

**PASSENGER BUS ALERT SYSTEM FOR EASY NAVIGATION OF BLIND**Priyanka Mohan Jadhav¹, Satwashila Dilip Harne², Mayur Kacharu Erande³, Prof. Sagar Shinde⁴^{1,2,3,4}Department Of Eletronics and Telecommunication Dr. D Y Patil.College Of Engineering, Pune,

Abstract — The essential focus of this paper is helping the outwardly weakened/old and illiterate individuals furthermore walker using Wireless Sensor Networks (WSN). Two units particularly traveler unit and the transport unit containing different modules, for example, the ARM 7 controller, amplifier, talk affirmation system, ZigBee module is used. With the help of the ZigBee module in both the units the explorer perceives the vehicle it needs to board. The micro controller controls the framework and gives the data to the traveler of forthcoming transport or stop if, despite everything that the range organizes, the voice swill tell the explorer through earphones connected with the traveler unit to get down at the looked for zone. This endeavor is moreover away to help the senior people with the expectation of complimentary free course.

Keywords- ARM7, Zigbee, 8051, LCD.

I. INTRODUCTION

Help for the Blind was set up to address the stresses, and as a fundamental resource for the outwardly weakened. Help for the Blind is a relationship of outwardly weakened people who need to offer other outwardly debilitated some help with peopling. It is a basic intuition affiliation. At the point when a visually impaired individual is new to a locale, it is key that they be exhibited to get around by a readied and capable teacher. There is a significant and creating enthusiasm for this administration. The task points in plotting a structure which is fit for forewarning the customer if his destination is come to. The endeavor focuses in sketching out a system which is prepared for forewarning the customer if his destination is come to. Target is to arrange system which is incredibly useful for visually impaired, more seasoned and person on foot individuals for simple route utilizing Zigbee module.

II. LITERATURE REVIEW**1. Navigation of Blind People Using Passenger Bus Alert System**

Author: Swapnil Gholap

Right when the outwardly impeded individual is at the transport stop, he/she gives the notice about their region at the vehicle stop through a RFID tag. A RF unit is stationary at the vehicle stop and this unit is seen by the RF unit in the vehicle which is adaptable. The client circuit distinguishes the RFID marks controlled by the outwardly hindered person. The ARM-7 is ran with a RFID per client circuit which begins the signs. The signs are further transmitted by method for RF module to the vehicle unit by ARM microcontroller. The outwardly disabled individual is forewarned about the vehicle entering the vehicle stop through a sign turning on as soon the vehicle is within the RF range. Exactly when the vehicle enters the vehicle stop, the LED in the vehicle is turned ON giving the notification about the region of outwardly weakened individual at the vehicle stop.

2. Passanger Bus Alert System for Easy Navigation of Blind People

Author: Dhruvin Shah

Proposed a framework which utilizes PIC controller at transport unit interfaced with LCD show. By the method for showcases area subsequently so helps the User to get down to the fancied area. The fundamental driver we are occupied with the outline and need to send U-transport framework are: notwithstanding the offices, for example, tram which are produced genuinely finish, with sound and picture messages, camera system is extremely cutting edge there, so it is exceptionally well to bolster for individuals with handicaps, particularly dazzle/blind individuals.

3. INTELLIGENT BUS INFORMATION SYSTEM FOR BLIND PASSENGER

Author: G.SHARATH KUMAR

They proposed a vehicle structure using remote sensor frameworks (WSNs).The blind people in the vehicle station is outfitted with a ZigBee unit which is seen by the ZigBee in the vehicle and the sign is made in the vehicle that the outwardly disabled people is accessible in the station. So the vehicle stops at the particular station. The fancied transport that the outwardly weakened need to take is educated to him with the help of talk affirmation structure HM2007. The outwardly hindered gives the data about the spot he needs to accomplish using mouthpieces and the voice affirmation structure recalls that it .The information is then bankrupt around the microcontroller which creates the vehicle numbers contrasting with the zone given by the outwardly disabled. These vehicle numbers are changed over into sound yield using the voice synthesizer APR 9600.

III. BLOCK DIAGRAM

Bus Transport unit comprises of a ZigBee handset with a microcontroller which finds the accessibility of visually impaired in the transport station and shows it. The visually impaired unit is a versatile unit conveyed by the visually impaired individuals which comprises of ZigBee unit for the relating transport stopped before them, Speech recognition framework (HM12) for recognizing the area gave as voice contribution by the client which is given through portable got by Bluetooth modem and the ARM7 for investigating the info and giving the comparing transport number transmitted through zigbee.

