxyZ2mR4wosno...
zahid@gmail.com		12 Dec 2018	12 Dec 2018	5m0Fw8zvNBu8a5Ynk1pb2uk1
jony@gmail.com		12 Dec 2018	12 Dec 2018	6cxV9gt1J9S8CKGvPbFgk0fR2
debo@gmail.com		13 Dec 2018	13 Dec 2018	8qoqorkfwgMKdVSRmD5u7oTmud

Project Overview

## Firestore family

### gps-family-9cdf3

- Location
  - cycle
    - 23456
      - 133434: "133434"
      - 56328
        - 23456: "23456"
      - 102066
        - 102066: 102066
        - 133434: 133434
        - 142903: "142903"
        - 395842: 395842
        - 573085: 573085
        - 836789: 836789

Project Overview

## Firestore family

### Database

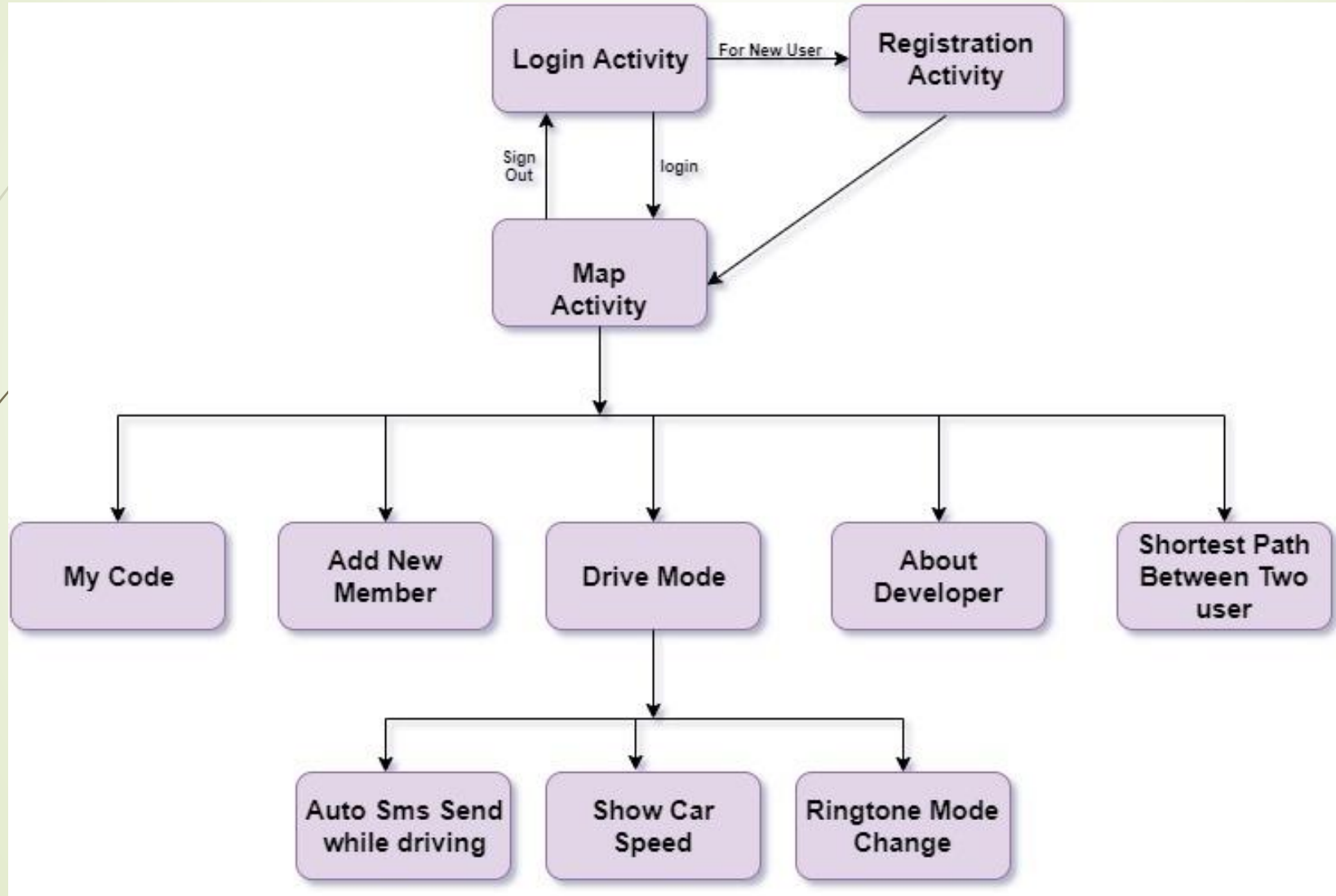
#### gps-family-9cdf3

- Location
  - 102066
    - lat: 22.898407
    - lng: 89.502308
    - name: "robiul"
  - 133434
    - lat: 22.5726
    - lng: 88.3631
    - name: "jony"
  - 142903
    - lat: 25.7439
    - lng: 89.2751
    - name: "deloyar"



