

# Android Application for Fleet Management System

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**Abstract** – In today's world, technology and smart-phones are playing a very important role in rich user interface and user experience. There is the need of great customer service and satisfaction and also the minimization of the operational costs which is required for the courier handling is important at the same time. Another important aspect is to maximize the profits of the business sectors and logistics in a less time. Taking this into consideration, we have taken an initiative to make an application for fleet. What is fleet? It is an administrative approach which aims to improve the efficiency of the fleet by taking them from source to destination; reduce costs; driver safety management; managing the fleet databases and information and hence maximizing the profits. It is widely used in logistic company, warehouses, organizations and various firms. The important aim of developing this application is to provide the higher accuracy with simple UI design.

**Key Words:** Android Fleet, Logistics, Fleet Tracking, Transportation of Fleet.

## 1. INTRODUCTION

The operation of a fleet now includes the management of vehicles, routes and workers using a variety of technologies, including vehicle tracking and route optimization, and allows fleet operators to track vehicles remotely using realistic maps and views generated using GPS data. It increases the fleet management efficiency by reducing the workload and the transportation costs.

The reason why we are implementing the fleet management application is to increase the accuracy and minimizing the manual tasks and everything will be done automatically. The managing of the fleet is the challenge and the incorporation of the fleet makes it so simple and efficient to use. The management of the fleet also increase the massive business profits. It will also improve the fleet safety and automated fleet reports and hence provide the best service.

## 2. LITERATURE SURVEY

As we had done many survey based on various fleet management and real time tracking system there we come out through various problems like managing a fleet is an very tedious task. Also the maintenance cost is more and this leads to customer dissatisfaction. The badly performing delivery is a very big challenge for the

organization. This deals with the various risks in the fleet management system.

In [1], A case study of fleet management system implemented in Kenya power & lighting company Limited reviewed accentuates the many challenges encountered in the transportation process including the increase in congestion; lower costs; improved customer service; heightened terrorism/theft/security issues. The review also examines both the historical development of transport fleet management systems and certain proven research concepts and applications in the field of GPS technology used in this study. There are many challenges facing organizations that manage fleets or a mobile sales force as well as field service organizations. These challenges include improving compliance, reducing costs and improving customer satisfaction. As a result, fleet management systems are perceived in terms of how efficiency and profitability can benefit companies. The increasing competence in the market is an important factor that drives the adoption of new technologies and innovation.

In [2], for humanitarian organizations it is beneficial to have a large fleet of small vehicles, since it improves the efficiency and equity of aid operations. However, the operation and coordination of large fleets can be difficult for logisticians in the field (Huang, Smilowitz, and Balcik 2012). There are increasing efforts to develop and implement good software for the management of large-scale fleet operations in the humanitarian sector. Such software is currently mainly used for tracking, monitoring and reporting purposes, but there are no modules supporting operational decisions, for example based on the cost of the fleet. Routing and delivery scheduling decisions are made mostly according to the insights and experiences of the logisticians" (Huang, Smilowitz, and Balcik 2012, 16).

In [3], By implementing GPS systems as part of already established processes, companies can reduce costs and create greater customer satisfaction. GPS has become a "trade tool" for logistics management in trucking companies. GPS devices gave managers more accurate estimates of both the time of arrival and the time of delivery of goods to the customer. As part of logistics management, fleet management can be a practical tool for managing a vehicle fleet to improve scheduling, operating efficiency, and effectiveness.

### 3. OBJECTIVE

- a. Data driven fleet management: Our main objective is to maintain the data of the fleet securely which will be stored in the firebase which is no sql database and can be easily accessed according to the need.
- b. Customer service: The second objective is to provide the customer service and satisfaction and to securely reach the user fleet from source to destination.
- c. Effective management: We are providing the effective management of the fleet and also optimize the route and crisis management.
- d. Reporting: To store and retrieve the customer details and to prepare the automatic generated report for the fleet and there is no human intervention

### 4. EXISTING SYSTEM

According to the survey we have find some existing system such as Fleet-igo and track wise fleet management system which is not performing good and have the following disadvantages such as high cost of logistics, inaccurate reporting, no customer satisfaction, old technology does-not support growth, and also its not scalable.