At the recipient side the driver press switch according to the voice signal and transmitted through zigbee of the area determined by the visually impaired as sound yield through voice synthesizer (APR9600). on the off chance that the transport unit does not transmitted any sign to the visually impaired unit. Around then visually impaired unit receives an auto generated message there is no bus available. Information is given through mouthpiece and yield is heard by the visually impaired through the headset. The visually impaired unit is comprise of microphone LPC2148 and zigbee with a LCD.

Blind Unit

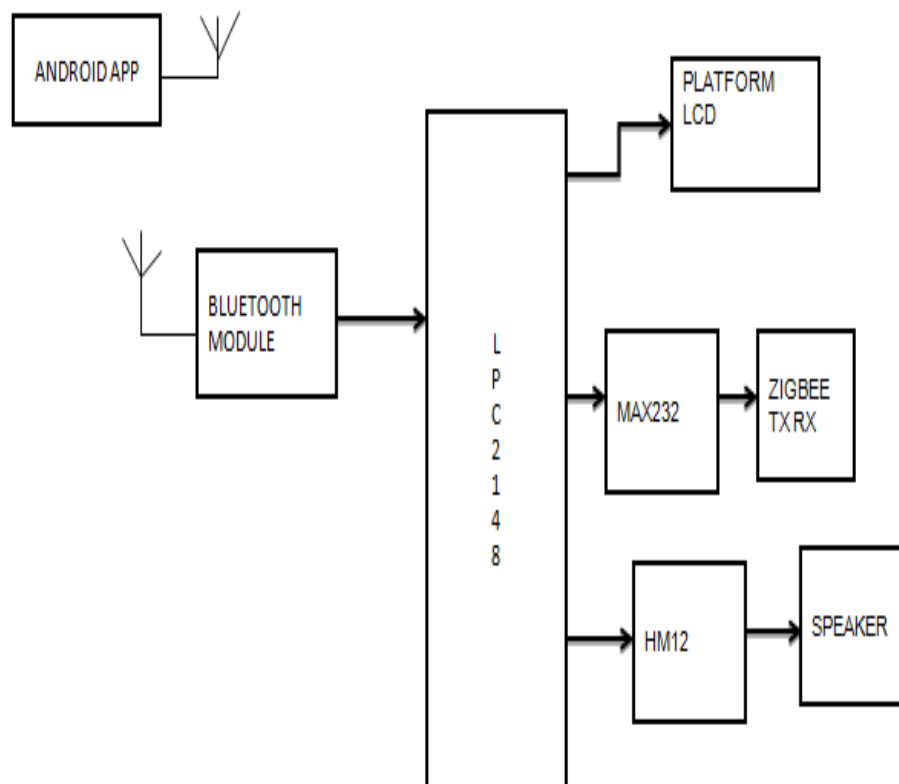


Fig. 1 block diagram of blind unit.