# App Functionality

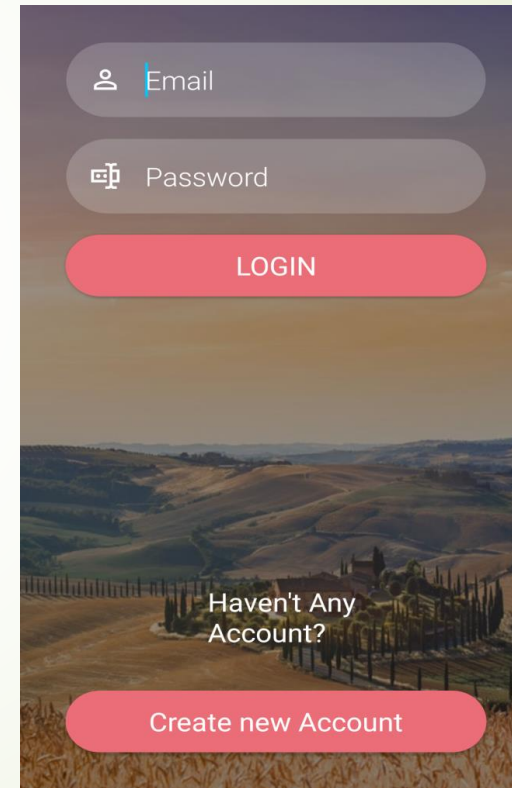
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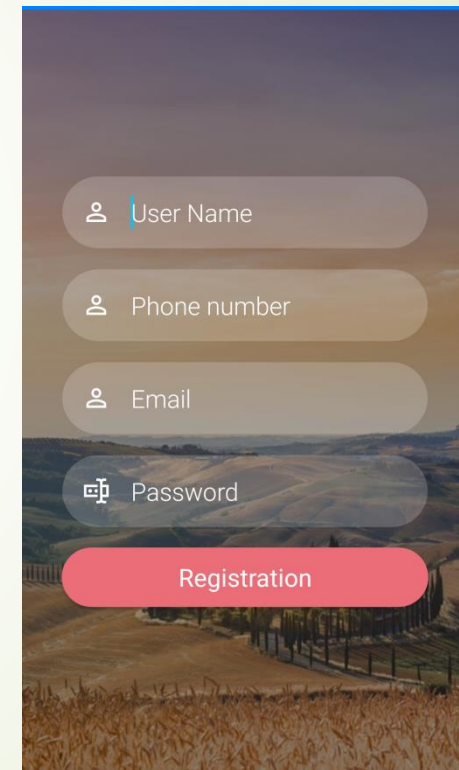
# Methodology and Implementation

**Login Activity:** We used user's email and password as verification for valid user account.



# Methodology and Implementation

**Registration Activity:** This activity requires some information like user name, phone number, email and password . Which is stored in firebase.

A mobile application registration form with a scenic background. The form consists of four input fields, each with a user icon on the left: 'User Name', 'Phone number', 'Email', and 'Password'. The 'Password' field has a small icon on the left. Below the input fields is a red 'Registration' button. The background of the form is a blurred image of a landscape with hills and a fence.

