LocateCab AJCE - Car Pool Service and Architecture development using Flutter and Firebase

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Abstract - *Every other day in India, there is a new start up offering efficient cab service to the citizens operating in urban and rural lifestyles. In this project, an attempt has been made to make the transportation effective. If each person began to take a single vehicle, number of vehicles on the road increases which thereby increases atmospheric pollution and wastage of fuel which is depleting day by day. The solution for this problem is our proposed system Locate Cab. Locate cab is very similar to Uber which was used for taxi services and was successful in delivering the output connecting taxi owner, taxi driver and the passenger. The proposed system uses a similar architecture for providing lift service to all members of AJCE with better technologies. The objective of the proposed system is it will provide easy transport for students and staff for the morning and the evening and useful for hostelers during their journey from college to home and vice-versa and also for staff who uses private vehicles can provide lift to the students or staff.*

Key Words: — **Cab Service, Car Pooling, Dart, Flutter, Google Maps**

1. INTRODUCTION

Flutter is an open-source mobile app development framework created by Google. This is used to develop applications for both Android and iOS, as well as being the primary method of creating applications for Google Fuchsia. The first version of Flutter was known as the "Sky" and ran on the Android OS. It was unveiled at the 2015 Dart developer summit, with the stated intent of being able to render consistently at 120 frames per second. During the keynote of Google Developer Days in Shanghai, Google announced Flutter Release Preview 2 which was the last big release before Flutter 1.0. On December 4th, 2018, Flutter 1.0 version was released at the Flutter Live event, denoting the first "stable" version of the Framework.

With the passage of time, there occurred many innovations in every field of life. Same is the case with conveyance industry in which new taxi service have made the journey of people very plain sailing.

The main problem faced and to be tackled is that students and staff travel in same directions in different vehicles and they experience huge rush in weekends, many travels alone with free seats and if each person began to take a single vehicle, number of vehicles on the road increases. This leads to increase in atmospheric pollution and wastage of fuel. In order to tackle this issue, an effective solution is the proposed system Locate Cab.

2. RELATED WORK

Strides towards enhancing the cab facilities have never taken the halt, efforts in the fields of online cab booking, cab team formation, efficient functioning of cabs have led to the discovery of more valuable research works and implementations in this field.

Cab Rental Services in India has become an extremely popular and important business. With the ever-expanding distances and the need to connect the country end-to-end, over the past decade, more and more Cab Rental Service providers have entered the market. For personal and professional purposes inter-city and intra-city cabs are available. It helps people with efficiency and comfort.

Meru Cabs was one of the first firms to launch me-tered "Radio Cabs" in India under its "Meru" brand. Meru Cabs was first launched in Mumbai in April 2007 and has grown exponentially in terms of fleet size and geography In a well-equipped, air-conditioned cabin, which is readily available 24/7, customers benefit from a relaxed commute. The printed receipt at the end of the ride assures the customer of tamper proof billing. Headquartered in Mumbai, Meru Cab Company provides a radio taxi service in the four key metros of India – Mumbai, Delhi, Hyderabad and Bengaluru. Meru Cabs delivers a reliable taxi service by concentrating on each touch point with its customers and devising systems, processes or technologies that will deliver a reliable interface.

Mega Cabs, India's finest metered radio taxi service, has the largest taxi network in several cities It provides comfortable, well-served, air-conditioned cars with a polite,

efficient wheel driver. Mega Cab prides itself in being the first taxi operator in India to introduce computerized communication & dispatch systems with GPRS based GPS.

Exploring Global Positioning System (GPS) fields on integration with the nearest coordinate or associated method. Moving on to Hao Wang's idea of chaining trips where each pick-up point is selected using a customized pick-up and delivery algorithm that results in a coincidence with the pick-up location

In this paper, we propose the basic cab approach exclusive for Amal Jyothi College of Engineering using Flutter which can be executed both on Android and iOS. Dart is an object oriented, class defined, garbage collected language using a C-style syntax that transcompiles optionally into JavaScript. It supports interfaces, mixins, abstract classes and static typing.

3. PROPOSED SYSTEM

In this proposed system we mainly focus on reducing the effort of students who experience huge rush in weekends after class and also to decrease the increase atmospheric pollution and wastage of fuel which is depleting day by day. There is an increased number of vehicles on road and thereby creating huge rush.

The working of the system is like the host will be marking their current location as well as mark the destination to be reached. This information of the host will be pushed to the database Firebase and the marker will be pinned in the map. The receiver on the other hand, will also set his location on the map. The host travelling through this route checks whether there is anyone along that route who has added a marker, and if found by clicking the marker the details of the receiver will be shown and the host decides whether to pick them up or not based on the location.

The drivers are required to be registered on the application and they are also required to provide all their information so that the students and staffs could be provided with the services they need effectively and efficiently. On the other side, it is also the condition that both stakeholders are required to be online for getting the most advantage of the application.

The quality is the first and foremost requirement that the people are looking for. There is always a dire need to find out the quality in the product or the service which is a basic need. The proposed system has all the qualities the customers need. We focus on quality factors such as confidentiality so that the details regarding the people travelling are secured. All the personal details are being pushed to the database and authenticity is assured which makes the proposed system more efficient and a user-friendly application.

5 Implementation

Implementing the project was done on two sides – server/database integration and app integration.

5.1 Database

For database, Firebase is being used. Firebase provides with easy, scalable solutions. Firebase is a platform that will allow you to develop android apps quickly. It offers a number of different services built-in, including some basic analytics. For this project, Firebase Auth and Realtime Database is being used.

Firebase Auth is being used to to keep a record of users and to authenticate them. Whereas, Firebase Realtime Database is used for storing the information such as location and other details of both the receiver and hosts in separate structures.

5.2 User Side Application

The user side application consists of a beautiful flutter-built application, which can be used on both iOS/Android. The app is easy and and intuitive to use. After successful login, the user can choose to be a host or receiver.

If he chooses to be a receiver, all he has to do is to set his location on the map and destination and wait till a host accepts him.

If he chooses to be a host, he has to input his vehicle details. Upon entering the details, he will be able to view the available receivers' location on the map as a marker. He can then choose whether to accept them or not.

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6. Conclusions

The proposed system, when implemented will definitely have a big impact on reducing pollution. It will also help in a host to fill up his empty seats, thus being more eco friendly.

As a future scope, a money-based implementation is being looked at – so that more people might take in their cars and the hosts have some monetary benefits as well. A driver ranking is also in the works.

REFERENCES

[1] Pallavi G. B, "A Survey to Justify the Need for Carpooling", International Journal of Soft Computing and Engineering (IJSCE) May 2015.

[2] An Android Sweta, Sushmitha Reddy I, Maddipatla Mounika, Priyanka Agrawal, based application: Cab pooling, International Journal of Advanced Research in Computer and Communication Engineering Vol. 5, Issue 3, March 2016

[3] Flutter and Firebase- https://medium.com/flutter-community/simple-recipes-app-made-in-flutter-firestore-f386722102da