LIVE BUS TRACKING AND SMART TRANSIT

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ABSTRACT

In rapidly developing urban communities, open transport is the significant methods for every day transport among nationals. Gigantic downsides of transports as a method for open transport are gagging activity, breakdowns, mishaps, and so on. This outcomes in less than ideal or no entry of transports which frustrates representatives, understudies, specialists, who exclusively rely upon transports to achieve their work goal. The proposed framework takes care of the issue with a straightforward yet productive arrangement. A large portion of the urban communities have just introduced smart gadgets and GPS trackers on transports yet because of poor organization they are not used totally. In proposed framework, such smart gadgets and trackers are utilized to refresh the continuous area of transports on a focal server after determined interim. A traveler enters begin and goal transport stops of his expected course and he is given ongoing area of transports on the planned course either on a dynamic guide in a portable cordial web application. This will make the suburbanites mindful about the entry of their coveted transport for all intents and purposes and enable them to take a judicious choice.

Keyword: - *Live Tracking, Public Transport, Location Tracker, Smart Transport, GPS, IOT.*

1. INTRODUCTION

Today's generation is the generalized "smart generation" as it includes smart gadgets, smart vehicles and even smart cities. In this paper we have contributed our efforts to this 'smart' generation by proposing "Smart Transit", a new take on public transport by using a unique system. Due to increasing population, the traffic in major cities is the main problem which occurs to the common man. Mostly in major cities, managing public transport is a huge issue as there are thousands of buses running live. Because of this, the common man is reluctant to use public transport as it never really is reliable. What if public transport would be reliable and the commuters would not have to stand on the bus stops waiting forever for the desired bus to arrive? This is our proposed system where the commuters would know the exact location of his/her bus and would plan his commute accordingly based on the estimated time. There are many previous systems proposed but every such system had some drawbacks. Many such systems were based on time based model so they weren't accurate, our system uses location based model which is much more accurate. We are proposing this system keeping user experience and user convenience in mind. Along with location retrieval there are many more features which would be implemented in the system such as report rash driving, wreckage reporting, traffic density, etc.

2. LITERATURE SURVEY

For open transport following numerous plans have been proposed and executed. On account of execution or on account of the framework outline all proposed techniques and usage are one of a kind. For following an open vehicle either a smart gadget is mounted in the transport or a GPS module is introduced. The keen gadget gives numerous other extra highlights. The brilliant gadget gives area following component which is utilized to manage the driver and in a few outlines to indicate travellers the following stop data. Notwithstanding, it is extremely uncommon that the area data of transport is accessible to open on a versatile stage. Propelled from this, we have chosen to have a android device mounted in the public transport vehicle which would send its co-ordinates directly to the server.

3. PROPOSED SYSTEM AND FEATURES

For open transport following numerous plans have been proposed and executed. On account of execution or on account of the framework outline all proposed techniques and usage are one of a kind. For following an open vehicle either a smart gadget is mounted in the transport or a GPS module is introduced. The keen gadget gives numerous other extra highlights. The brilliant gadget gives area following component which is utilized to manage the driver and in a few outlines to indicate travellers the following stop data. Notwithstanding, it is extremely uncommon that the area data of transport is accessible to open on a versatile stage. Propelled from this, we have chosen to have a android device mounted in the public transport vehicle which would send its co-ordinates directly to the server.

4. FRAMEWORK

The system primarily consists of 3 basic modules: Main Server, Vehicle Client and Passenger Client.

4.1 Main Server

The principle server monitors all transports by keeping up a database of their real time locations. Each record of the database is a characterized transport course. It has traits like course number, number of live vehicles (n) and n vehicle objects. Every vehicle question has properties like name and current area. Each time the vehicle customer reports area after determined interim, the server program checks for vehicle question in a course record. In the event that found the server program coordinates the vehicles present area with the announced area. On the off chance that the revealed area is refreshed, the section for the specific vehicle is refreshed in the database. Thus by monitoring detailed area the server additionally recognizes rash driving conduct, course thickness, destruction and even mishaps.

