

RFID based Smart Phone Interfaced Guidance system for Visually challenged Person

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Abstract

This Paper is portraying about "RFID based advanced cell interfaced direction framework for outwardly tested individual". As we probably are aware the best trouble for outwardly hindered individuals is seeing snags and thinking about open vehicle like transports. Besides, numerous difficulties looking in rush hour gridlock zone. In the event that they need to move starting with one spot then onto the next, they need direction to help them. Likewise, they need to see the individual before them. To stay away from these circumstances, we propose a "RFID based Smart telephone interfaced direction framework for outwardly tested individuals". For this situation there is a RF innovation (transmitter and recipient) and a voice acknowledgment framework through Bluetooth module, so we consolidate these parts into one and it is not difficult to utilize and simple to act by individuals face the visual test. This will assist individuals with eliminating those deterrents before them and helps in everyone around them, so they don't tragically hit the obstruction. This paper will clarify the plan and highlights associated with the encompassing and encompassing articles.

Keywords: RF Technology, Bluetooth module

1. Introduction

The main purpose of this project is to greatly help blind people to warn strangers. We talk about how to use RFID (Radio Frequency Identification) for unsighted people to make it easier for them to fly without relying on others. This approach is divided into two parts: a bus indication system and a terminus system. The RFID Reader reads the RFID Tag that is attached to the bus once it arrives at a specific terminal. If it is detected and marked, it is recorded to the terminal's blind users as a voice order. Since each bus has a special RFID tag that can identify people who are blind.

The microcontroller used here is ATMEL 89C51. The AT89C51 is a low-power microcomputer powered by a powerful CMOS 8bit microcomputer format designed with readable read able memory numbers. Ultrasonic sensor is used here. This sensor is used to detect any obstacles in front of a person. This information is provided by a small controller. Here we use the HC-05 module. This module is connected to an android phone. The traffic

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category is also used here to indicate whether a red signal or a green signal. Another request is to indicate the arrival of the bus.

Here, we are building a project to raise awareness, road signal, bus arrival situation. Transfer code using the Carrier wave ISM (Industrial scientific & medicine module) based using the transmitter & receiver module. It produces a carrier wave at 433.9MHz. on that side of the receiver using android technology. An Android application to get the whole situation and provided a voice declaration for the blind.



Figure1

2. Proposed System

In this Project we going to carry out voice signal by utilizing Bluetooth application and RF based Transmitter, Receiver gadget for outwardly debilitated individuals. We isolated this into parts

- 1)Bus Section
- 2) Traffic Section
- 3) Receiver Section

Bus Section, we are put RF Transmitter in transport. This square comprises of HT12E and 433.9MHz based transmitter module to send the information. Fixed addresses/information are sent and header sections by RF transmitter when trigger sign is gotten. The ability to choose a TE trigger on HT12E further upgrades the application adaptability of 212 arrangement of encoders. features:2.4V~12V for the HT12E. Low force and high commotion invulnerability CMOS innovation. Code generators send data to transmitter and it communicate to collector.

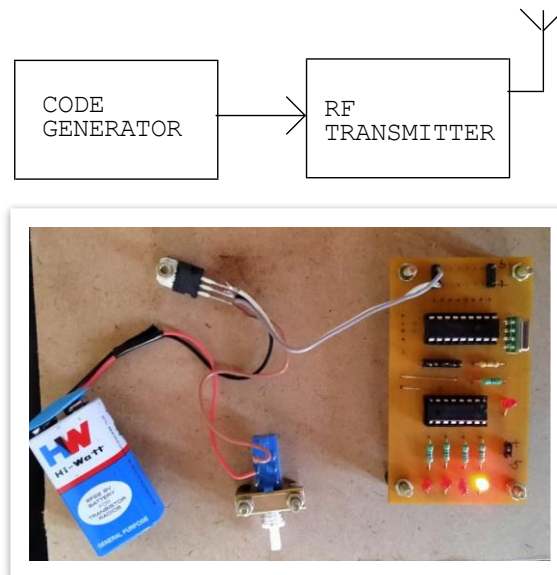


Figure2

The second one is **Traffic Section**, The subsequent one is Traffic Section. In this segment comprises of IC555 and decade counter IC 4017. IC555 is utilized as an astable multivibrator mode, delivering constant

waveform for transmission. It is utilized to create time delay on and off the Red, Green and Yellow LED's. The yield from this IC is allowed to the decade counter. It is associated with the traffic LED's through ULN driver.