User Name

Phone number

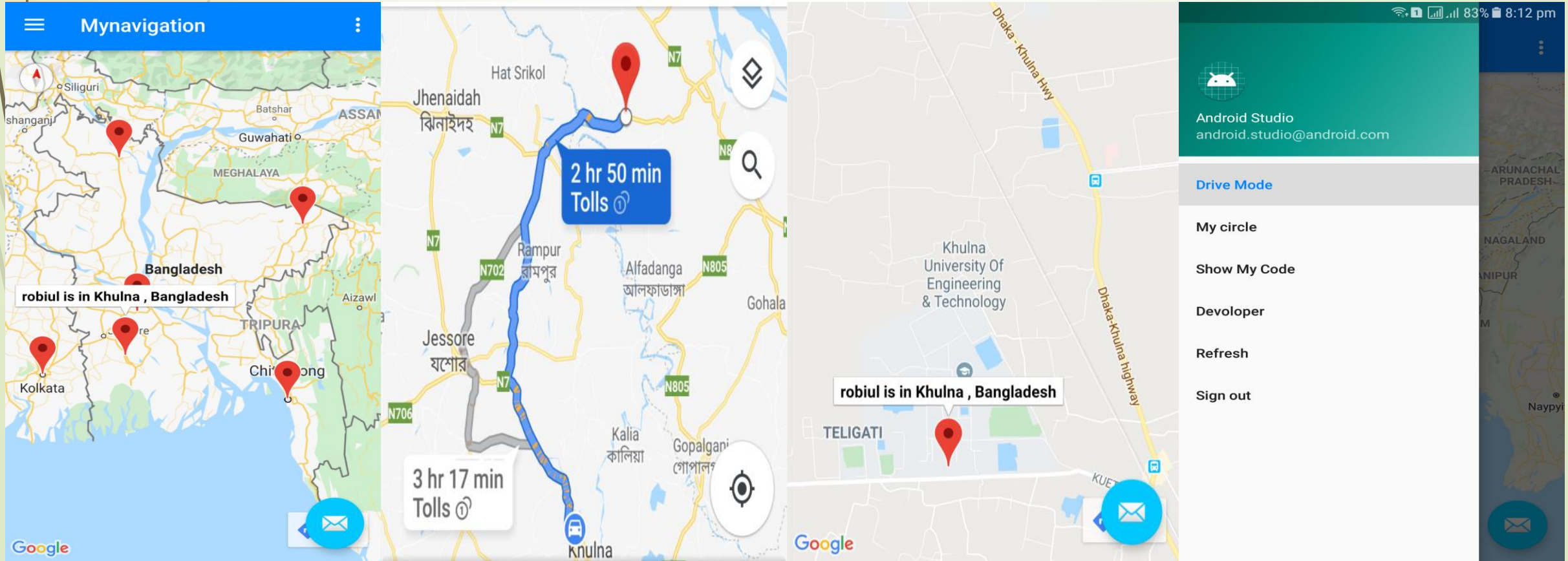
Email

Password

Registration

# Methodology and Implementation

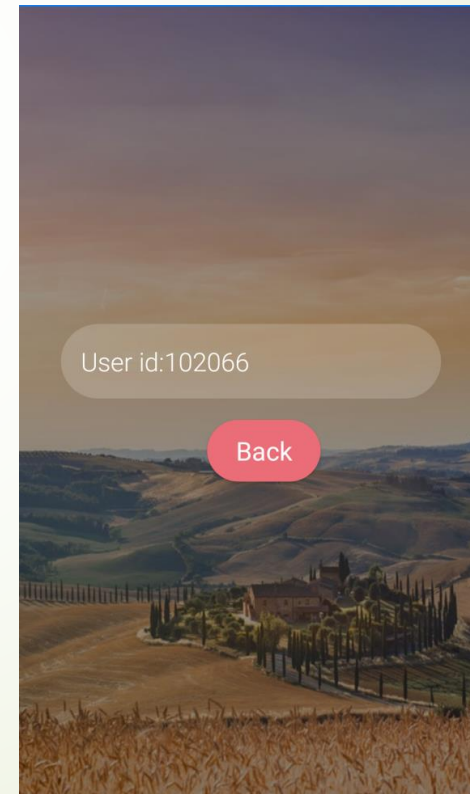
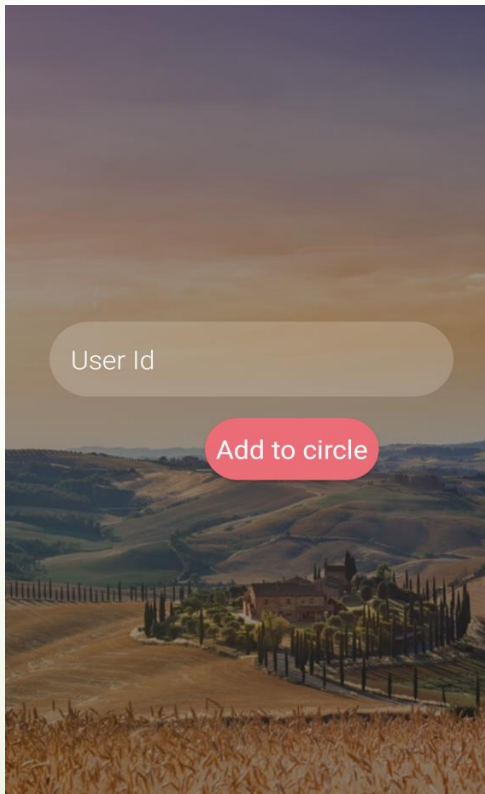
**Location tracking on map:** In this activity users can see the locations of their family members on real time as well as see the shortest path to any family member.





