MOBILE GPSTRACKING: ISSUES AND CAUSES

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ABSTRACT

In this study, the issues and causes related to mobile GPS are examined and analysed. Mobile GPS allows the users to navigate through the areas in which they wish to travel. The Global Positioning System (GPS), originally Navstar GPS, is a satellite-based radionavigation system owned by the United States government and operated by the United States Air Force. It is a global navigation satellite system that provides geolocation and time information to a GPS receiver anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. Obstacles such as mountains and buildings block the relatively weak GPS signals.Hence we are going to analyse GPS for applications UBER and OLA[1]

Keywords: GPS, Mobile GPS,GPS receiver

1.INTRODUCTION

1.1 Android GPS Positioning Technology

1.1.1 GPS System

The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. Satellites, ground control system and receivers comprise GPS system. There are 24 artificial satellites, 3 of them are back-up. All these satellites spread evenly on the orbit centered on earth.[2]

Every satellite sends out radio signals of 2 ratio returning earth for the receivers to locate; ground control system includes a primary control station and four monitoring stations. The main task of ground control system is to monitor the status of satellite on operation, and to analyse the deviations and changes of data to compute the error and send the rectified data to satellite. The receivers locate the wires via catchers.

The GPS does not require the user to transmit any data, and it operates independently of any telephonic or internet reception, though these technologies can enhance the usefulness of the GPS positioning information. The GPS provides critical positioning capabilities to military, civil, and commercial users around the world. The United States government created the system, maintains it, and makes it freely accessible to anyone with a GPS receiver.

To compare the GPS issues and causes, we are comparing OLA and UBER GPS to analyse.

1.1.2. OLA GPS-

The global positioning system (GPS) is a network of satellites that orbit the earth and send a signal to GPS receivers and Navigation devices, giving them the precise location, speed, and if you are in an aircraft or up a mountain, altitude.

Ola cabs app basically uses your GPS location to find the cab nearest to you. The Ola cab drivers would also have the same app installed which will track their position and send this location to the users.

There is no separate GPS device installed in the car except the driver's smartphone.

Additionally, Ola cabs allow its passengers to share their real-time information of their rides with anyone by sharing a link that tracks the cab on a map.

1.1 3. UBER GPS-

The ride-sharing service Uber has always focused on riding the cutting edge of technology to stay ahead of its incumbent predecessors and competition. Uber driver tracking GPS on drivers' phones is proof of the value of measuring driver performance for businesses.[3]

Uber's service is built around their smartphone app used by both drivers and customers, which gives them an opportunity to collect GPS, gyroscope and accelerometer data during Uber trips. Data is constantly collected during trips and sent to Uber's servers for processing and long-term storage.

Uber sends drivers comparative reports on their driving habits by analysing the trip data for rapid acceleration, harsh braking, speeding, or dangerous cornering, but also stores data to find long-term driver- or location-specific trends.[4]

2. METHODOLOGY

2.1UBER and OLA comparison

Common issues in UBER and OLA

2.1.1 Location accuracy

UBER has navigation issues like showing wrong locations, displaying wrong drivers' location.

2.1.2 Mapping

Mapping problem in these applications refers to showing wrong maps. Maps displaying in these applications takes more than normal time to display.

2.1.3 Graphics

Ola andUber has graphics issues like screen resolutions,zoom etc. This leads to users uninstalling the applications.

2.1.4 Movement of Cabs

It will not show the cabs moving sometimes. Due to this problem, users get confused.

2.1.5 Time accuracy

Time required to reach destination varies. That is very hectic for users to identify how much exact time they will require to reach their desired destination.

2.1.6 Route accuracy

Sometimes the route displaying aredifferent.This causes problem for users to find out correct routes.

2.1.7 Google maps

Comparing with google maps, these maps fail to display proper locations.

2.1.8 Power consumption

Battery percentage of the mobile gets drained drastically while using these applications.

2.1.9 Load time

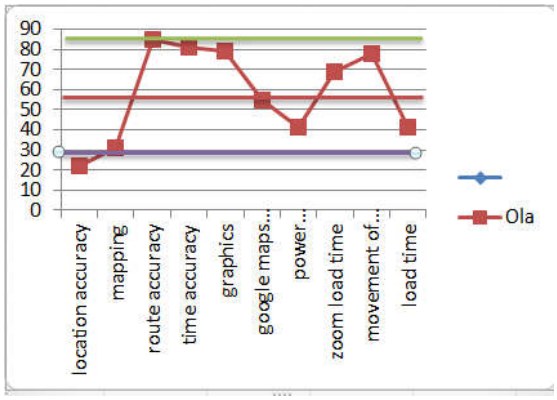
The screen will take more than normal time to display and load all the graphics on the screen.

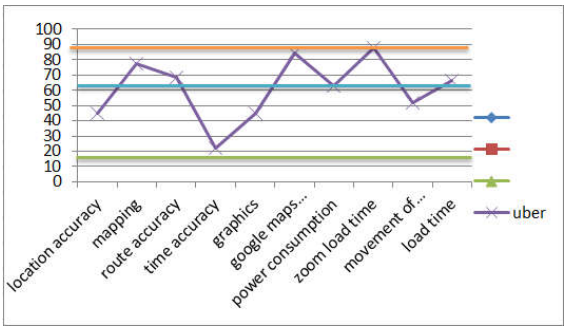
2.1.10 Zoom load time

Zoom load time refers to the time it takes to load a screen when user zooms in the camera to see the map. Sometimes the application takes time to zoom in.[5]

3. ANALYSIS

conditions	Ola
location accuracy	22
mapping	31
route accuracy	85
time accuracy	81
graphics	79
google maps comparison	55
power consumption	41
zoom load time	69
movement of available cabs	78
load time	41





conditions	uber
location accuracy	45
mapping	77
route accuracy	68
time accuracy	22
graphics	45
google maps comparison	84
power consumption	63
zoom load time	88
movement of available cabs	52
load time	66

CONCLUSION

To test the performance of both the applications, we performed the tests based on the given conditions. From those conditions,we have plotted two graphs for both the applications.In UBER all the points are within the UCL and LCL.But in case of OLA, one point is lying outside LCL. Hence we can conclude that in OLA GPS issues like location accuracy and mapping are major issues and they need to be repaired.

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