

Real Time Bus Tracking And Controlling System

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Abstract

This paper presents prototype implementation of Real Time Bus Tracking and Controlling System which is an android based system. This system will help to identify the current location of a bus and it will provide to the passenger over his/her hand held device. This system can also provide the bus schedule in a specific route. It is a GPS & GSM based system. It can also calculate the approximate number of passengers inside the bus and it is done by IR line of sight which is located at the bus door. This system will effectively assist pedestrians in making the decision of whether to wait for the bus or walk.

Keywords: Live bus tracking, Passenger count, Fire detection and notification, Accident alert

I. INTRODUCTION

For a common man bus is the most suitable and affordable mode of transport. The use of bus for transport reduces private vehicle usage and thus reduces the congestion in the peak time it can also reduce the fuel consumption. In India common people who are travelling by bus faces lot of difficulties due to the lack of a well organised system. The passenger usually wants to know the accurate arrival time of the bus. Long time waiting at the bus stops discourage the use of buses. A passenger faces the decision of whether it would be quicker to wait for the next bus or to take an alternate transportation. Also we don't have any measure to calculate the number of passengers inside the bus and no accident notification or fire notification. Real Time Bus Tracking and Controlling System use a GPS-GSM based technology to track the locations of the buses along with the route. These informations stored in the server and from there informations given to the passengers mobile phone which possess an android application. With the help of this information passengers can make the decisions. Also with the help of IR line of sight system will calculate the number of passengers inside the bus. Also fire detection is done by temperature sensor.

II. ANDROID APPLICATION

Android application in the user side contains:

- Location of a bus.
- Route map for a particular bus.
- Stop details for a bus.
- Time schedule for a particular route.
- Time scheule of a particular bus.
- Number of passengers in a bus.

A. Live Bus Tracking:

In this part we are deal with the tracking of current location of a particular bus. Using the GPS module inside the bus we can track the current location of a particular bus. This location(latitude, longitude) of the bus will be stored in the cetral server. User have an android application and that will load the current location of the bus and spot it in the google map. It also shows the route from the bus location to the uses current position and also provide the estimate time of arrival (ETA) to users location.

B. We Can Search Like Following:

Fig. 1: We Can Search Like Following

C. The Output:

From :

To :

Bus N0	Bus Name	Bus Type	Via	TIME Arrival	Bus Details
1020	Grace	FP	Ramapuram-mulanthuruthy	09:30	(-)
1055	Thomsan	LS	kuravallengadu-kaduthuruthy	09:45	(-)
1556	KSRTC	FP	Ramapuram-mulanthuruthy	10:30	(-)

Fig. 2: Output

D. If We Select One Of The Buses:

Fig. 3: Bus Detail

E. If We Select Bus Time Table:

Bus Time Table				
Si No	Stop ID	Stop Name	Arrival Time	Distance
1	1100	Mundakayam	08:43	0
2	1101	Parathode	09:00	10
3	1102	Pinnakinnadu	09:15	17
4	1103	Thidanadu	09:25	27
5	1104	Erattupetta	09:30	30
6	1105	Pala	09:45	39
7	1106	Marangattupally	10:00	40
8	1107	Kuravilangad	10:15	47
9	1108	Kaduthuruthy	10:30	55
10	1109	Thalayolaparambu	10:40	65
11	1110	Kanjiramattom	10:55	73
12	1111	Thripunithura	11:02	80
13	1112	vyttila	11:15	102