4.2 Vehicle Client

The vehicle client is a portable application which utilizes GPS tracker to get its ongoing area through GPS satellite. The portable application is modified to report the area after each n seconds. Estimation of n can be characterized by client. This application administration can began or ceased anytime of time if the client wishes to. Once this administration is begun the application builds up a TCP/IP association with the server. It sends its present area to the server after each n seconds. The server confirms the approaching report, dissects it and makes comparing move.

4.3 Passenger Client

Out of these three this model is the simplest. The goal of this module is to provide user an interface for tracking vehicles on the queried course. This application is a simple JavaScript Web App which displays the real time location of every vehicle on the queried route on Map. The application form sends requests to the server after given interval and updates the location on the map accordingly. Thus, a user can estimate the appearance of bus practically and can confirm (when there may be any wreckage or accident that might delay the arrival.)
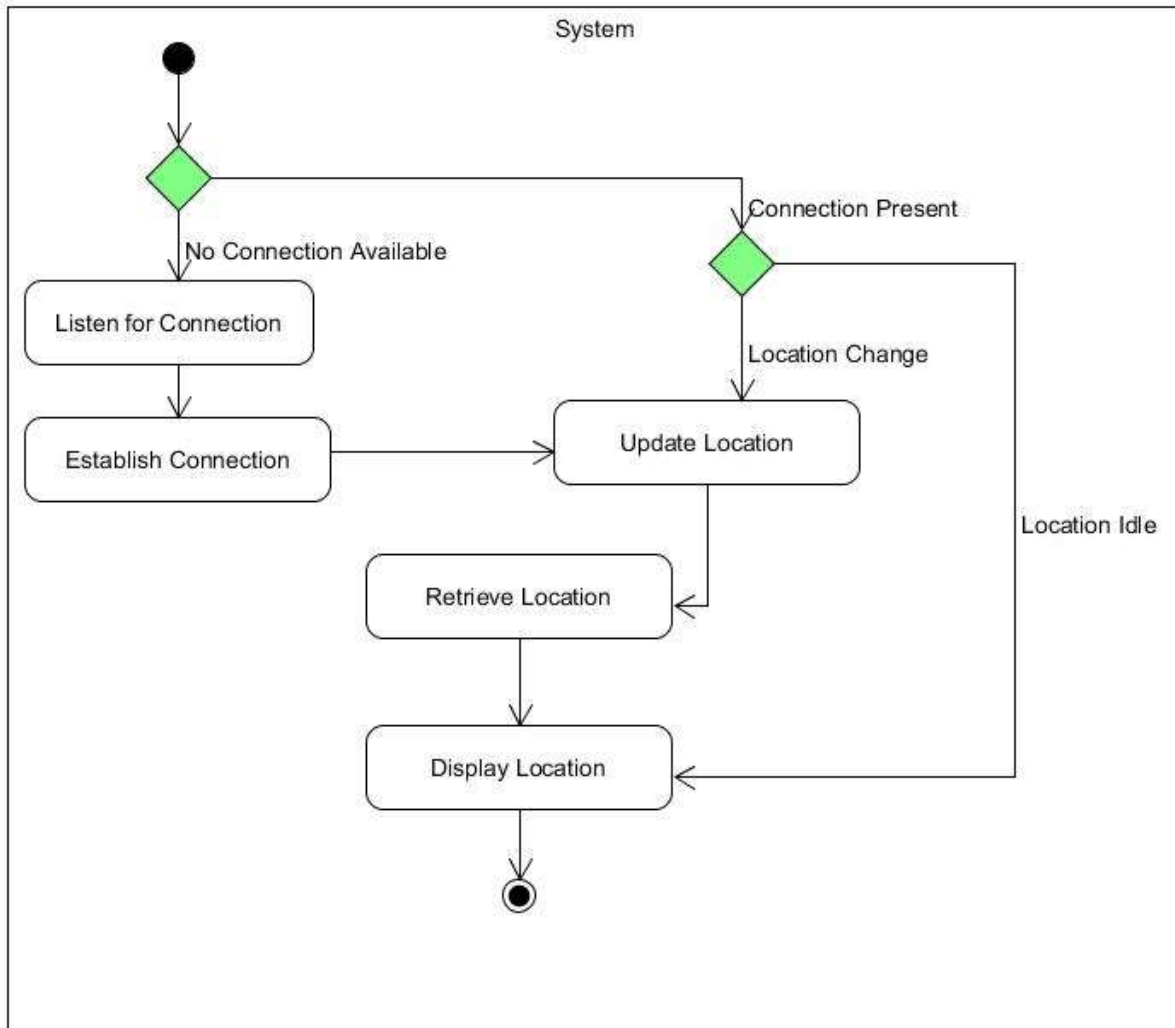.

