# Development of an application to track potholes with integration of google maps API using flutter.

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**ABSTRACT**: Making an App in Flutter Framework using Dart language to increase the communication between the citizens and the government by letting the citizens provide with the locations and images of the potholes with precise coordinates which is done with the help of Google Maps API and the data is then stored in the Firebase. This data can be further used for filling the potholes.
**KEYWORDS:** Potholes, Flutter, Dart, Google Maps API, Firebase.Problem Definition

## I. INTRODUCTION

Potholes are a major crisis that are striking roads across the nation. Potholes are formed when old roads that have been used lot deteriorate, or a chunk of the road breaks off. This creates an empty area in the road that resembles a hole.

The existence of potholes and poor communication between the citizens and the government has been a problem since long. This has cause a lot of discomfort to the citizens. The existence of potholes and poor communication between the citizens and the government has been a problem since long. This has cause a lot of discomfort to the citizens.

We have come up with a solution for this problem which won't be restricted to any particular geographical location. In this App, the user is to login and upload the image of the pothole at its geographic location.

## II. PROBLEM DEFINITION

Potholes is an important issue which may even lead to accidents and hence is dangerous.

Every year India loses approximately 1,100 people to accidents caused by potholes. This situation has citizen endangered movement to address the problem.

The government has not been able to properly communicate with the citizens which is also a major issue

This has caused a lot of problems for the citizens as well as the government.

## III. DETAILS

The user interface (UI) is the point of human-computer interaction and communication in a device.

This can include display screens, keyboards, a mouse and the appearance of a desktop. It is also the way through which a user interacts with an application or a website.

Flutter is an open source UI software development kit created by Google. It is used to develop applications for Android, iOS, Windows, Mac, Linux, Google Fuchsia and the web.

Dart is a client-optimized programming language for apps on multiple platforms. It is developed by Google and is used to build mobile, desktop, server, and web applications.

By using the Google Maps API, it is possible to embed Google Maps into an external website, on to which site-specific data can be overlaid.

Firebase is a mobile and web application development platform developed by Firebase. Firebase Storage provides secure file uploads and downloads for Firebase apps, regardless of network quality, to be used for storing images, audio, video,1or other user-generated content. It is backed by Google Cloud Storage.

We are using the above technologies and languages to develop an App which will take images as an input from the user and store it in the database which could further be use.

# IV. APP WORK FLOW
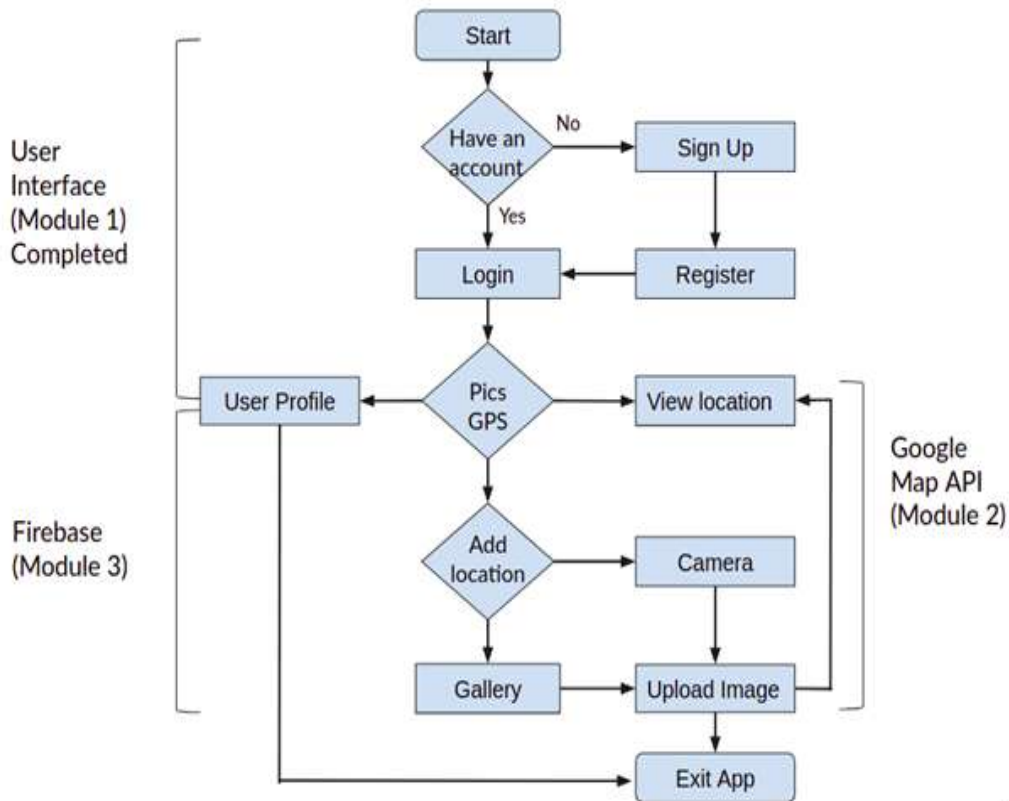


**Fig. App flow diagram**

The work flow diagram is divided into three modules.

