A Review Paper on Design And Development of A System For A Blind People Using Wireless Technology

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Abstract- This research paper gives a contain about how different wireless technology works and how RFID technology helps to blind people and illiterate people to find their bus in daily routine life.

Keywords—pic controller,rfid module,gsm,gps,buzzer

I.   INTRODUCTION

As we know generally, journey in a bus is a safe and comfort factor in our daily life, but due to increase in number of busses and passengers its going be tougher now a days and it will be more difficult for blind people to travel in a bus so with this project, we can make a system which can help blind people to find their particular bus at the bus stop as they cannot able to see which bus is coming on the bus stop.To help them we are providing a device which can help to blind people to find their particular bus at a bus stop. In this project we have a main device are microcontroller, RFID reader and RFID tag. RFID reader with some microcontroller module is placed at a bus stop which gives buzzer sound whenever a specific bus comes at bus stop, bus equipped with a unique RFID tag. Whenever bus comes at bus stop RFID reader get signal as it reads tag. And blind person having a GSM and GPS module which send a location to their family member for a safety of blind people.

II.   BLOCK DIAGRAM

Block diagram contain a two parts:
- Transmitter
- Receiver

Figure 1 Transmitter

Figure 2 Receiver

We all know that in a daily routine life travelling on a bus is a safe and comfort factor. But there are number of buses comes at bus stop for a normal people it easy to find their bus but for a blind people it's too difficult to find particular bus. So in this project each bus has a unique RFID tag and RFID reader is placed at a bus stop.RFID tag is continuously transmit their waves so whenever a bus comes at a bus stop RFID reader gets a signal from the tag and its reads the tag. The tag has a 12 digit number.

Some unique id already store at a microcontroller module that is placed at bus stop.So when a bus comes at bus stop RFID reader reads a tag and according to the bus unique id buzzer gives sound so by a sound blind people know that which bus is come so just blind people have to remember the ringtone of a particular bus.Blind people has a GSM and GPS module. Which is gives the location update of blind people to the family member so family member is concerned about the blind people safety.

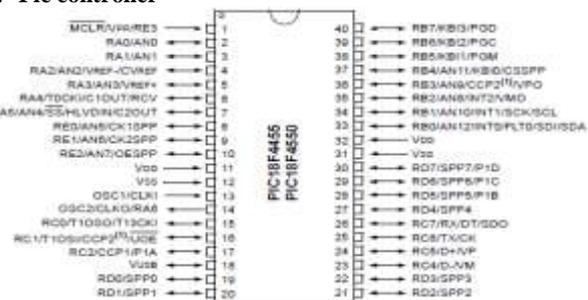## III.   COMPONENTS DISCRIPTION

A.   Pic controller

Figure 3 pin diagram

- PIC - " Peripheral interface controller''
- PIC 18f4550 is a micro controller which is made by microchip technology.
- Pic is a very popular in industrial level.
- Two externally counter board.
- Inbuilt ADC
- PIC has 20 internal interrupt and 3 external   interrupts
- EUSART-Enhance Universal Synchronization Asynchronies receive and transmit.
- Faster than 8051.
- High resolution compare to 8051.
- Inbuilt EUSART
- Pic has 4 timer and counter.

B.   RFID technology
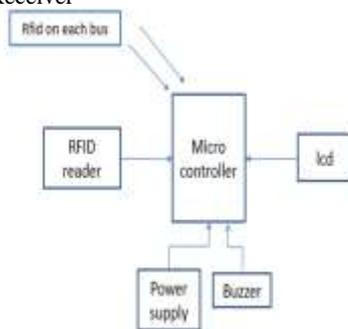
RFID (Radio Frequency Identification) is the wireless technology. It is useful for the automatically identifying and tracking the tag which are connected to object. The tags contain electronically stored information. RFID is one type of method for Automatic Identification and Data Capture.RFID is fast, reliable and does not require physical sight or contact between reader\scanner and the tagged item.

RFID TAG:

RFID tags are used in many industries or factories.RFID tag contain two types it's given below

1) Active RFID tag
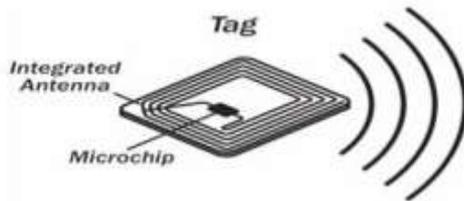2) Passive RFID tag

Figure 4 RFID TAG

A radio-frequency identification system uses *tags*, or *labels* connected to the device to be identified. Two-way radio transmitter-receivers called *interrogators* or *readers* send a signal to the tag and read its response. An active tag has an on-board battery and periodically transmits its ID signal. Passive tag has no need extra power supply. Passive tag gets power from reader. Passive tag uses the radio energy transmitted by the reader. Because of it passive tags are cheaper and smaller. To operate a passive tag, it must be illuminated with a power level roughly a thousand times stronger than for signal transmission. That makes a difference in interference and in exposure to radiation.

RFID reader

Figure 5 RFID READER

The RFID Reader Module is used in a wide variety of hobbyist and commercial applications, including access control, automatic identification, robotics, navigation, inventory tracking, payment systems, and car immobilization □ An RFID reader's function is to interrogate RFID tags. The means of interrogation is wireless and because the distance is relatively short; line of sight between the reader and tag is not require. A reader contain an RF module, which acts as both a transmitter and receiver of radio frequency signal.

