Automated Bus Stop Alert for Passengers Using GPS

Vijetha Tummala, S.Akshay Kumar, P.Srinivas,G.Sravan

Abstract— **Our project is about GPS based displaying and announcing system is based on global satellite positioning system, to achieve automatically display and announce of bus stop name without the need for manual operation. It is part of intelligent transportation, at the same time the use of automatic station display, reduce the workload of the bus drivers, bus drivers to safe driving, this ensures that bus driving safely. Here we use GPS module to receive latitude and longitude value and we send this value to the micro controller and then the microcontroller checks the current location and displays and announce the busstop accordingly on LCD and voice Module.**

Index Terms— **Automated Bus-stop auto- announcement; Global positioning system**

I. INTRODUCTION

Recently, ITS (Intelligent Transport System) has drawn great attention in many countries, in which GPS is playing an indispensable role. In Buses Management System, ITS could improve service quality and attract more citizens to use bus instead of private vehicles. Hence, traffic pressure could be released, and distinct social benefit could be gained also. Bus-stop auto-announcement system will greatly reduce the bus driver's labor intensity, and improve ticket seller's efficiency. At present, stop announcement systems for bus in our country have not been fully automatized.

GPS bus-stop auto-announcement system utilizes GPS information to compute the real-time location of bus, and the location would be compared with the stop location at the same time. All the procedure is accomplished automatically without manpower operation.. However, the system is expensive, and the accuracy of it has not ***been verified yet.*** ***SMC-***based stop announcement system use wireless signal for stop announcement. Every stop is equipped with a signaler which transmits signals continuously, and those signals could be captured by receivers on the bus. Once those signals are received, the report system will be triggered. Though this system is simple, it is prone to be affected.
Therefore, GPS is the best and prospective solution for bus-stop auto-announcement so far.

II. KEY ISSUES FOR AUTO- ANNOUNCEMENT SYSTEM

Automatic report system is part of the on-vehicle terminal. This terminal consists of controller, memory, GPS module, audio output module and LCD. Location information is received by GPS module, and compared as well as computed by controller. Audio output module mainly in charge of stop announcement. LCD is used for display stop name and other information. The on-vehicle terminal is as follows.

Vijetha Tummala, Asst.Professor, MLR Institute Of Technology
S.Akshay Kumar, P.Srinivas, G.Sravan, Asst.Professor, MLR Institute Of Technology

There are two routes of a bus. The one is from starting stop to ending stop, while the other is from ending stop to starting stop. If the route judgment is wrong, stop report will be disturbed. Azimuth angle is related to the satellite receiving antenna. When satellite receiving antenna is being adjusted, parabolic antennas will do side-to-side movement at the same time. How to make correct judgment of pull-in or pull-out is the key technology for bus-stop auto-announcement.

III. CONCEPT:GLOBAL POSITIONING SYSTEM

A GPS tracking unit is a device that uses the GlobalPositioning System to determine theprecise location of a vehicle, person, or other asset to which it is attached and to record the position of the asset at regular intervals. The recorded location data can be stored within the tracking unit, or it may be transmitted to a central location data base, or internet- connected computer, using a cellular (GPRS), radio, or satellite modem embedded in the unit. This allows the asset's location to be displayed against a map backdrop either in real- time or when analysing the track later Using customized software.

A PASSIVE GPS TRACKING SYSTEM: This will monitor location and will store its data on journeys
based on certain types of events. So, for example, this kind of GPS system may log data such as turning the ignition on or off or opening and closing doors. The data stored on this kind of GPS tracking system is usually stored in internal memory or on a memory card which can then be downloaded to a computer at a later date for analysis . In some cases the data can be sent automatically for wireless download at predetermined points/times or can be requested at specific points during the journey.

A ACTIVE GPS TRACKING SYSTEM: IS also known as a real-time system as this method automatically sends the information on the GPS system to a central computer or system in real-time as it happens. This kind of system is usually a better option for commercial purposes such as fleet tracking and individual vehicle tracking as it allows the company to know exactly where their vehicles are, whether they are on time and whether they are where they are supposed to be during a journey. This is also a useful way of monitoring the behavior of employees as they carry out their work and of streamlining internal processes andprocedures for delivery fleets.

DESCRIPTION: **GPS Tracking System** works on the principle of satellite communication. In On board block diagram, there is GPS module. Intially, it takes the signal from the satellite then it
sends the command to ATMEGA 8 microcontroller. Then this microcontroller, sends a signal to GPS transmitter that signal will also be displayed on LCD screen, connected in on board diagram.Transmitted signal by GPS transmitter will be

received by GPS receiver connected in Off board block diagram. Then ATMEGA 8 microcontroller, sends the signal to LCD,which will display the position of the receiver. LCD's are used in our project for matching purpose, accuracy if the position of receiver is changed, then the new position can also be find.

IV. DESIGN:
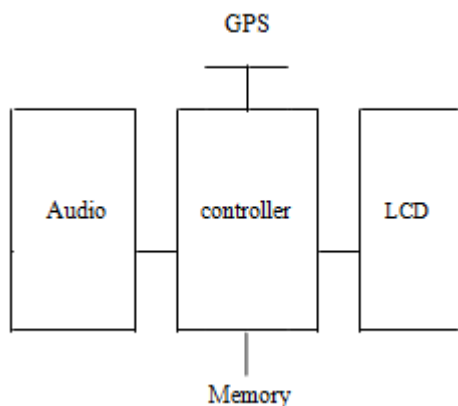
WORKING: Since ATMEGA 8 microcontroller needs 5V regulated supply hence we use a IC 7805 voltage regulator which converts 12V unregulated supply into 5V regulated supply. LED's are used for indicate on purposes Intially, in On board diagram antenna connected to the GPS module receiver takes signal from the satellite's and then GPS module sends a command signal to the microcontroller.

The GPS transmitter connected to the microcontroller senses these signal and then transmits a signal which is received by the antenna of GPS receiver connected in the Off board diagram then the GPS receiver sends a signal to microcontroller sends these signal to the LCD for display purpose and then we can see the exact location/position of receiver/object on the LCD in the terms of altitude, latitude, longitude and time.

V. ADVANTAGES:

The entire system is very cost effective. All the modules are very easy to handle. Convenient to the users.
Low Power platform.

VI. APPLICATIONS:

Easy navigation of blind. Independent navigation of senior citizen/illiterate people. Bus Rapid Transit System (BRT). Public transport system.

VII. RESULT:

Developed Passenger bus alert system for easy navigation of blind people.

VIII. CONCLUSION:

The combination of a voice synthesizer and the speaker system will help the blind at the busstop, to find his/her bus that passesthrough a required/desired route.The aim of the proposed system is to provide a helping

hand to the visually impaired for convenient navigation is fulfilled. The technology of the Global Positioning System is allowing for huge changes in societywhile at the same time the accuracy of the system is improving. This affects everyone with things such as faster Internet speed and safer plane landings.

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