

Bus Proximity Indicator (An Intelligent Bus Stop)

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Abstract- With Microcontroller(8952) as the core, the **Bus Proximity Indicator (An Intelligent Bus Stop)** integrated with a lot of hardware & software module such as Rf Transmitter And Receiver, Timer AstableMultivibrator, Microcontroller 89s52, Lcd 16x2, Speaker, Gsm System, Fire Detector Sensor, Battery etc. the design of the system software used the embedded software developing platform as Keil

Keywords- Microcontroller(8952), GSM, Rf Transmitter And Receiver, Keil, Lcd 16x2, Fire Detector Sensor

I. INTRODUCTION

Now a Days, In This Busy Day To Day Life Of People, And also Increase In The Vehicles Due To Which There will be more traffic. No person stuck in the traffic are Known By What Time It Will Take To Reach The Destination. This Cause Another Problem Who Are Waiting At Bus Stop (As We Are Considering Bus Stop For The Project Purpose) To Know Which Upcoming Bus, In What Time, At What Distance The Bus Will Be Arrived. This Will Be Easier To The Commuters To Take The Decision Whether To Stay At The Bus Stop Or To Leave The Bus Stop And Take The Other Way. So It Needs To Find An Intelligent Bus Stop System To Replace The Traditional One. At which Their Will Be LCD Display At The Bus Stop And It Will Be Indicating The Bus Number, Which Bus Is Coming, How Far The Bus Is, At What Time It Will Be Arriving at the bus stop. Based On The Investigation About Daily Activity Characteristics And Modes Of The Blind, The Study Found That The Main Difficulties Encountered In A Trip Of The Blind Included Walking On The Road, Finding Way, Taking A Bus And Looking For Usual Life-Area. If His Route Of Travel Happens To Be Common For MoreThan One Bus-Route Number, It Is Even Better For Him To Know Which Is The Nearest Bus Or The Earliest Arriving Bus. Also If There Is Any Fire Cause At The Bus Stop A Sms Will Be Sent To The Respected Main Authority And Sudden Action Will Be Taken. So This Project Will Help To Make

II. LITERATURE REVIEW

International Journal of Scientific & Engineering Research,

April-2011 ISSN 2229-5518 on topic Bus Proximity Indicator (An Intelligent Bus Stop) the author of this paper Prof. A.P. Thakare, Mr. Vinod H. Yadav

It is always a good idea that a bus commuter waiting at a stop gets to know how far a bus is. This becomes very useful for the physically challenged commuter, as after knowing in advance the bus arrival s/he will be ready to accommodate in the bus. This project tells him the Bus number, bus name and the approaching time by displaying it on the LCD which is on the bus stop.

International Conference on Communication and Signal Processing,

April 6-8, 2016, India ©2016 IEEE 978-1-5090-0396-9/16 on topic RFID Based School Bus Tracking and Security System the author of this paper Prof.Shraddha Shah, Bharti Singh

In present time due to increase in number of kidnapping and road accident cases, parents always worry about their children. This paper recommends a SMS based solution which assists parents to track their children location in real time.To track the location GPS module is used and to identify the identity of the child a RFID card is used which is in built in the system.In this way the parents will be able to keep record of their kid's whereabouts.

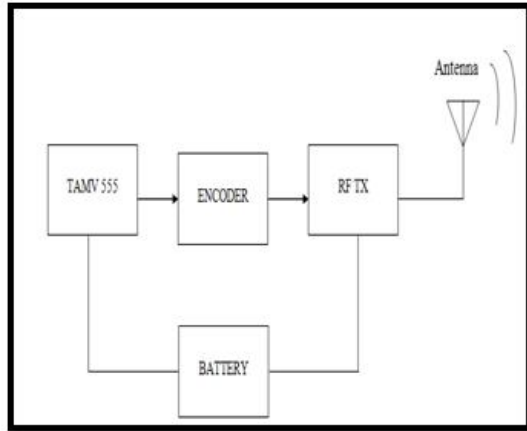
International journal of scientific & technology research,

MAY 2016 ISSN 2277-8616 on topic An Audio Based Bus Proximity Indicator For Visually Challenged People the author of this paper Prof.Thamodhiran. V, Ponvannan.V, Jino James Joseph, G.V.JasonJebasing Best suitable for the visually challenged people. In this a wireless RF linkage between a certain bus and a bus stop can be used for determination of the bus proximity that help's

commuter to know how far his bus is and to identify the bus number through audio signal from audio playback recorder.

