

Smart Bus System

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Abstract

In the daily life cycle of work in bus system, the many problem face by system due to this is affected to traffic congestion, delays, irregular bus dispatching times, the increased waiting time make public transport unattractive for passengers, the smart bus system uses different technologies to track the location of bus in running time and by this information to prediction of bus arrivals time at bus stops, when this information is send to passengers by internet or any wired and wireless media, they can plan their time efficiently and reach the bus stop just before the time or take alternate option for transport if the bus is delayed. However the passengers can also check the crowd in bus, seats availability.

These days the traffic get more and more, most of the people drive the vehicles very fast, the number of accidents due to rash driving in the city has nearly doubled in the last five years. Proposed system maintain rush driving report and send to administrator driver by SMS, get notification to notify delays and changes in bus schedule, and fuel consumption monitoring for analysis also done. Bus driver stop or not at authorized station it also detect, this will make the public transport system competitive and passenger friendly. The use of private vehicles is reduced when more people use public transit vehicles, which in turn reduces traffic and pollution.

Keywords: Android, IOT, GPS, Java, Kits, Database languages and well knowledge about sensors.

I. Introduction

In daily life, Many problems face by people due to traditional bus system. So to overcome these problems proposed system provides the solution. Status of bus will be checked by administrator and passengers will also have information of the same by Android Application. Proposed system also have features like to keep a check on seat available in buses and the report of rush driving due to which the accident could be minimize. Complain box will be provided in proposed system. Complain will be register to administrator if the bus misses the bus stop.

Need of The System:

To make passengers satisfied with the buses and the journey. To minimize the problem they suffered due to previous traditional bus system. To keep track of bus location to do that passenger will know where the bus is exactly and could plan accordingly. To prevent accident rush driving percentage is calculated. Passengers can check vacant seats are available or not. Complaint box will provided, to avoid the inconvenience which passengers suffered earlier and make them reach their destination without any delay and problem..

II. Literature Survey

2.1 History:

Bus is Common medium to travel one place to another place, Bus service is available everywhere for passengers and there are many android applications in market for bus system. In some application only schedule of bus are there, and other application specially for reservations.

Traditional System Android applications:

2.1.1 M-Indicator:

[1] In big cities like Mumbai, Pune M-indicator is an android application M-indicator provides information about Railway and bus system. it shows the details about train counts, daily trips, number of station and time table etc.

Features in m-indicator:

- Timetable of trains, metro rail, mono rail, buses and ferries.
- It also shows the Information about picnic spots in the Mumbai, hotels, hospitals and movie and drama theatres.
- It shows the real time information of trains.
- Playing of audio-visual messages from railway police.

Drawback of M-indicator:

- Not track to buses.
- Booking are not available.

2.1.2 APSRTC android application:

[4] Andrapradesh state road Transport Corporation(APSRTC). Used by andrapradesh state, for online booking this application is used.

Disadvantages of Traditional System:

- Only timetable available.
- No real time tracking bus.

2.1.3 Red Bus:

[2] This is the most user friendly application, there are many options are available in this application like online ticket booking, view seat layout, book seat as per requirement etc. In a series of industry leading features, redBus provides navigation to bus boarding points, real-time tracking and information.

III. Working

- Tracking to Buses: proposed system track buses via two methods, one is by GPS, from this we detect the exact location of bus or by manually in this, driver give the status of bus by touch panel device.
- Seats Availability: The Ticket machine connected to IOT device, by using collected data,system can calculate crowd in bus.
- Report of rush driving: On the basis of bus speed, we maintain one graph ,by analyzing graph we detect rush driving.
- Complaint box: RFID tag are set in Bus stop and vehicle, when bus driver stop the bus at any bus stop then bus and station RFID tag connected each other,it means that bus driver stop at station, by this we find bus stop or not at station.
- Fuel monitoring: how fuel is consumption by bus is detect by sensor.

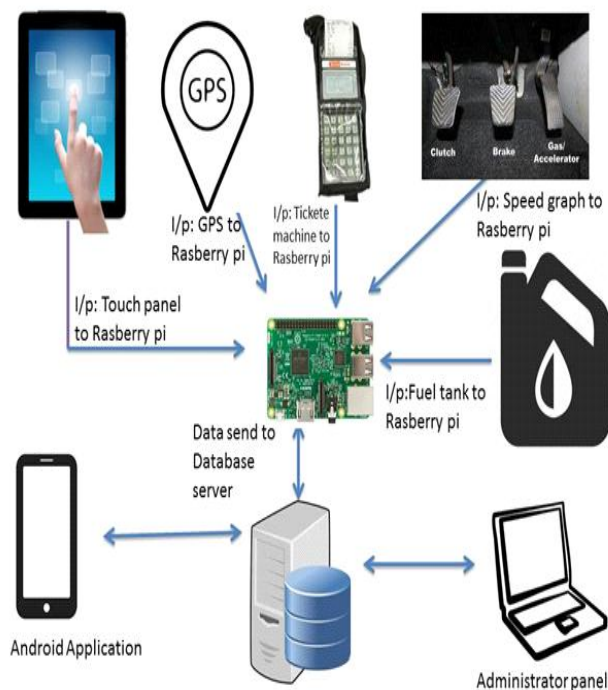


Fig:1 System Architecture

Technology used in Bus System:

- Touch panel: Touch panel is used for giving input to IOT device.
- GPS sensor: This sensor is used track bus location.
- Ticket Machine: This mechanism is used for ticket printing generating data of ticket.
- Arduino kit: This part is the heart of the system, The all other component of system is connected with this kit.
- Database server: database server is used for maintaining data of bus system.
- Fuel Tank: fuel tank of bus send status of fuel to IOT device.
- Android application:Android Application For User as well as Administrator.

IV. Mathematical Model:

$S = \{I, O, P, C\}$

Where,

I = Input

O = Output

P = Process

C = Constraint

$S = \{I1, I2, I3, I4, I5\}$

I1= Gps connected to IOT device

I2= Touch panel to IOT device

I3= ticket machine connected to IOT device

I4=digital graph maintain in database

I5=RFID tag for bus stop bus connectivity

$S = \{P1, P2, P3, P4\}$ P1=find location by using GPS touch

Panel.

P2=checking seat availability by ticket machine.

P3=by analyzing graph find rash driving.

P4=checking take halt at authorized bus stop or not.

$S = \{O1, O2, O3, O4\}$

O1=customer can check live status of bus from android application.

O2=customer can check seat availability on bus from application.

O3=rash driving identification notification

O4=identification of bus is take halt of authorized bus stop

Or not.

$S = \{C1\}$

C1=proper connection between IOT devices input devices so that further process can take place.

IV. Conclusion

In this project, the partial implementation details of live status of bus and current available seats are stated. The touch panel and GPS through the current location of all the buses and estimates their arrival time at different stops in their respective routes. Estimates are updated every time the bus sends an update. It distributes this information to passengers on smart phone application which is android based. This research serves the needs of passengers, vehicle drivers and administrators of the transport system.

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