BUS Unit

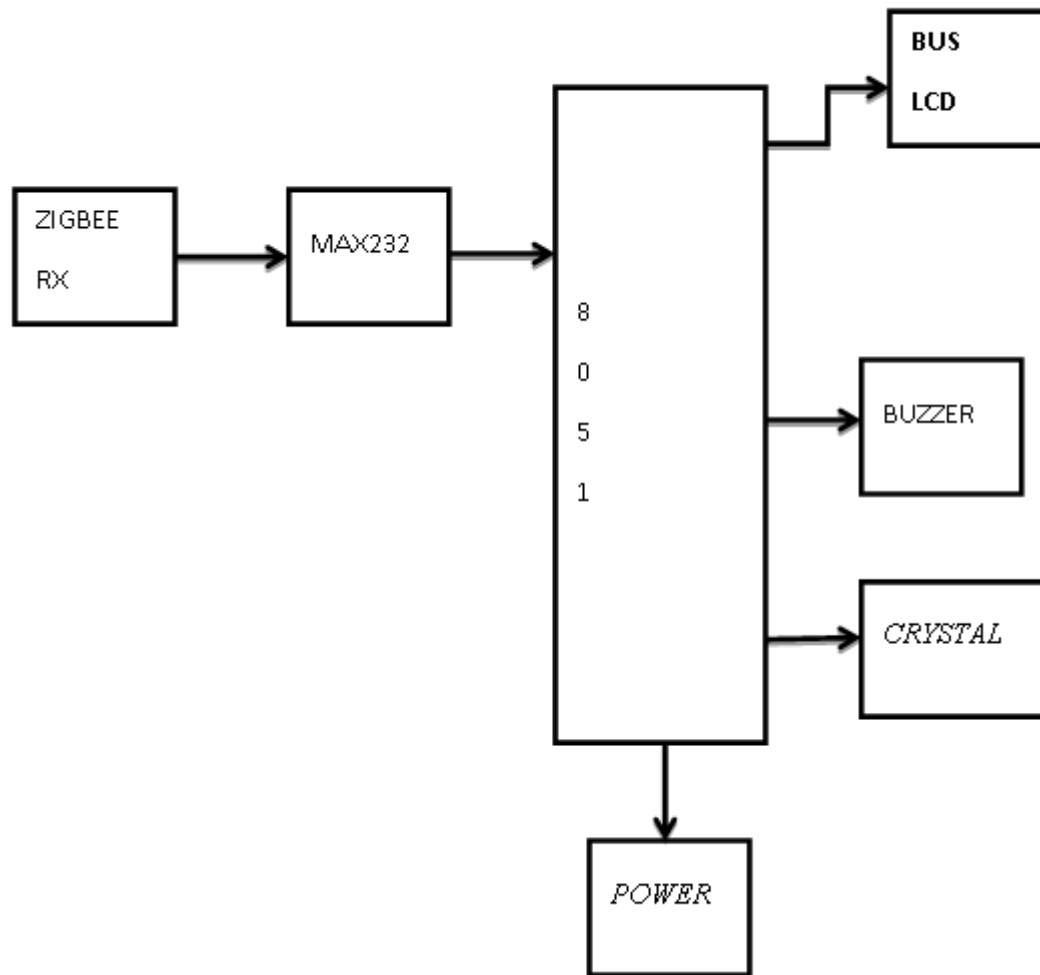


Fig. 2 block diagram of BUS unit

ZigBee System:

It utilizes two-way communication. It relies on upon IEEE 802.15.4 standard for WPANs. Usage of Zigbee are low data rate, long battery life and secure frameworks organization. It works at 2.4GHz. Zigbee contraptions can outline interfaces with Mesh, Star and Generic Mesh topologies among themselves. The framework can be reached out as a group of tinier frameworks. A ZigBee framework can have three sort of center points: Zigbee Coordinator (ZBC), Zigbee switch (ZBR) and Zigbee End Device (ZBE) each having some interesting unique property.

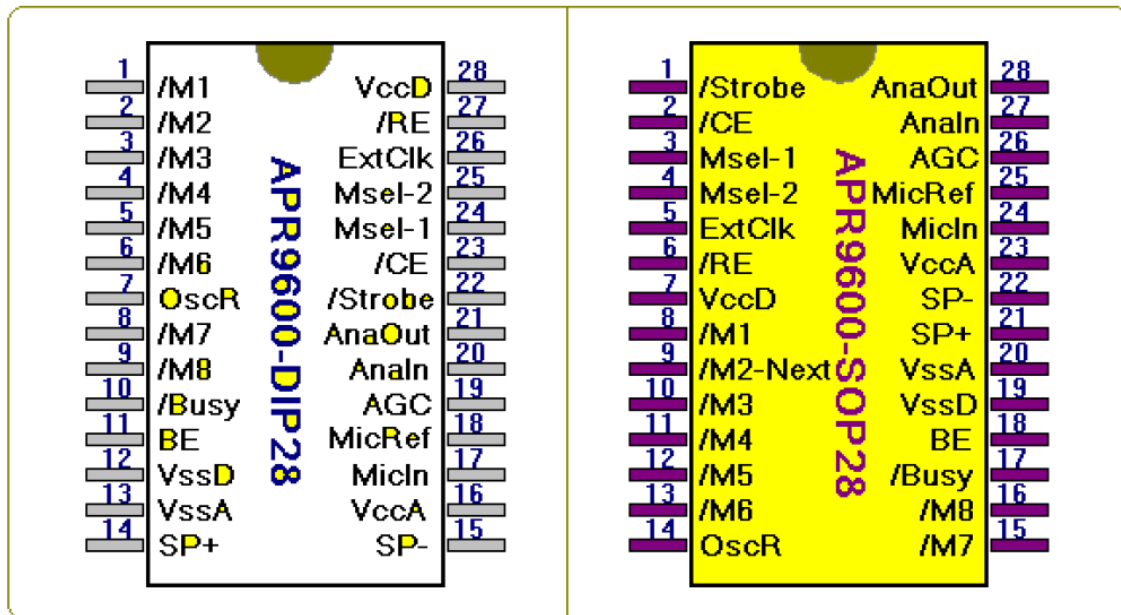
Speech Recognition System (Hm12)