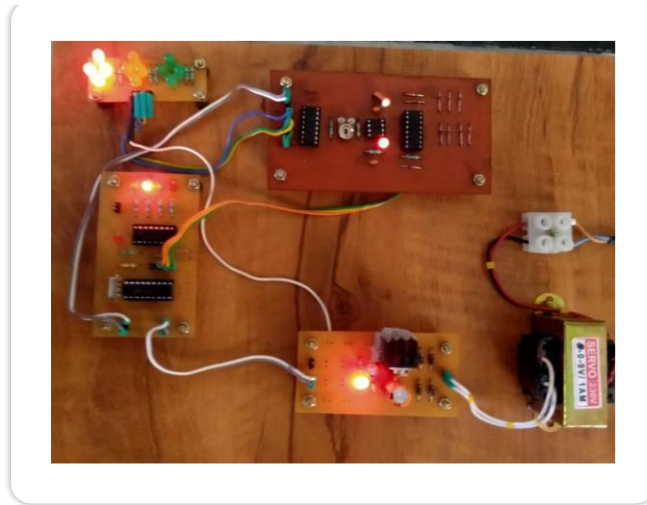
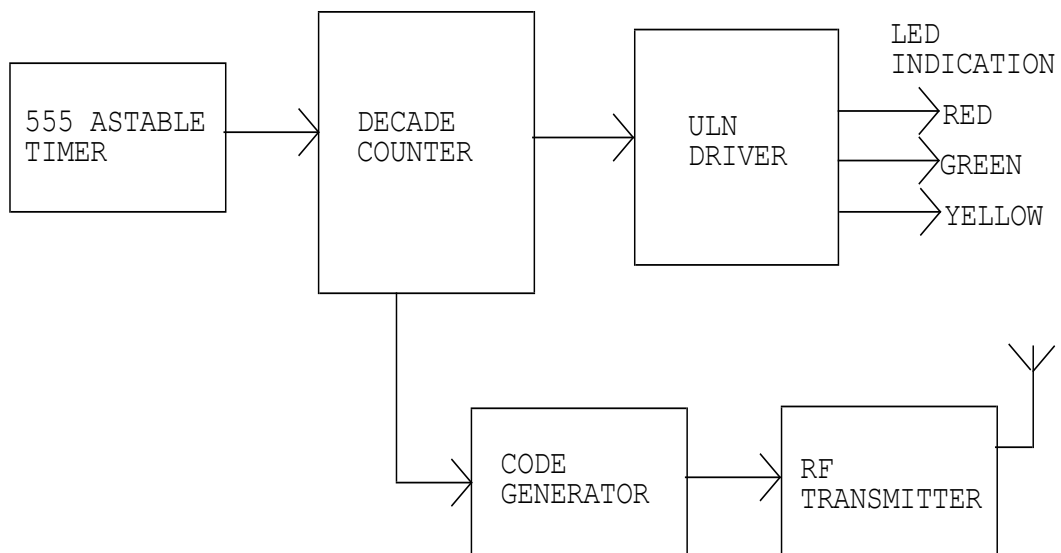