5. ALGORITHM

Fig -1: Algorithm

6. WORKING

In this paper GPS based vehicle following/route framework is executed. This is done by bringing the data of the vehicle like area, distance, required time and so on by utilizing GPS. The data can be changed with the accompanying highlights: The data of the vehicle like location is acquired continuous or after each predefined time interim characterized by the client. At that point this occasional data of area is transmitted to observing/following server. This transmitted data is shown on a web application for the suburbanites by utilizing the google maps API.
The system is useful for open transport vehicles, for example, transports and taxicabs, it gives tele-checking and administration framework for the transportation of open transports inside the city. The framework specified comprises of an on-board module which is mounted in the vehicle which is to be followed. This on-board module comprises of Global Positioning System. The route message which is communicated by the GPS position satellite is received by the receiver and then transferred to the server. The server then processes the information and gives the required output to the querying user client. The user receives the data with the exact location of his/her intended bus and can plan his commute accordingly.

7. SYSTEM REQUIREMENTS

Table -1: System Requirements

CENTRALIZED SERVER	MOUNTED BUS CLIENT	PASSENGER CLIENT
Mid-Level Rack Mountable	Android 5.0+	Browser with JavaScript Support
2.5 GHz CPU	GPS Sensor	
4 GB RAM	TCP/IP Support	
500 GB SATA HDD	1.5 GHz CPU	
Java Runtime Environment	1 GB RAM	
MySQL Server	4GB Storage	

8. BENEFITS

The proposed system has many benefits. As discussed above, it helps the commuters to reach their destination on time and encourages public transport. For the proposed system, the service provider has to buy computers, servers which cost a lot and is a huge investment and has a high benefit of return in major cities.
Also the proposed system could be implemented in many different applications other than public transport such as ambulances, food delivery services, raw goods tracking, industrial equipment tracking, etc.

9. RESULTS

Table -1: Input Table

Input Type	Source	Destination	Route Number
1	Empire State Building	Central Park	2
0	One World Observatory	Upper East Side, Manhattan	3
1	Flushing, Queens	Brooklyn	1

Table -2: Output Table

Number of running buses	Latitude	Longitude
3	1.2035	18.0325
	2.15695	20.1574
	1.5648	16.2645
2	3.1255	23.5656
	1.0564	22.3565
2	4.1265	26.2135
	3.2156	23.8746
1	1.9876	26.4529

10. CONCLUSION

The proposed system is more reliable than the traditional time based system. It encourages the people to use public transport as it is cheaper than private transport and if managed fine would be more convenient than private vehicles. It would reduce traffic which would in turn reduce pollution and save more renewable fuel which would boost the nation's economy.

11. ACKNOWLEDGEMENT

12. REFERENCES

[1] Ruipeng Gao, Mingmin Zhao, "Smartphone based Real-time Vehicle Tracking" Lalitpur, 2017.

[2] Pankaj Verma, J.S Bhatia, "Design and development of GPS-GSM based tracking system with google map based monitoring," International Journal of Computer Science, Engineering and Applications.

[3] Anuja Agarwal, Neena Goel, "GPS-RDS enabled location based smart transit", 2009 13th International Conference on Intelligence in Next Generation Networks.

[4] M. Zhao, T. Ye, R. Gao, F. Ye, Y. Wang, and G. Luo, "Vetrack: Real time vehicle tracking in uninstrumented indoor environments," in ACM SenSys, 2015, pp. 99–112.

[5] N.Thilagavathi and G.N.Mallikarjuna Rao, "GLOBAL POSITIONING SYSTEM IN TRANSPORTATION PLANNING", The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Vol. 34, Part XXX.

[6] Süleyman Eken , Ahmet Sayar, "A Smart Bus Tracking System Based on Location-Aware Services and QR Codes".