III. PROPOSED WORK

Transmitter section



The basic block diagram for the Transmitter section is as shown in the block diagram. It consists of the following blocks:

- a) a)TAMV 555
- b) b)Encoder
- c) RF Transmitter
- d) d)Battery

LEGEND:

TAMV – Timer astablemultivibrator,
RF TX – Radio frequency transmitter

The transmitter circuit which is in the bus. When the switch in the bus is on, the signal from the switch goes to the microcontroller. The microcontroller at89S52 is used to control the signal and it will transmit the input data to the encoder. The ht12e encoder encodes the parallel data into the serial data. Thus the serial data from the encoder is transmitted to the rf receiver with the help of rf transmitter through the antenna. The transmitter circuit also connected with lcd. The lcd is used to display the bus number and the destination

a)TAMV 555:

The 555 timer IC is used as an astablemultivibrator and as an address setter for triggering an IC HT12CODEC which is used as an encoder

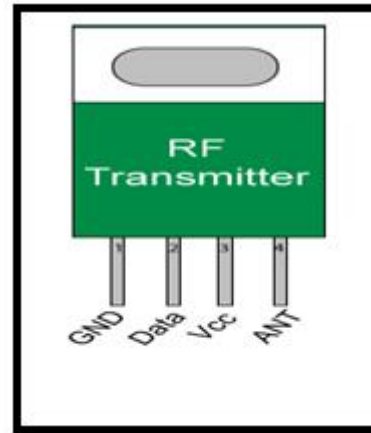
b)RF Encoder:

A logic circuit that produces coded binary outputs from encoded inputs. This uses HT CODEC 12BT for encoding the data. The encoder encodes the data and sends it to RF Transmitter. The IC HT12 CODEC is a single chip telemetry device, which may be an encoder or a decoder. When combined with a Radio transmitter / receiver it may be used to provide encryption standard for data communication system The IC HT12CODEC performs all the necessary data manipulation and encryption for an optimum range reliable radio link.

Transmitter and receiver use same IC HT12 CODEC in RF encoder mode for serial communication. This IC is capable of transmitting 12 bits containing 4 bit address bit and 8 bit data. The transmitted information is sent by RF with 434 MHZ RF transmitter. HT12 CODEC works on 5v.

c) RF Transmitter:

RF transmitter’s uses **ASK (Amplitude Shift Keying)** for modulating the data send by ST12 CODEC .This modulated information is then transmitted with 433 MHz frequency through RF antenna to receiver. It helps in transmitting data present in encoder via antenna at particular frequency.

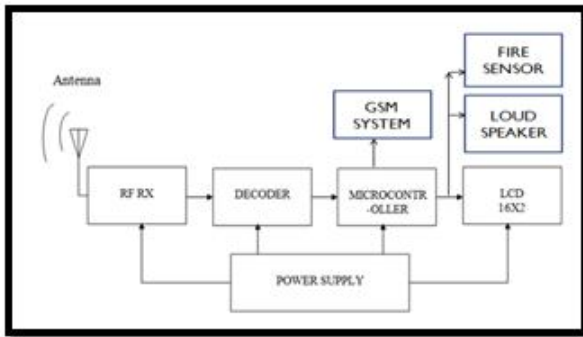


Pin No	Function	Name
1	Ground (0V)	Ground
2	Serial data input pin	Data
3	Supply voltage; 5V	Vcc
4	Antenna output pin	ANT

c) Battery:

A single 9V battery is used to supply power to the transmitter section.

Receiver section



The basic block diagram for the Receiver section is as shown above. It consists of the following blocks,

- a) RF Receiver
- b) RF Decoder
- c) Microcontroller
- d) Power supply
- e) LCD

LEGEND:

- RF RX: Radio frequency receiver
- LCD: Liquid crystal display
- RFDC: RF Decoder
- μC: Microcontroller AT 89S52