# Methodology and Implementation

**View User ID and Circle Creation:** In the User Id View activity users can view their own id and on the circle creation activity users can add other user as family using their unique user id code.

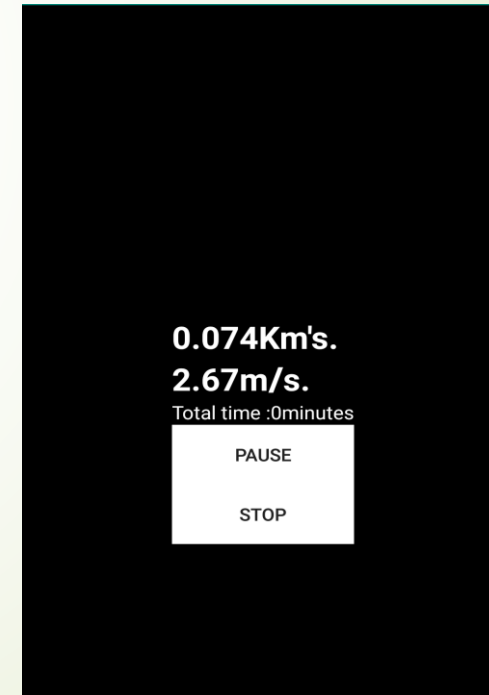
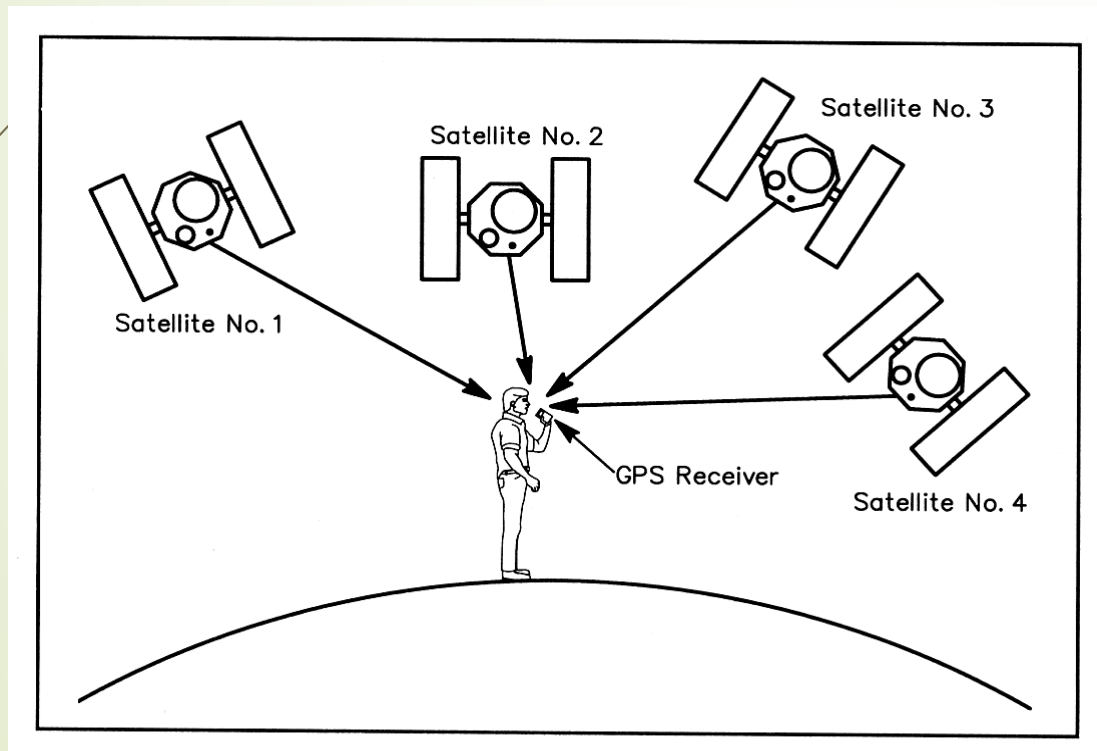


# Methodology and Implementation

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## Drive mode:

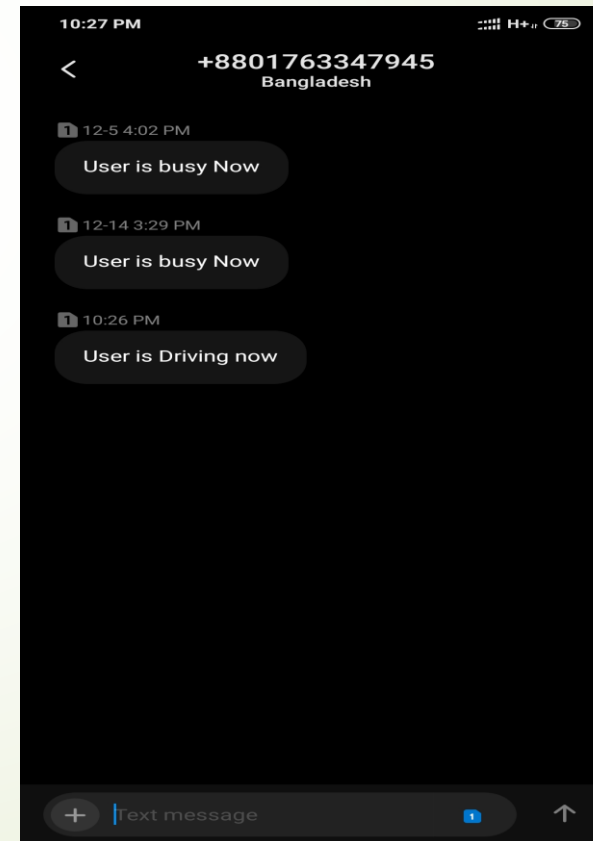
### i. GPS based location detection and speed measurement::



# Methodology and Implementation

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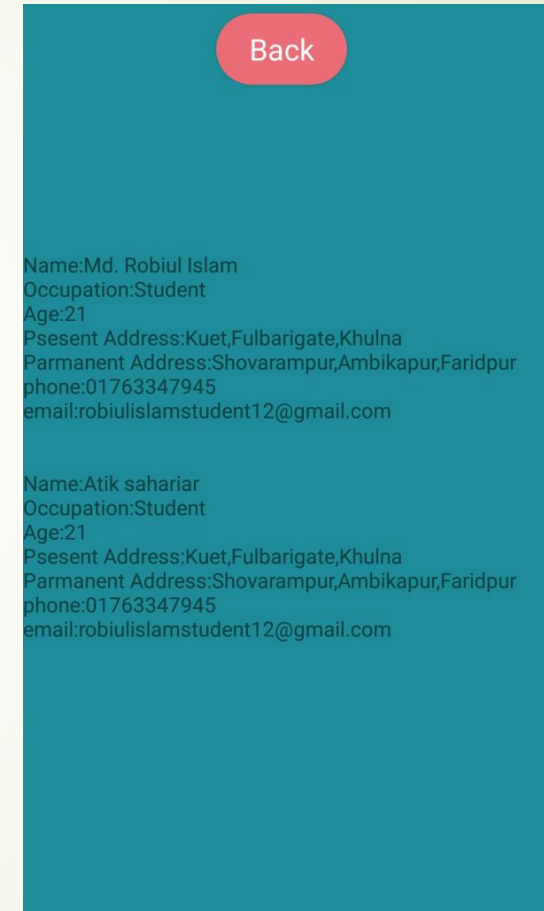
## 2. Automatic ringmode change and SMS service:



7/11/2021

# Methodology and Implementation

About Developer: This Activity shows some information about us . custom JSON file was used to parse the information from firebase.





# Challenges have been faced and Solution

- a) Adding firebase to the project.
- b) App crashing while detecting location.
- c) Not enough documentation on only Gps based location tracking and speed measurement.

# Limitations:

- a. Firebase storage (Limited).
- b. Response time delay.
- c. Valid Email verification.
- d. Username, email unchangeable.
- e. User cannot delete his/her account.
- f. GPS base tracking is not 100% accurate.
- g. Slowly moving vehicle speed can not be measured accurately.
- h. Not all phones have built in GPS chip inside.

## Future Improvement:

- a.Storage can be increased.
- b.Real time location sharing.
- c.Accident detection While driving.
- d.Auto inform family and nearest hospital upon accident.
- e.Will be uploaded on google app store.
- f.User friendly and beautiful UI.

## Conclusion:

“Safety” app is a GPS based location app that can help a user in many ways. A user can see his/her family member's location on real time. The drive mode will give the users a disturbance free driving experience thus minimizing the accident risk.

# References:

a) Head First Java

---by Kathy Sierra

b) Android Application Development All-in-One For Dummies

c) <https://firebase.google.com/>

d) <https://stackoverflow.com/>

e) <https://developer.android.com/>

# Thank You