Figure3



And Receiver Section,

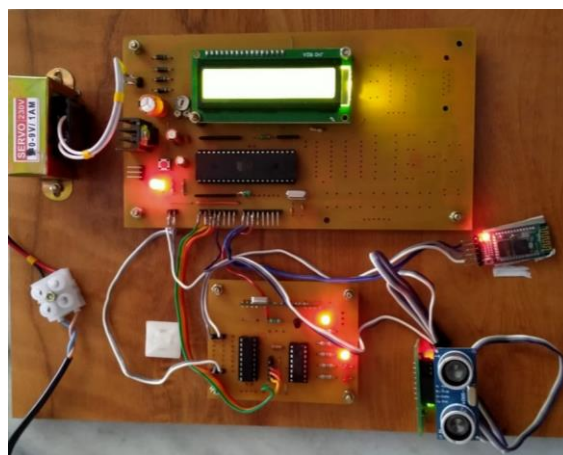
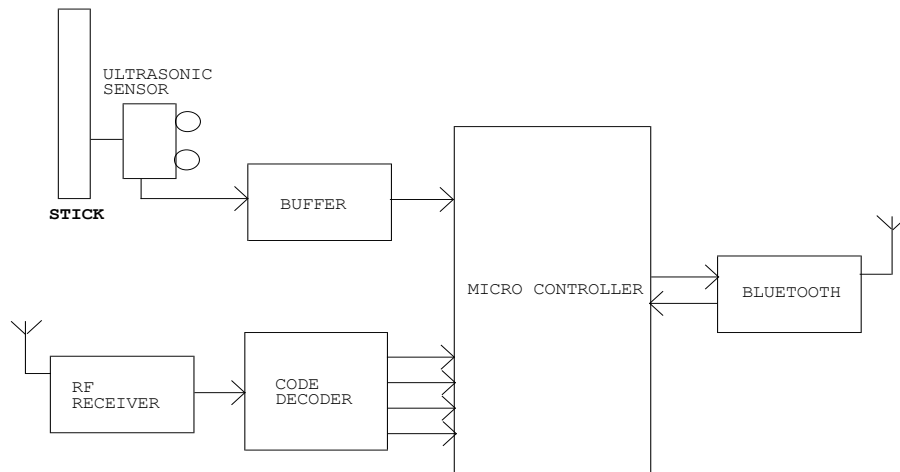


Figure4

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In the Receiver category the ATMEL 89C51 used as a Microcontroller, 16x2 LCD, the RF Receiver contains an HT12D-supported receiver and a 433.92 MHz module for receiving data from a dedicated receiver module. Decoders receive serial addresses and data from a file. A series of 212 encoded encoders are transmitted via a carrier using RF. Here we use the HC-05 module. Bluetooth serial module with name and corresponding number; the salt module is also compatible. and Ultrasonic sensor This sensor is used to detect obstruction. Ultrasonic sensors (also known as transceivers when both transmit and receive) operate on the same principle as radar or sonar detecting target locations by translating echoes from radio sound waves respectively. Ultrasonic sensors produce high intensity ultrasonic waves and detect echo sensors received by sensor. Ultrasonic sensor line is the most cost-effective solution for applications where processing is available, low power performance, space saving, and low cost. This release is given to the microcontroller.

Circuit Description:

This power supply circuit is designed to obtain power to control the DC power output. 9-volt converter, low voltage (230v) to 9 volts. The second power of the transformer is adjusted using a bridge fixer. Unidirectional DC fixed is fixed with a 1000mf filter capacitor. Smooth DC is then installed in the terminal + ve regulator Called 7805 to get 5vDC.

Circuit Activity:

The mains voltage ac 230v drops to 9 volts, using a 9v step down transformer. A lower value of the second volume is fed to the repairman using four no. of IN 4007. In the first half cycle, Diode D1 & D2 are active and the next cycle of diode D3 & D4 will start to operate, finally the unidirectional dc supply is given to the filter capacitor. The charging and discharging material of the capacitor provides a smooth dc with a smooth maximum amount of secondary power. Pure DC supply is provided with an input signal IC controller. Thanks to the controller action, finally, 5 controlled volts are available at the outlet terminals.

3. Hardware Components

In Bus Section, power source connected to L7805CV we know that this is voltage regulator from this HT12E encoder connected. Here HT12E used as a code generator this encoder connected with RF Transmitter. The generator generate code and transmit to the transmitter and these connected to 111t16he4 cd4050be as we know it is used as a hex buffer converter. With this encoder and buffer converter we get output like 0000,0100,0010,0001 these binary values have the bus information.

In Traffic Section also we use RF Transmitter, HT12E encoder and 111t16he4 cd4050be buffer additionally LEDs connected with ULN driver here we used ULN 2003 this relates to 555 Timer and timer connected with cd4050be buffer. In this circuit 555 timers consist of three 5k-2 internal resistor acts as voltage divider, providing bias voltage of (2/3vcc) to the upper comparator (UC) and (1/3vcc) to the lower comparator (LC), where Vcc is the supply voltage. 555 timers send signal to ULN2003 send information to LEDs parallely. so, we get accurate information.