### 5. PROPOSED SYSTEM

In proposed system, we are going to eliminate the drawback of the existing system and thus provide the good user interface for the customer satisfaction. In this we are implementing an android app in which user registers and login in his account and he/she is able to enter the fleet(in kg) and he/she will enters his respective source and destination and enter. Fleet manager will get notification and app will automatically assign driver for the particular user who wants to transfer his fleet from source to destination. It is done without any human intervention this the main advantage of the system. After assigning the driver to the particular user; map will be on both sides customer as well as fleet manager side because they will keep the track of the fleet from source to destination and also according to GPS coordinates it will also optimize the routes. After reaching the fleet into destination driver will send the notification to the fleet manager and user and automatic report will be generated and stores into the database. This will be done using Google maps api, android studio, firebase for authentication and data storage which will be explained in the methodology.

### 6. METHODOLOGY

We are going to use android app as front end then Google maps API for tracking and firebase to store the database which is no SQL database. We are implementing a sequential software development model for the project.

### 6.1 Android Application

It is the front end application which will be used by the user and driver and having a good user interface which id developed by IDE called android studio which will be installed in mobile.

### 6.2 Google Maps API

It is the application programming interface which is developed by Google which will be imported in android application and mainly this API will used for tracking purpose. With this SDK we can add map in our application and it automatically handles the data by using the Google Servers and based on those data it will display the map show the markers on map for real time tracking. We can also the change of user view of the map according to the data.

### 6.3 Firebase

It is backend as a service which is developed by the Google Cloud Platform and it is the NoSQL database which can be securely accessed anywhere and also used for the hosting purpose. It is the file storage authentication for the android application and also it has additional advantages such as crash, notifications and importantly it is highly scalable and reliable so this are the main reasons behind we are using the firebase for data storage but internet connection is required for it. Data is synced across all clients in real-time, and remains available when your app goes offline. The **Firestore** Real-time Database is a cloud-hosted database. Data is stored as JSON and synchronized in real-time to every connected client.

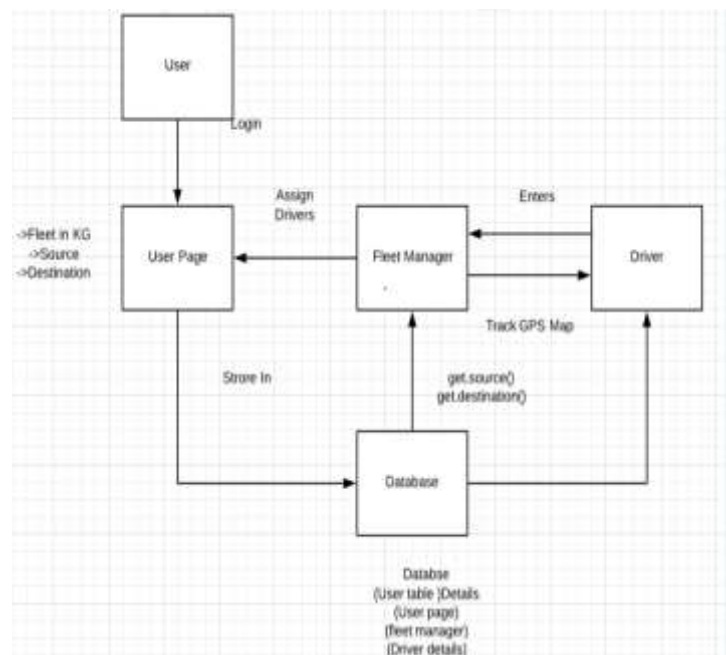


Figure 1-Overall Flow of Project

## 7. APPLICATION

- a. Logistics, Cargo, Distribution, and Transportation: - Fleet management.
- b. Rent a Vehicle Firms: - Monitor the vehicle in agreement terms.
- c. Working Vehicle: - Monitoring vehicle which project they are working.

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## 8. CONCLUSION

If you own a fleet of vehicles, you know how difficult it is to manage and achieve the optimal performance in the business. Moreover, there can be a list of challenges, including uncontrolled fuel consumption, inappropriate usage of vehicles and high drivers' turnover.

However, without fleet management software and its several features in terms of the mobile app, you as a business owner can't imagine controlling challenges like your team's tasks and vehicles of your fleet. Thus developing this application we can have a big change and improve the asset management, and benefits to the city and the staff and hence provides the BEST service.

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