

Automated Bus Transportation System and Pass Renewal

Miss.Ghate Harshada¹, Miss.Galave Komal², Miss.Khodake Prajakta³, Prof.Shaikh javed⁴

^{1,2,3,4} S.V.P.M.s College of Engg. Malegaon(Bk.),Baramati,Pune

Abstract- In today's world internet is very popular in many areas such as banking, education, travelling etc. By using internet all things are get simple. Now-a-days for travelling purpose buses are major sources. But major problem is that many people are waiting for the bus when they are travelling a long root. Because of traffic buses may not come to their destinations at right time. This is major problem by facing everyone. In this project we present scenario, which designing a GPS-GSM based system which track the location of bus where exactly it has started recently. For this purpose here we are using GSM-GPS connected to the bus and we can book ticket from our mobile phone. The project gives solution for public transportation management services based on GPS and GSM .This system consists of IN-Bus module which is equipped with GSM. ARM7TDMI processor is used to design this project. Also we are using different modules such as LPC2148, GSM, GPS, and 128*64 LCD. In-Bus module consists of IR pair which is used to count the number of persons in that bus and to find out exact location of bus we are using GPS and GSM which send the message according to their bus. We also implement the idea for pass renewal by using RFID technique.

Keywords- ARM7TDMI-S, GPS, GSM, Smart Public Transport, RFID,etc.

I. INTRODUCTION

Now a days online ticket booking are available because of internet. This system solves the problems like waiting line for ticket booking. By using this idea we implement the new concept in that project user can make online booking of ticket also give the detail information of bus. This system provides the information of all the available buses on the route depending on the source and Destination provided by the user. The

Information will be including details such as,

- 1) Name and numbers of all the available buses on the selected route.
- 2) Timings of the buses.
- 3) Intermediate stops on the route of the buses
- 4) Provision for issuing the E-ticket if the customer demands for the ticket.

- 5) For bus tracking system.
- 6) And also Bus pass renewal.

This service will be available for 24x7 hours, thereby. Moreover, this will be the Boon for the new people visiting improving the customer service and the facilities, it will also reducing the burden on the Government Body.

II. SYSTEM BLOCK DIAGRAM

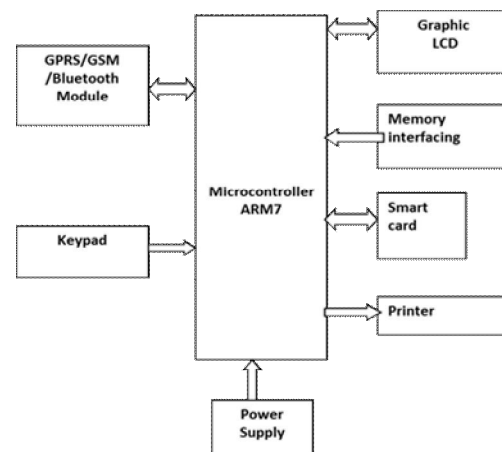


Figure 1. Block diagram of System

BLOCK DIAGRAM DISCRPTION

This figure shows the block diagram of our project consist of following modules are used

1. GPRS/GSM/Bluetooth
2. Keypad
3. Graphic LCD
4. Memory interfacing
5. Smart card
6. Thermal Printer

1. GPRS/GSM/Bluetooth :

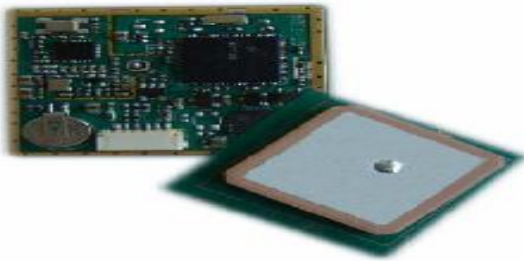


Figure 2.

GPRS and GSM module are perform very important task in this project. It provides the information of bus i.e. where the bus source and destination point. Also provides information like route, distance of bus, Modem is designed with 3V3 and 5V DC TTL interfacing circuitry, which allows User to directly interface with 5V Microcontrollers (PIC, AVR, Arduino etc.) As well as 3V3 Microcontrollers (ARM, ARM Cortex XX, etc.). The baud rate can be configurable from 9600-115200 bps through AT (Attention) commands. This GSM TTL Modem has internal TCP/IP stack to enable User to connect with internet through GPRS feature. It is suitable for SMS as well as DATA transfer application in mobile phone to mobile phone interface. The modem can be interfaced with a Microcontroller using USART (Universal Synchronous Asynchronous Receiver and Transmitter) feature (serial communication).