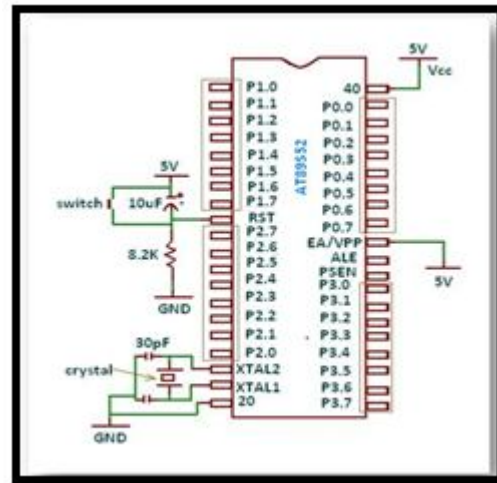
In this the serial data is received and it is again converted into parallel data. The Audio Playback Recorder (APR), the parallel data is converted into a decibel value. It offers true singlechip voice recording, non-volatile storage, and playback capability for 40 to 60 seconds. The device supports both random and sequential access of multiple messages. Hence, either by speaker or headset, the patient can hear the particular bus name with destination in the bus stop while the bus is nearest to him. The receiver circuit will be carried by the blind. The RF receiver receives the serial data from the transmitter. The HT12D decoder converts the serial data into the parallel data. The converted parallel data is send to the microcontroller AT89S52 which controls the signal.

a) Microcontroller (IC 89S52):

This is the most important block of the entire system. The microcontroller works at crystal frequency of 11.0592 MHz.

It receives the parallel data from ST12 CODEC IC and compares it with the program code which already stored in it.

This microcontroller has the baud rate 9600 bits/sec.

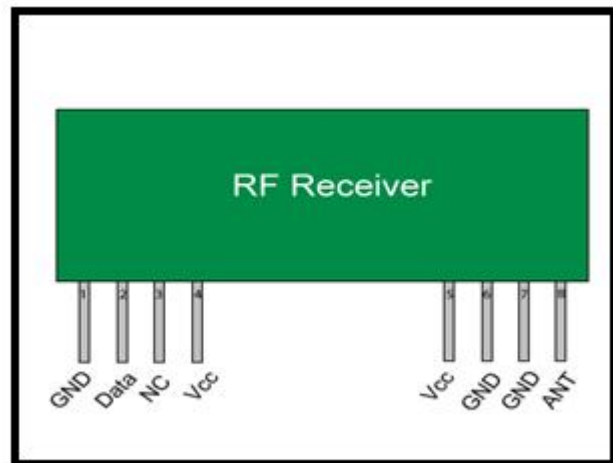


The 89S52 is a low power, high performance CMOS 8 bit microcomputer with 8k bytes of flash programmable and erasable read only memory (PEROM).The device is manufactured using Atmel’s high density nonvolatile memory technology and it is compatible with the industry standard 89S51 and 89S52 instruction set and pin out.

The on chip Flash allows the program memory to be reprogrammed in system or by a conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with flash on a monolithic chip, the Atmel’s AT89S52 is a powerful microcomputer which provides a highly flexible and cost effective solution to many embedded control applications.

b) RF Receiver:

It is enhanced single chip IC RWS 434 which receives the 433.92 MHz transmitted signal, transmitted by RF transmitter.



It uses ASK (Amplitude Shift Keying) conventional heterodyne receiver IC for remote wireless applications.

Pin No	Function	Name
1	Ground (0V)	Ground
2	Serial data output pin	Data
3	Linear output pin; not connected	NC
4	Supply voltage; 5V	Vcc
5	Supply voltage; 5V	Vcc
6	Ground (0V)	Ground
7	Ground (0V)	Ground
8	Antenna input pin	ANT

c) RF Decoder:

A logic circuit that used to decode coded binary word. This uses IC ST12 CODEC for decoding the data which is transmitted by IC RWS 434. The decoder converts the serial data which has been sent from RF receiver to parallel form and sends it to microcontroller. The coded data decoded by this block is given to LCD.

e) 16 X 2 LCD:

LCD modules are useful for displaying the information from a system.

These modules are of two types, Text LCD and Graphical LCD. In this project a Text LCD of size (16 x 2) with a two line by sixteen character display is used to display the various sequence of operations during the operation of the project. This is used for visual information purpose. The LCD will display the data coming from normal keyboard or form microcontroller as a visual indication

V. CONCLUSION

The paper “Bus Proximity Indicator” exhibits the arrival of a particular bus on the display provided at the bus stop. The intention of presenting the paper is to facilitate the commuters waiting at the city bus stops.

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