Fig. 4: Bus Time Table

F. If We Select Track Bus:

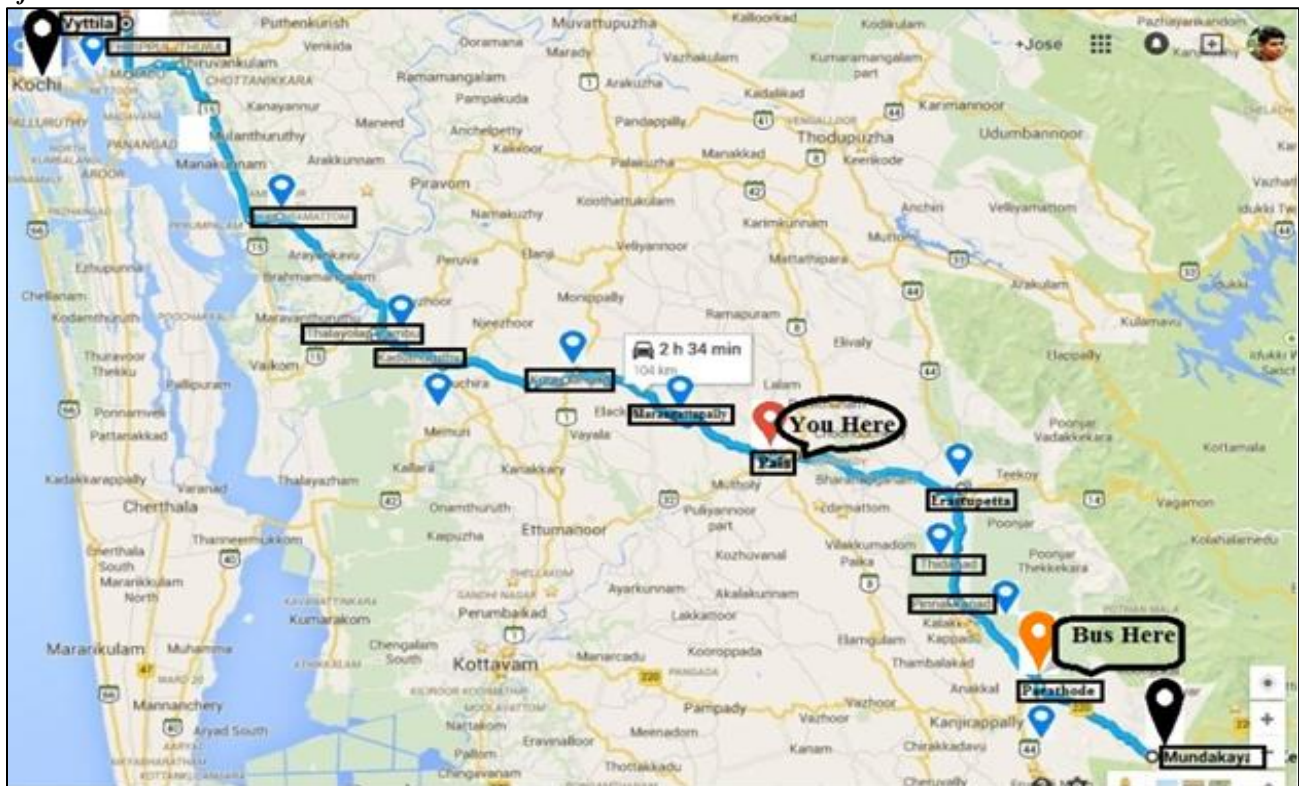


Fig. 5: Bus Track

G. Fire Detection and Notification:

Fire detection and notification is one of the features in this system. Fire sensor installed inside the bus is connected with the arduino board and the temperature is read at a frequent rate. There is a temperature limit already defined in the system and the temperature is checking frequently. If the temperature value is less than the limit then there is a 't' send to the android module. When the temperature value is greater than the limit 'T' is send to the android module. When the android module receives this 'T' it automatically send fire alert to the nearby fire station and owner's phone.