1. User Interface - In the first module, app starts with a pop-up window which asks weather the user has an account or not. If the user has an account then they can directly login and if not then they have to sign up and register first.
2. Google Map API - In this module after the user logs in, the screen that appears is the one where the user can view the map with the location of potholes, view their profile and can add location of new potholes they have discovered and are reporting. If the user chooses to add a location of the newly discovered pothole then the user has two choice: they can either upload the image of the pothole via gallery or either by camera and after uploading the image, the user can continue or exit as per wish.
3. Firebase - This module is about integrating database to the application and other modules. In this module all the data about user and potholes can be saved on the cloud using firebase.
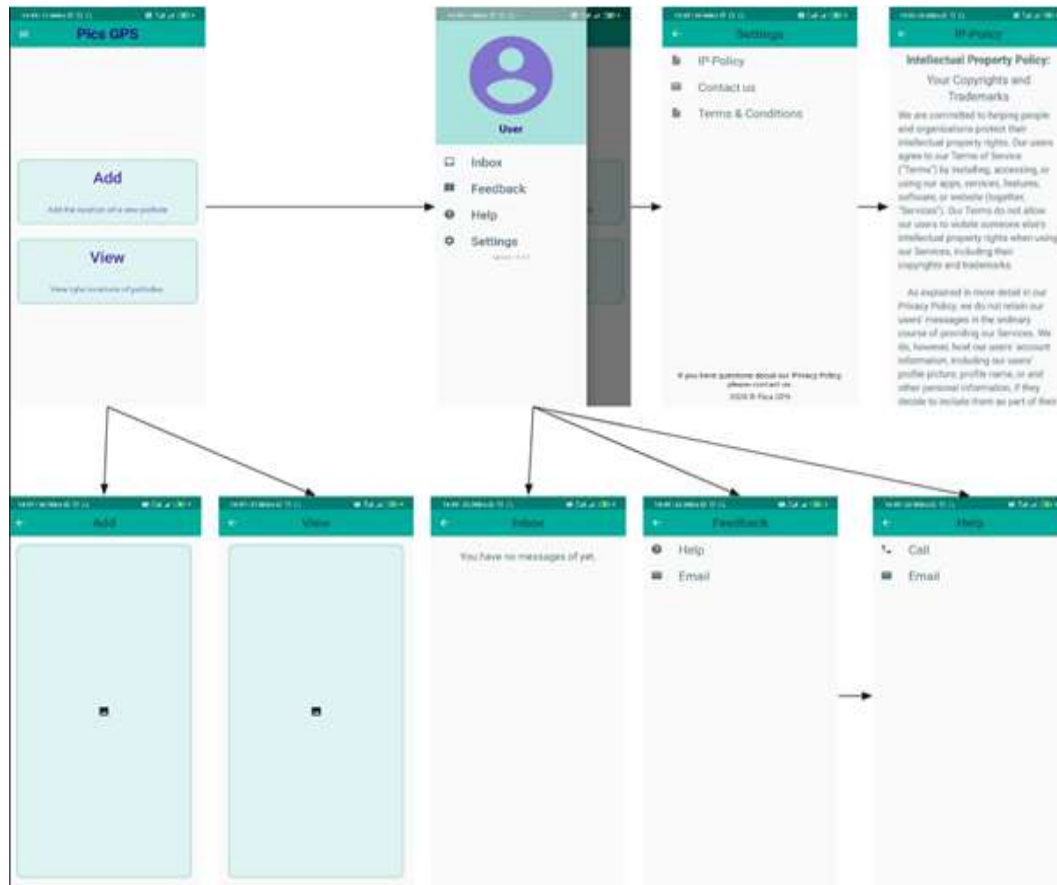
## V.  USER INTERFACE



**Fig. UI snapshot and its flow**

The above image is the screenshot of various screens of the application which illustrates the steps and the workflow.

## VI. MODULE DESCRIPTION

The project is divided into three modules:
- Module 1(Frontend)
- Module 2(Google Maps API)
- Module 3(Firebase)

## VII.    IMPLEMENTATION TOOLS

Software requirements:
- Flutter Framework
- Dart Language
-  Google Maps API
- Firebase

## VIII.    CONCLUSION

To increase the communication between the citizens and the government. To help the government with the data which will help them to tackle with this problem efficiently.

Keep the interface as simple as possible so that everyone can use it. The solution is not restricted to any specific geographic location.

### SOME OF THE ADVANTAGES FROM THE ABOVE RESULTS

a)Increase in communication between the citizens and the government.
b)It helps to collect this data which will help tackle with this problem efficiently.
c)The user interface as simple as possible so that everyone can use it.
d)The solution is not restricted to any specific geographic location.

### REFERENCES

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