Automatic Station Announcement System in Railways

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Abstract— **This paper focuses on developing an intelligent system for passengers to identify location, in which sensor senses every location using GPS receiver. The system announces each and every station to all passengers through speaker inside the compartment and the passenger easily to identify their destination. This GPS receiver is capable of identifying the location in which it was present in the form of latitude and longitudes. The GPS gives the data received from the satellites. For this information the GPS communicates with at least three satellites in the space.**

Index Terms— **GPS receiver, location identification**
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I. INTRODUCTION

Now a day's people travel from one place to another has become a part of our daily life. The people who without having proper information of arrival of stop in long travel, so they depends on public transport. Normally numbers of vehicles on the road are increasing and most of the peoples use own private vehicle, as they can go anywhere. In case unfortunately they are unable to use private vehicle, public transportation such as train, bus is the convenient one for all to reach destination. In this paper, concentrate on train. It provides a low-cost transportation, and also quickly reaches the destination. If they want to travel long distance, they prefer train only.

During night time there is a possibility that train passengers can miss their destination station when travelling over long distance. Otherwise they reach unknown station. This paper will overcome this problem [1].

The GSM and GPS are a satellite based navigation system made up of a network of 24 satellites circles a earth in near circular inclined orbits. At the initial stage, the system was originally intended for military applications, but it is now widely used for variety of applications like cars, golf carts and even cell phones, because of its versatility [5]. In 1980's, it is used for civilian application.

An GPS work anywhere in the world at any weather conditions throughout the day, the GPS constellation consists of 24 satellites in 6 near circular orbit at an altitude is approximately 20,000 Km at a speed of 10,220 Km/hr, and the inclination of each orbit is 55 $^{\circ}$.

GPS signal contains 3 different bits of information. Pseudo random code which is simply a ID code to identify which satellite is transmitting information. The data which is constantly transmitted by each satellite containing important information about the status of the satellite and this part of the signal is also essential for determining its position. The NAVSTAR global positioning consists of the interacting components such as, the control segment is to control and monitoring stations is linked with the system. The user segment, where the GPS signal receivers are owned by the civilian and military[12].

Embedded systems are computer systems which is capable of performing specific task. It has Varity of applications and used for real time purpose, it is less expensive. For embedded systems, program instructions run with circumscribed computer hardware resources and limited memory, like other system models, these systems does not affect the redundant programming [5].

II. EXISTING METHOD

The Fig 1 shows in this system which senses the location and calculates the distance of the train to the destination railway station which is taken as input from the passenger. The system also calculates the average speed of the train from the start of the journey and calculates the estimated time remaining to each the destination based on the remaining distance and the average speed. Passenger to identify the railway schedules by using this system in this method when the train reaches before the destination, alarm is activated [5].

The disadvantages of existing system are,
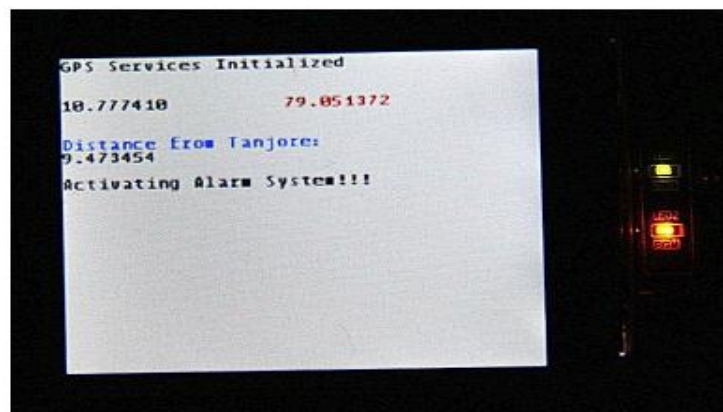- The existing system produces an alarm, it disturbs the passengers.

Fig.1 Alarm activation when the train is reaches before the destination

III.   PROPOSED METHOD

The proposed system senses the location of the system. When the train reaches before the destination, the speaker announces the station name which is helpful for all passengers. They are many problems occurred in railways. The train can't reach the destination place in current time because of mistake occurred in timetable schedules. Sometimes the train reaches the destination early. We can't control the late arrival and early arrival of the train especially in night time, the passengers are difficult to find their station name. To overcome this problem, we have proposed an automatic station announcement system in railways.

These systems which are helpful all passengers, when train reaches before station, the system announce the station name. GPS receiver is used in this design, it is used to track the train's location. This tracking is used for many applications.

Advantages of proposed system are,

- Provides Voice based announcement of station name inside the compartment.