In Receiver Section 0-9V stepdown Transformer to LCD and Micro Controller. Here we are using 2x16 LCD Electrical Characteristics (VDD=5V @ 25 Deg C). ATMEL 89C51 MICRO CONTROLLER we know this is 16bit controller. And Micro controller connected with RF Receiver model RXQ1-433.92MHz, HT12E Decoder, 111t16he4 buffer, Ultrasonic Sensor and HC05 Bluetooth Module. From Receiver to Micro Controller

information will move to LED display. From one Smartphone Application we will get information form the Bluetooth Module.

4. Results And Discussion

In bus zone when a visually challenged person in a bus stop and waiting for a bus He needs some ones help to know some information about the bus but by the help of method we are going to implement he can know the bus information without depending on others.

For this we are inserting a RF transmitter with connecting a small power source inside the Bus.

Similarly, we are taking traffic zone for the real time situation When a visually challenged person entered in a traffic zone to cross the road, he needs some ones help but by the help of method we are implementing he can cross the road by himself.

A RF Transmitter is going to connect inside the traffic lights circuit in a traffic zone.

Receiver section: -

For both real time situations, the Receiver section is same. When the bus arrived inside the bus stan with carrying RF Transmitter the receiver receives the data from Transmitter. Similarly, when a visually challenged person entered inside the traffic zone to cross the road the RF Transmitter inside the traffic section transmits the data and the Receiver kit carry by the visually challenged person receives data.

In both situations the data(signal) will be transmitted by a RF Transmitter and RF Receiver receives the data(signal) and the RF Receiver relates to a ATMEL89S51 microcontroller which converts the data(signal) to Binary data and the data is going to receive by an android based mobile application by the help of HC-05 Bluetooth module. The mobile application contacts the binary data into voice commands the commands can be here by a visually challenged person though mobile speakers or headphones.

In the Bus Zone the voice commands from the application are

1. The bus destination
2. The bus arrival information

In traffic zone the voice commands from application are

1. If red light blinks the company is

It is red now u can cross the road

- 2.if green or yellow lights blink the command is

It is yellow or green you cannot cross the road wait for the next instruction.

ADVANTAGES

- It is very flexible and can take inputs from any number of sensors.
- Simple to construction.
- Uni directional System
- Secured data transmission
- Not easily affected by the external noise.
- Low power consumption.
- Reliability of operation.
- Less maintenance.
- Operating distance is somewhat high.
- Human safety is assured.
- Less maintenance

Our Device is not only for Visually impaired persons

And this is applicable for Physically handicapped people and Old people also can use.

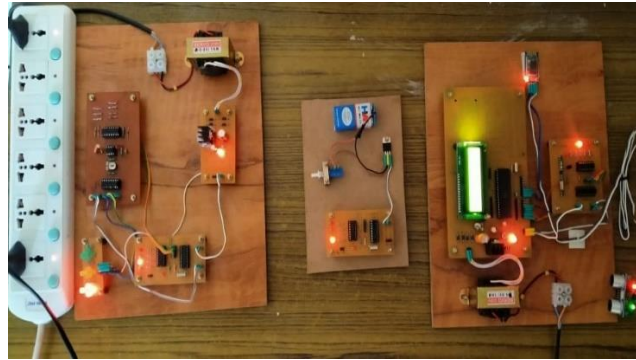


Figure5

5. Conclusion

The RFID SMART PHONE INTERFACED GUIDANCE SYSTEM FOR VISUALLY CHALLENGED PERSON project for the visually impaired works well, making the parameter considered at the time of conception.

During design, and during construction, great care has been taken to prevent hiccups in the final stage. PCB structures were carefully designed to install circuits in a standard way. The region is made simpler as far as we know. And parts were selected keeping in mind their availability and cost.

It was a very interesting process of modeling, phase by phase and similar testing. We must go through the biggest pages of information related to certain things. It was a practical and satisfying assignment to get the project completed on time. This has given us a sense of accomplishment.

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