2. ARM LPC 2138:

16x2 LCD is widely used in various embedded applications. The reason for this is its easy operation and it can display a large number of characters and symbols. LCD can be interfaced in 8-bit as well as 4-bit mode (mode signifies Data bits sent at a time). In the 8-bit mode we require 8-pins of the microcontroller whereas in 4-bit mode the data is sent nibble by nibble (4 data lines used).

3. Keypad:

Switch is the most widely used input device. When a switch is pressed either low or high signal is given to controller depending upon the circuit designing. This approach requires one pin for a single switch. With increasing requirement of input devices, more numbers of controller pins are required which may not be available all the time. For example, to enter value from 0 to 15, we need 16 pins of controller to be interfaced with switches. To reduce number of required pins,

- A satellite-based positioning system available 24/24h we can arrange keys in matrix form. Matrix keypad is one everywhere on the globe with accuracy better than 100m.

- Originally designed for navigation and real-time positioning (meter-level accuracy): navigation (airplanes, ships, car, missiles, etc)
- GPRS module has a ceramic patch antenna.
- It transfers precise position and timing information that can be read over UART port.
- It gives the latitude and longitude values.
- GPRS receiver will receive the co-ordinates of position by the satellite.

4. GSM Modem :

GSM (Global System for Mobile) TTL Modem is SIM900 Quad-band GSM device, works on frequencies 850 MHZ, 900 MHZ, 1800 MHZ and 1900 MHZ. It is very compact in size and easy to use as plug in GSM Modem. The of the widely used input devices. Some of the application includes Mobile keypad, Telephone dial pad, calculator, ATM etc. Keypad provides an easy way to allow user to provide input to any system. In this article, we will explain how to interface 4x4 matrix keypad with LPC2148. The pressed key will be displayed on LCD. Here is a simple comparison of two different approaches.

5. Smart Card

To process a smart ID card (e.g. use the e-Cert embedded to conduct electronic transactions), the computer has to be equipped with a smart card reader with the following mandatory features. The most common smart card applications are Credit cards Electronic cash Computer security systems Wireless communication

6. RFID



Figure 3.

RFID or Radio Frequency Identification is a method in which electromagnetic waves are used for transmitting data for the purpose of identifying tags attached to objects. An RFID system consists of a transmitter (tag) and a reader. The tag is encrypted with a unique code and the reader scans this code for the identification purpose. The tags are generally of two types: active and passive. Active tags have a battery fitted to it and it transmits the unique code periodically or in the proximity of the reader. Passive tags are powered using the

electromagnetic induction from the signal transmitted by the reader.

7. Thermal Printer



Figure 4.

This printer is used in this project to generate the online ticket prints to the users .

Features Of thermal Printer:

1. Low-noise direct thermal printing method.
2. Printer control panel built-in GB18030 Chinese character, thoroughly remove the uncommon words of anguish.
3. Fast printing speed, low noise
4. 4.39MM can support Max.39MM(diameter) paper roll,that is biggestpaper roll of the same models.

III. RESULT

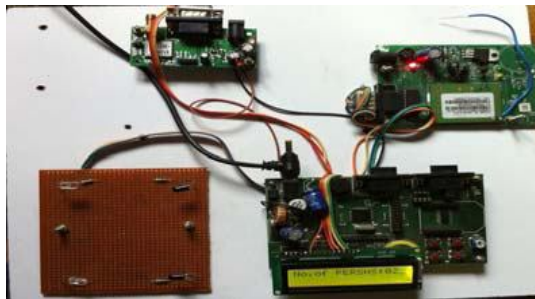


Figure 5. IN-Bus module Hardware implementation

IV. CONCLUSION

This paper conclude that by using Automated bus Transportation system and pass Renewal is basically used for tracking the report for bus , pass renewal and online booking ticket for bus. This kind of system can be used on all types of station like (bus, airport, railway stations) especially in bus, so that time can be minimized. This project provides an efficient and economical transportation system.

V. FUTURE SCOPE

These proposed systems can be enhanced further. In future to make improvement of this system by adding cameras at the bus terminal which can automatically read the license plate number of buses which helps to reduce the task of bus operators. Also provides an automatic route guider display can be installed in buses to better update the alternative route in case of serious road congestions.

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