The HM12 is the chip that uses a one CMOS transistor that looks at the simple sign got from the mouthpiece. Sound signs are gotten with an intensifier which are then separated and changed over into a digital structure by a straightforward channel. The sign must be separated to clear any frequencies outside the extent of run of the mill talk. Filtering certain frequencies moreover decreases the exchange rate of the talk signal realizing less required computation power. Dependent upon the operation of the HM12 (planning or affirmation mode), data is either created to or read from the SRAM

Voice Synthesizer (apr9600):

This innovation empowers the APR9600 gadget to replicate voice signals in their normal structure. It dispenses with the requirement for encoding and compression, which frequently present twisting.

Functional Description ARP 9600:



PS : The APR9600 DIP & SOP is not [PIN TO PIN]

Fig. 3 ARP 9600 pin diagram

Arm7 Processor (Lpc2148):

The ARM7TDMI-S is a comprehensively valuable 32-bit chip, which offers tip top and low power use. The ARM building relies on upon Reduced Instruction Set Computer (RISC) norms he ARM7TDMI-S is an extensively helpful 32-bit chip, which offers first class and low power use. The ARM building relies on upon Reduced Instruction Set Computer (RISC) norms, and the rule set and related translate segment are significantly more direct than those of littler scale changed Complex Instruction Set Computers (CISC). This straightforwardness results in a high direction throughput and noteworthy continuous interfere with reaction from a Pipeline strategies are used so all parts of the taking care of and memory structures can work unendingly. Generally, while one direction is being executed, its successor is being decoded, and a third rule is being brought from memory. The ARM7TDMI-S processor in like manner uses a novel outline framework known as Thumb, which makes it ideally suited to high-volume applications with memory impediments, or applications where code thickness is an issue. The key thought behind Thumb is that of a super-lessened bearing set.

Essentially, the ARM7TDMI-S processor has two rule sets:

- _ The standard 32-bit ARM set.
- _ A 16-bit Thumb set.

The Thumb set's 16-bit rule length grants it to approach twofold the thickness of standard ARM code while holding most of the ARM's execution great position over a standard 16-bit processor using 16-bit registers. This is possible in light of the fact that Thumb code takes a shot at the same 32-bit register set as ARM code. Thumb code can offer up to 65 % of the code size of ARM, and 160 % of the execution of an indistinguishable ARM processor connected with a 16-bit memory system. The particular burst utilization in the LPC2141/42/44/46/48 considers full speed execution also in ARM mode. It is recommended to program execution fundamental and short code portions, (for instance, meddle with organization timetables and DSP estimations) in ARM mode.

Microcontroller (8051) :

Microprocessors and microcontrollers are by and large used as a piece of embedded structures things. Microcontroller is a programmable device. A microcontroller has a CPU despite a settled measure of RAM, ROM, I/O ports and a clock embedded all on a single chip. The settled measure of on-chip ROM, RAM and number of I/O ports in microcontrollers

makes them ideal for some applications in which cost and space are essential. The AT89S52 is a low power, with high rate of execution CMOS 8-bit microcontroller with 8K bytes of in-structure programmable Flash memory. The gadget is made using Atmel's high-thickness nonvolatile memory advancement and is great with the business standard 80C51 rule set and stick out.

The on-chip Flash allows the task memory to be recreated in-structure on the other hand by a customary nonvolatile memory programming engineer. By solidifying an adaptable 8-bit CPU with in-system programmable Flash [9] on a strong chip, the Atmel AT89S52 is an extraordinary microcontroller which gives an exceedingly versatile and canny response for some embedded control applications. The AT89S52 gives the going with standard segments: 8K bytes of Flash, 256 bytes of RAM, 32 I/O lines, [5] Watchdog clock, two data pointers, three 16-bit clock/counters, a six-vector two-level meddle with building, a full duplex serial port, on-chip oscillator, and clock equipment. In addition, the AT89S52 is created with static basis for operation down to zero repeat and support two programming selectable power saving modes [6]. The Idle Mode stops the CPU while allowing the RAM, clock/counters, serial port, and interfere with system to continue working. The Power-down mode saves the RAM substance however sets the oscillator, impeding all other chip limits until the accompanying obstruct or hardware reset.