GSM

Figure 6 GSM

GSM is a digital mobile telephony system that is widely used in Europe and all other parts of the all over world. GSM use a variation of time division multiple access and is the most widely used of the three digital wireless technology mainly TDMA, GSM and CDMA.GSM digitizes and compresses data and then sends it down a channel with two other streams of user data, each in its own time slot.it operates at either the 900 MHz or 1800 MHz frequency band.The most important feature of GSM are SIM cards. SIM cards are removable, thumbnail sized smart cards which identify the user on the network, and can also store information such as phone book entries. SIM cards allow users to switch phones by simply moving their SIM card from one phone to the other.

GSM NETWORK:

GSM provides recommendation, not a requirement. The GSM specifications define a function and interface requirement in detail but do not address the hardware. The reason for this to limit the designers as little as possible but still to make it possible for the operator to buy equipment from different suppliers. The GSM networks is divided into three major systems: the switching system, the base station system and the operation and support system .the basic GSM network elements are shown in figure 7.
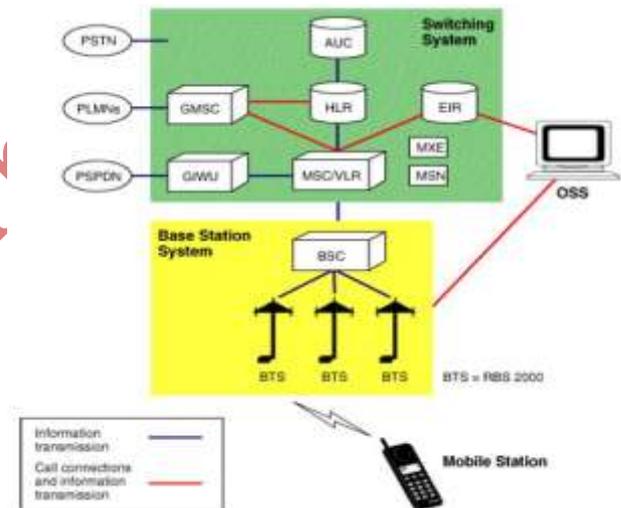

Figure 7 GSM network

GPS

The **Global Positioning System** (**GPS**) is a space-based navigation system that provides location and time information in all weather conditions, anywhere on the earth. GPS is founded by and controlled by the U.S department of civil users of GPS world-wide, the system was designed for and is operated by a U.S military. The GPS is owned and operated by the U.S. Department of Defense but is available for general use around the world.

Figure 8 GPS

Briefly, here's how it works:
□ 21 GPS satellites and three spare satellites are in orbit at 10,600 miles above the Earth. The satellites are spaced so that from any point on Earth, four satellites will be above the horizon.□ Each satellite contains an individual computer, an atomic clock, and a radio. With an understanding of its own orbit and the clock, it continually broadcasts its changing position.
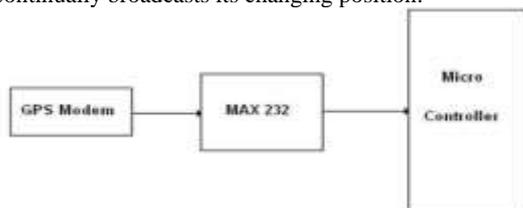
On the ground, any GPS receiver contains a computer that "triangulates" its own position by getting bearings from three of the four satellites. The result is provided in the form of a geographic position - longitude and latitude - to, for most receivers, within 100 meters. If the receiver is also equipped with a display screen that shows a map, the position can be shown on the map. If you are moving, your receiver may also be able to calculate your speed and direction of travel and give you estimated times of arrival to specified destinations.□ GPS receivers need a clear view of the sky.□ Each GPS satellite transmit data that indicate its location and current time and longitude.

LCD

Figure 9 LCD

LCD (Liquid Crystal Display) screen is an electronic display module and LCD has a large range of applications. Widely use a 16x2 LCD display because this is a basic module very basic and is very commonly used all types of electronics circuit. LCD are working under a seven segment and other multi segment Leds. A **16x2 LCD** means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix.LCD contain two registers, one is Command and second is Data.acording to the 0 and 1 register is set and send a command or data.□ The command register is used to stores the command instructions and data register stores the data instructions that is given to the LCD. A command is an instruction given to LCD to do a task like LCD initialization, clearing LCD screen, setting the cursor position, controlling display etc. The data is the ASCII value of the character to be displayed on the lcd.

BUZZER

A buzzer is a signaling device and typically used in automobiles, household appliances such as a microwave oven, or game shows. There are many types of buzzer available like mechanical, electromechanical, magnetic, electro-acoustic or piezoelectric. A buzzer is categorized by their sound level, frequency, rated voltage, dimension and packaging type. A piezo electric buzzer can be driven by an oscillating electronic circuit or other audio signal source. A click, beep or ring can indicate that a button has been pressed. The common sizes for sound level are 80 dB, 85 dB, 90 dB and 95 dB We also carry buzzers with sound level up to 105 dB.

IV RESULT

By using this system blind people easily find their bus in daily routine life due to more number of buses.this system makes the blind people independent. Because of gsm and gps family member are also get location update of blind people

V Future idea

In our system only blind people having a gsm and gps but we can also place a gsm and gps in a bus so blind people also get a location of a bus time to time whenever they want.

VI Conclusion

As we know due to increase in number of busses and passengers its going be tougher now a days and it will be more difficult for blind people to travel in a bus so by using this system blind people will easily find their particular bus at the bus stop as they cannot able to see which bus is coming on the bus stop.

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