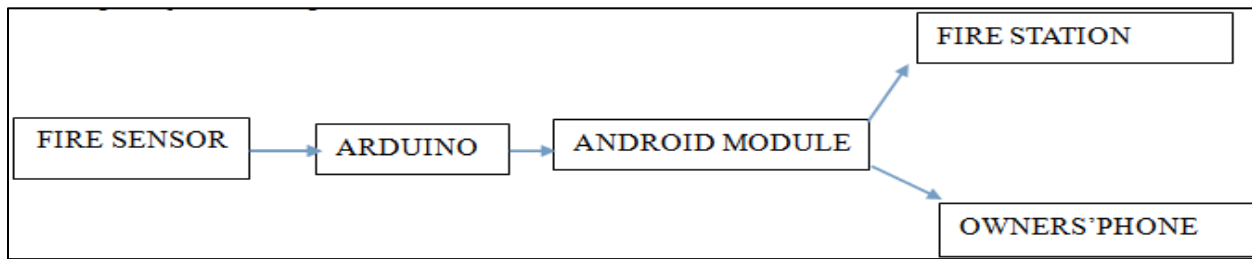


Fig. 6: Fire Detection and Notification

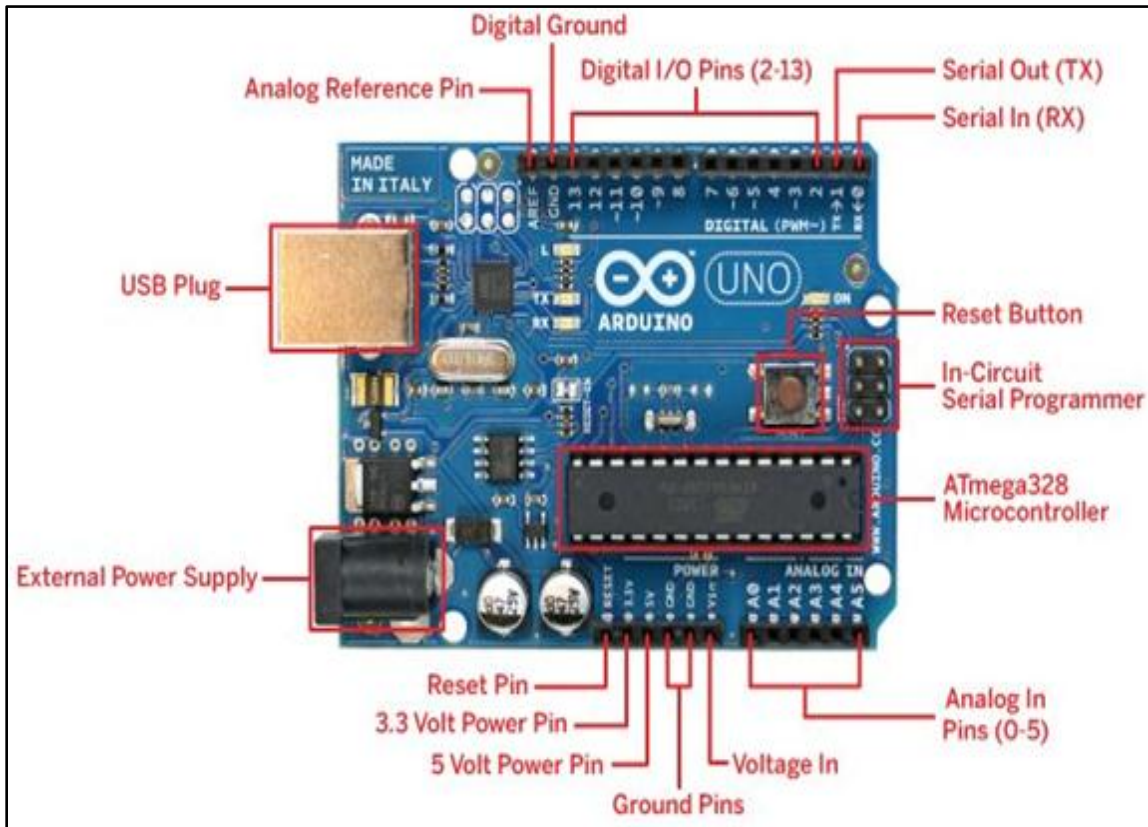


Fig. 7: Arduino Board

III. PASSENGER COUNT

The number of passengers inside the bus is counted using two IR line of sights located at the bus door. These IR sensors communicate with the android module using bluetooth connection. When a passenger enters the bus first IR line of sight will cut and after that second line of sight will cut. Initially the value was zero for both. If a passenger exit from the bus second line of sight will cut and after that first line of sight will cut. Like that system will count the number of passengers inside the bus. If a passenger just take a step to the bus and suddenly jumped out only one IR line of sight will break so nothing will happen to the count. From the android module the system will pass the count to the central server and from there it passes to the passenger's android application.

A. The IR Sensor Works like This:

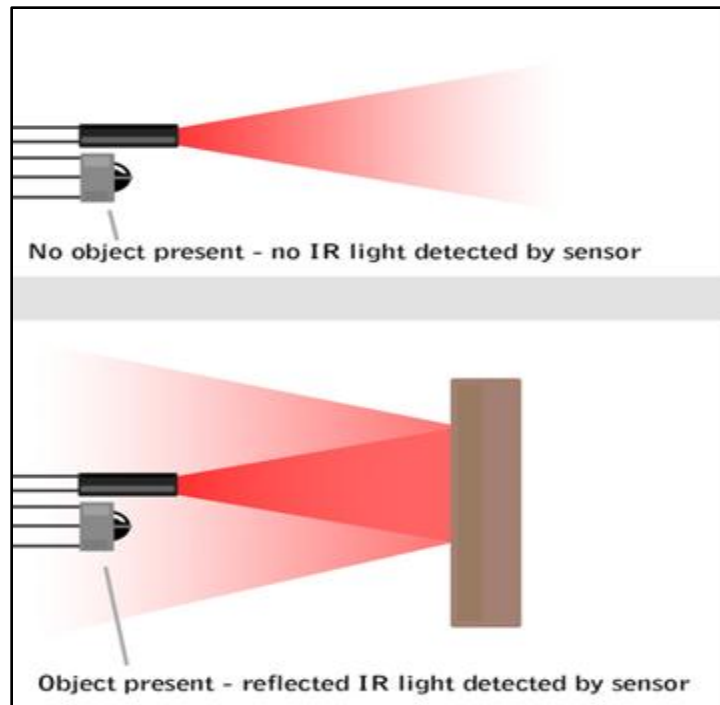


Fig. 8: IR Sensor Works

B. Accident Alert:

Accidents are detected using proximity sensors and alert will be send to owner and nearby fire station.

IV. CONCLUSION

Bus tracking systems becoming increasingly important in large cities and it is more secured than other systems. This technology can help to advance the system of transportation and can be used in tracking purpose and for security purpose .This system can help passengers in their daily life.It also ensure the security of bus and passengers.

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