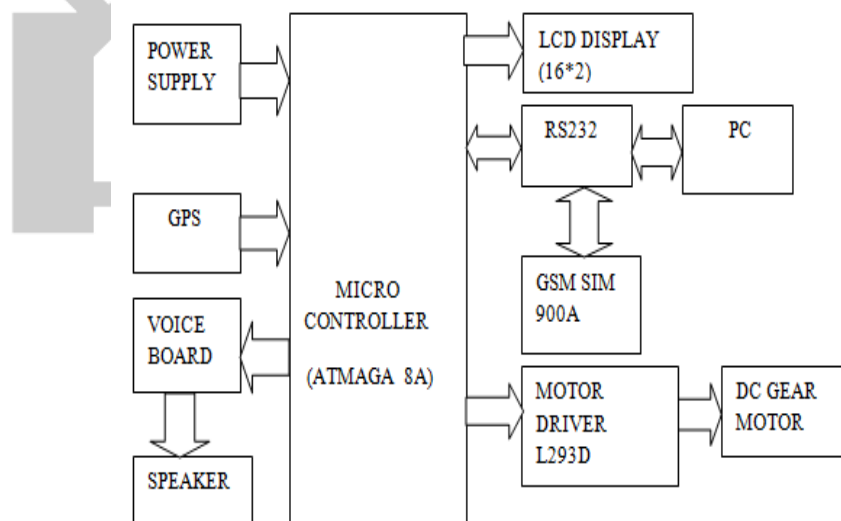- This system used for buses also.

Block diagram

Fig.2 Block Diagram

In Fig.2 Shows block diagram of proposed system, microcontroller ATMEGA8A is used, this microcontroller has high performance, advanced RISC Architecture and operating voltage is -2.7 to 5.5V. Compare to other controllers, it has reduced instruction. LCD display is a thin, flat display device. In this project, it is used to display the list of station name.

GSM represents Global System for Mobile Communication. GSM Modem RS232 is built with dual band GSM engine SIM 900A, works on frequency 900/1800MHz. The modem is coming with RS232 interface, which allows connect PC as well as microcontroller with RS232 chip.
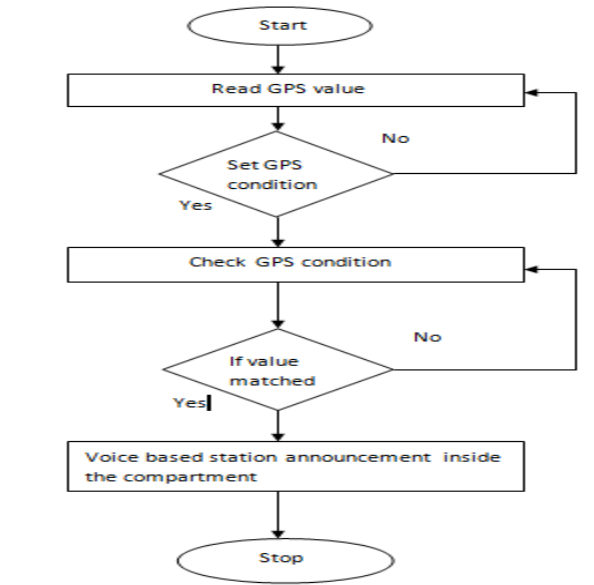
Flow chart

Fig.3 Flowchart of proposed method

Formula
1. Distance = speed*Time
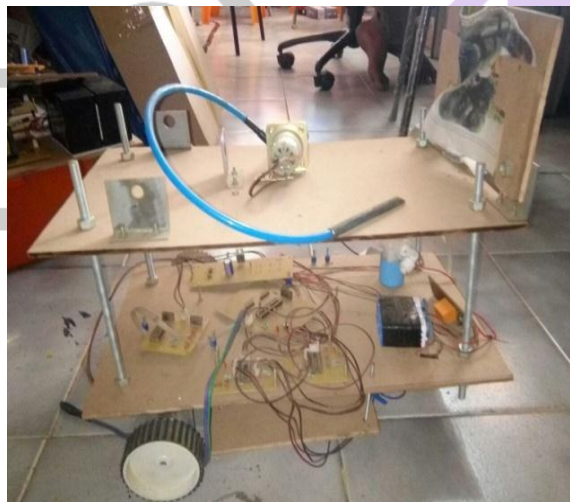2. Speed = Distance/Time
3. Time = Distance/Speed

IV. RESULT AND CONCLUSION

Fig.4 Photograph of the Entire Setup

This paper an automated station announcement system designed to make announcements and display at stations codes. The main aim of this paper to make an automated place announcement system for train using voice IC and the radio frequency wireless card for tracking the station data. It can be extended to any number of stations.

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