IV. CIRCUIT DIAGRAM

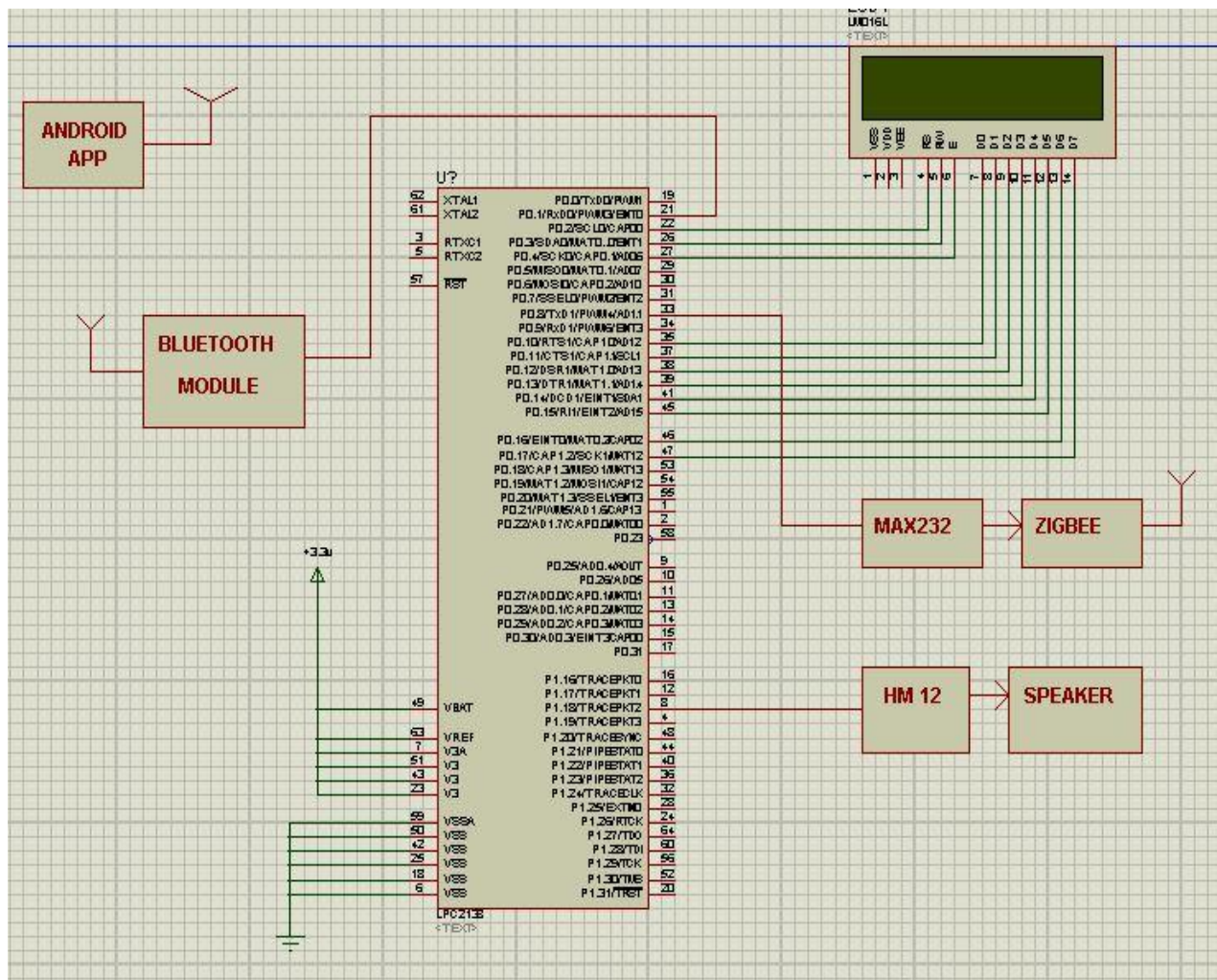
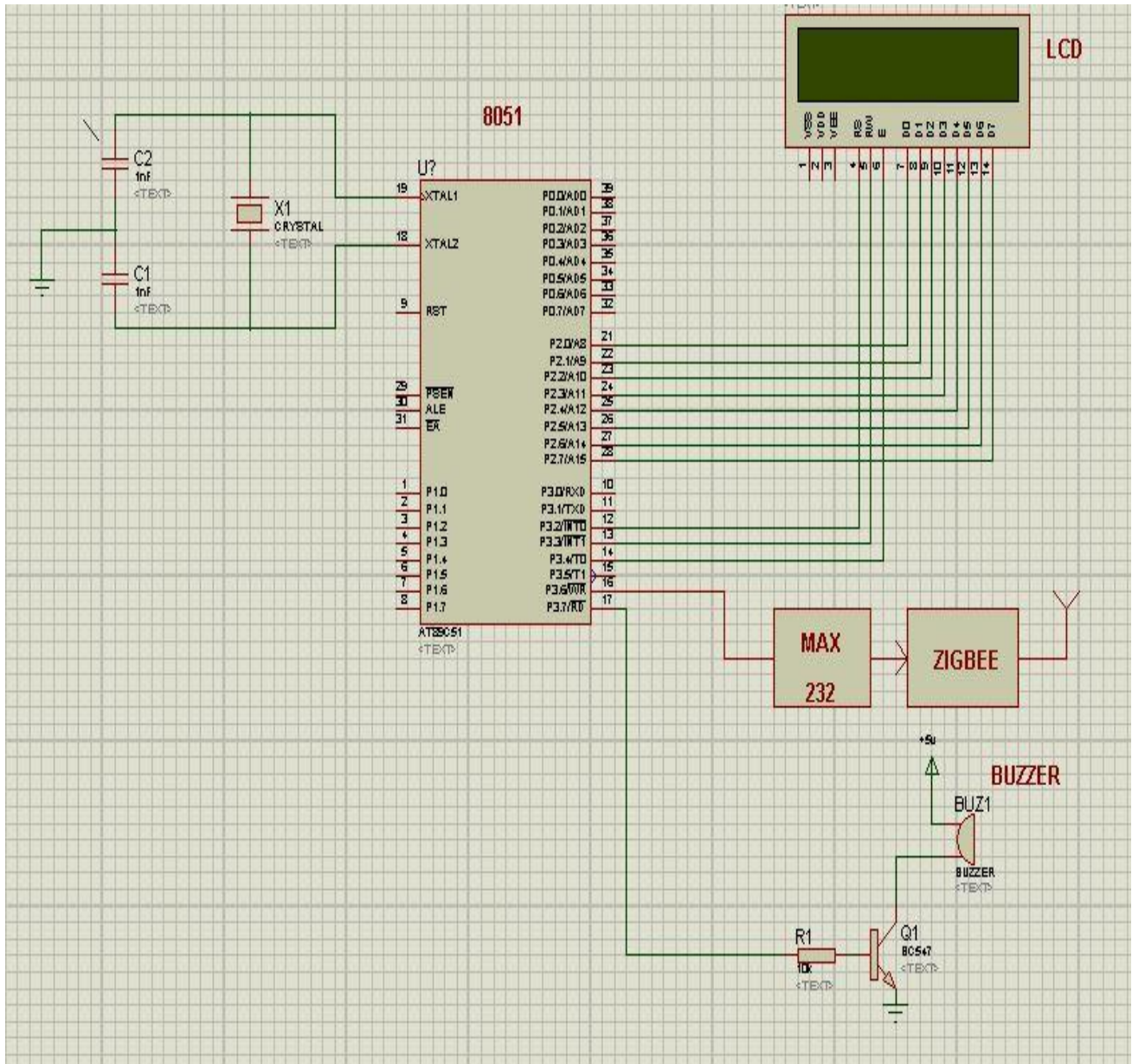
BUS UNIT:

Fig. 4 Proteus Simulation of Blind Unit

BLIND UNIT:



V. CONCLUSION

This device is proposed to outfit with a more conspicuous good position conveying voice based assertion for the client i.e. the customer gets the voice which maintains his vehicle unobtrusive components as and accomplishes the destination. Here as opposed to the disturbing sound the customer can direct hear the range recorded by the customer itself. This gives information that would be required in an emergency condition to direct emergency powers, or to phone for help when lost assists in familiarizing with another environment.

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VI. REFERENCES

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