

Public Transportation Management System

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Abstract— This paper proposes for enhancing the services by the transport management by using GPS (Global positioning system) and GSM (Global system for mobile communication) modem integration. The system mainly consists of two modules. (1) Bus station module (2) Bus module. The modules are connected to PC and GSM modem. These both module uses the microcontroller, LCD display and GSM. The bus station module consists of a microcontroller unit, LCD display and GSM modems interfaced to PC's so that to track the every bus, processes user request about a particular bus location out of bus station and updates buses location. This transport service department needs to track and check the performance and services provided to common people. This developed system will help common people to use more services of transport management.

Key words: GPS, GSM, public transportation management services, Bus Station Module, In-BUS Module, BUS Stop Module

I. INTRODUCTION

In the world information and communication is developed by the various technologies. From this technology various requirement of users are increased. We decide the implementation of new technology which is useful for people. At the starting point has been guided by the idea about this implementation. And this technology should fulfill the user's requirements. These requirements are what they want it, where they want it and in the best possible way in which they want it. In this project, on the basis of the integration of GPS and GSM a transportation management system is developed. This system is very useful for to track and find the location of bus or vehicle. GSM is useful for communication link between two or more modules.

In this our project the bus or vehicle location gives by sending SMS through GSM modem. This SMS is in the form of longitude and latitude of the location of bus.[1] Microcontroller is the main or central processing unit CPU of our project module. With the help of GPS modem the microcontroller send information in the form of text message. Most important is GSM modem is used to send this information to the bus stop by SMS. SMS will be sent to the bus stop of the bus.

This project will be useful for our security purpose that is when our car or vehicle is stolen with the help of this project we can find the location of our car[2]. Another in case it is useful for secured from the theft. When we want the track of school bus of our children the GPS tracking system is useful. The main purpose of this our project is smooth and reliable transportation of passenger.

II. PROPOSED BLOCK DIAGRAM

The Public Transportation Management System consist on two models which acts as a transmitter and receiver respectively

- In Bus Module
- Bus Stop Module

A. Block Diagram Of In Bus Module

Block diagram in bus module consisting Microcontroller, GPS and GSM is shown as follows

1) Microcontroller:-

AT89S52 is low power, high performance, 8K memory device which is used for transfer the GPS data to Bus Stop Module through GSM. At a same time, it will display this information on LCD screen

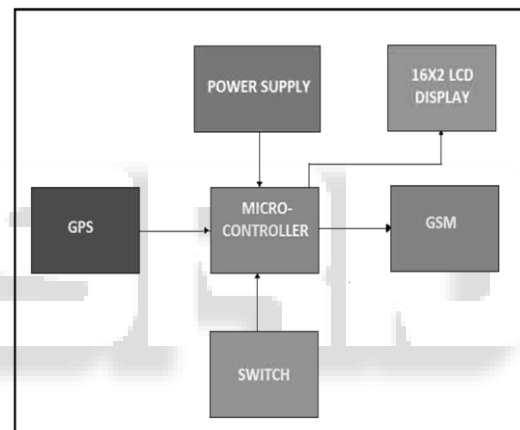


Fig. 1: Block Diagram of in bus module

2) LCD: - (16X2 character LCD)

It is used for displaying the name of bus stop and current location of bus in terms of latitude and longitude.

3) GSM Module:-

This modem just like cell phone, operate on any network SIM card with its own unique number. It communicates serially with a microcontroller used for communication.

4) GPS Receiver:-

The GPS Receiver is used to locate the location of bus and sends this information to the microcontroller 89s52.

5) Serial Communication:-

Here MAX232 driver IC is used for serial communication and voltage level shifting between Microcontroller and GSM module.

6) Power Supply:-

As per requirement of different devices we use 0 to 12 volt power supply.

B. Block Diagram of Bus Stop Module

Block diagram of bus module consisting microcontroller, GSM is as shown follows

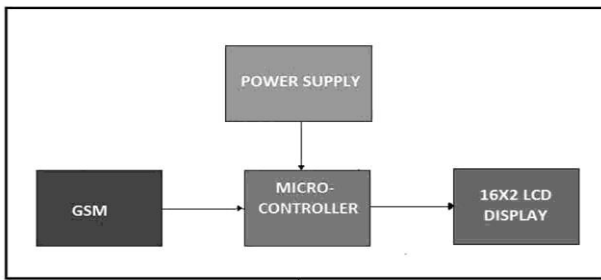


Fig. 2: Block Diagram of bus stop module

1) *Microcontroller:-*

AT89S52 is low power, high performance, 8K memory device which is used for display the information on LCD screen.

2) *GSM Module:-*

This modem just like cell phone, operate on any network SIM card with its own unique number. It communicates serially with a microcontroller used for communication.

3) *LCD: - (16X2 character LCD)*

It is used for displaying the name of bus stop and current location of bus in terms of latitude and longitude.

4) *Power Supply:-*

As per requirement of different devices. we use 0 to 12 volt power supply

III. HARDWARE

A. *Microcontroller*

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel's high-density non-volatile memory technology and is compatible with the industry-standard 80C51 instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non-volatile memory programmer. By combining a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications.

B. *GSM Modem*

The GSM modem is a specialized type of modem which accepts a SIM card operates on a subscriber's mobile number over a network, just like a cellular phone. It is a cell phone without display. Modem sim300 is a tri band GSM/GPRS engine that works on EGSM900MHz, DCS1800MHz and PCS1900MHz frequencies. GSM Modem is RS232-logic level compatible, i.e., it takes -3v to -15v as logic high and +3v to +15 as logic low. MAX232 is used to convert TTL into RS232 logic level converter used between the microcontroller and the GSM board. The signal at pin 11 of the microcontroller is sent to the GSM modem through pin 11 of max232. this signal is received at pin2 (RX) of the GSM modem. The GSM modem transmits the signal from pin3 (TX) to the microcontroller through MAX232, which is received at pin 10 of IC1.

C. *GPS Receiver*

The Global Positioning System (GPS) is a satellite-based navigation system consists of a network of 24 satellites

located into orbit. The system provides essential information to military, civil and commercial users around the world and which is freely accessible to anyone with a GPS receiver. GPS works in any weather circumstances at anywhere in the world. Normally no subscription fees or system charges to utilize GPS. A GPS receiver must be locked on to the signal of at least three satellites to estimate 2D position (latitude and longitude) and track movement. With four or more satellites in sight, the receiver can determine the user's 3D position (latitude, longitude and altitude). Once the vehicle position has been determined, the GPS unit can determine other information like, speed, distance to destination, time and other. GPS receiver is used for this research work to detect the vehicle location and provide information to responsible person through GSM technology.

IV. SOFTWARE

A. *Flow chart of in bus module:-*

According to the need of project the flow chart is designed at bus module which is as follows:

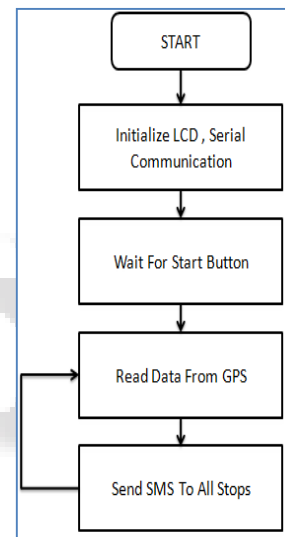


Fig. 3: Flowchart of In Bus Module

B. *Flow chart of bus stop module*

Similarly flow chart is designed at the bus stop module which is as follows.

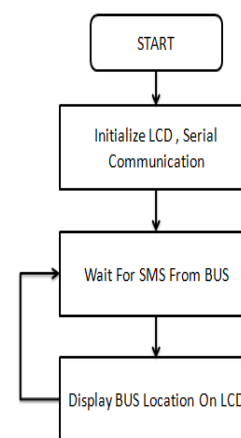


Fig. 4: Flowchart of Bus Stop Module

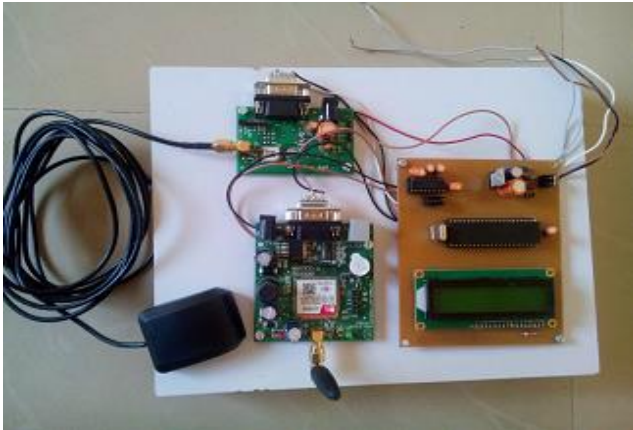
V. SOFTWARE'S USED

For this system Keil softwares are used in detail as follows:

A. Keil

In this Keil software μ Vision IDE is, for most developers. Which is the very simplest way to create embedded system programs. This is used to describe μ Vision features. And is also explained its use.

VI. PROJECT VIEW



VII. CONCLUSION

From this project it can be concluded that tracking of the bus or vehicle is on the basis of the integration of the GPS and GSM is clearly or exactly obtained and located on the LCD display. And it can be possible to predict arrival timing of the bus or vehicle. With help of this project the time of people can be save. Most important advantageous features of this project are smooth, reliable and safety transportation of passengers.

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