

Arduino Based High Way Vehicle Security System

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Abstract: Nowadays most of the Accidents on Highways are because of Weak security systems in the vehicles. since there is no proper alerting system when the nearby vehicle approaching the ongoing vehicle this leads to more Accidents. This project demonstrates a highway vehicle security system with an alerting signal and Buzzer. When any vehicle approaches the rear window of the vehicle it glows a bright LED with buzzer and It will glow until the vehicle over takes. And there will be a signal to indicate and gives buzzer for safe highway driving. The light automatically emits and gives a buzzer when the approaching vehicle reaches less than the set distance and it will alert the driver even during the day , giving additional safety during night and when a vehicle at rest.

Key Words: 8051 Micro controller, Sensor, Buzzer, Led light, Display

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I. Introduction

Here we propose an IOT based highway vehicle security monitoring as well as controller system that automates highway security system .The system uses Microcontroller based circuit system to monitor. We use ultrasonic sensor based security system that provides the safe journey during driving .The system shows current densities to help monitor accident conditions on roads. Also the system provides an option to the controller and provides safe journey. This system can provide very user friendly and reliable security system. In the contemporary world, urban mobility is one of the unprecedented challenges to be tackled in the administration of a big city. This paper analyses the ever growing urban population around the globe and discusses about the traffic systems in densely populated cities like Los Angeles and Amsterdam. Further, an advanced traffic management system is proposed, implemented using Internet of Things (IOT).So, to overcome this we need a safe and secured system to be monitored and that will monitor the entire traffic system

BLOCK DIAGRAM:

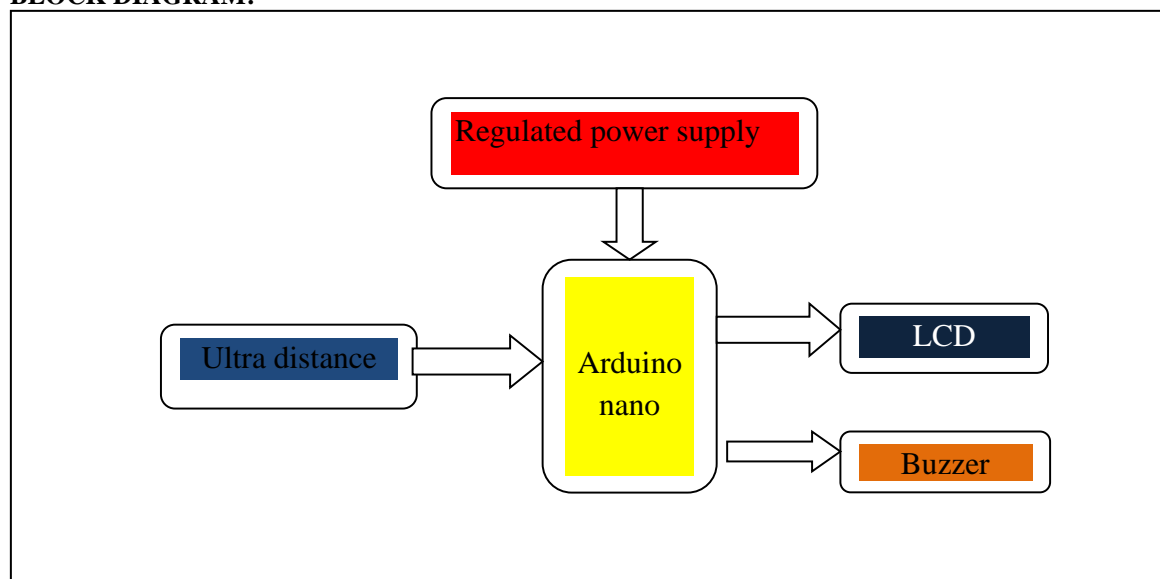


Fig 1. Block diagram Arduino based Highway vehicle system

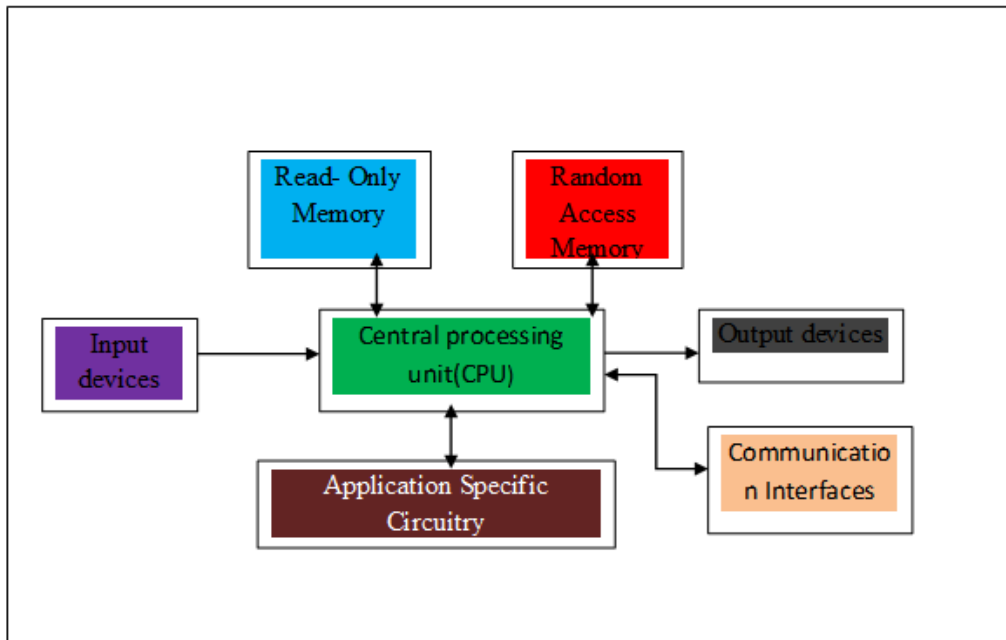


Fig 2. Complete structure of Arduino based Highway vehicle system

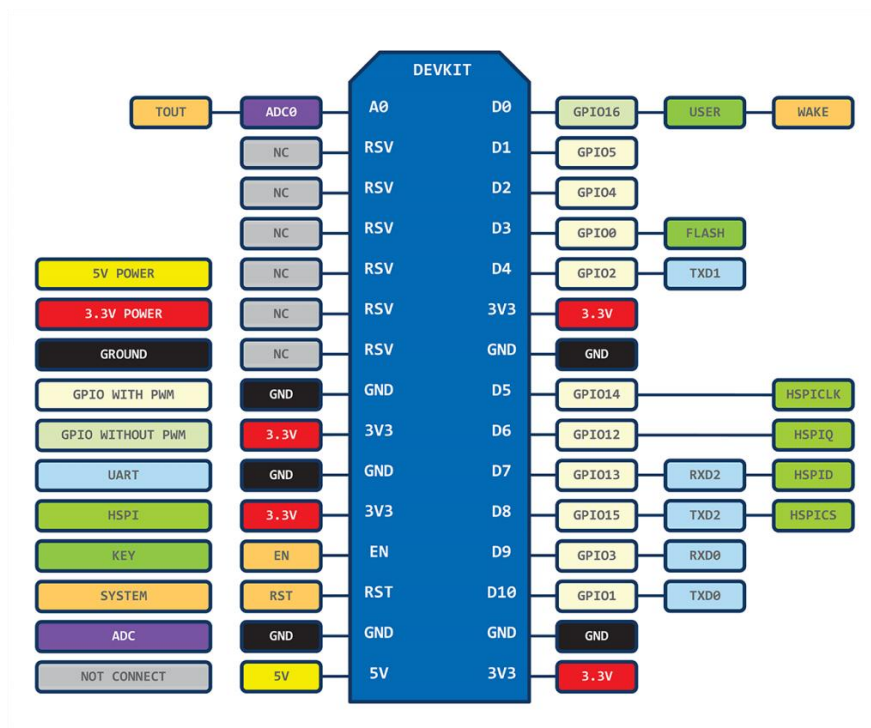


Fig 3 NODE-MCU configuration

Arduino ATMEL 35473D Specifications:

Microcontroller	ATmega 328P- 8bit AVR family MC
Operating voltage	5V
Recommended input voltage	7-12V
Input voltage limits	6-20V
Analog input pins	6(A0-A5)
Digital I/O pins	14(out of which 6 provide PWM output)
Dc current on 3.3V pin	50Ma
SRAM	2KB

PIN DECIPTION:

Power	Vin,3.3V,5V,GND
Reset	Reset
Analog pins	A0-A5
I/O pins	Digital pins 0-13
Serial	0(Rx),1(Tx)
External Interrupts	2,3
PWM	3,5,6,9,11
SPI	10(SS),11(MOSI),12(MISO) and 13(SCK)
Inbuilt LED	13
TWI	A4(SDA),A5(SCA)
AREF	AREF

Pin Description

Most LCDs with 1 controller has 14 Pins and LCDs with 2 controller has 16 Pins (two pins are extra in both for back-light LED connections). Pin description is shown in the table below.

Pin Configuration table for a 16X2 LCD character display:-

Pin Number	Symbol	Function
1	Vss	Ground Terminal
2	Vcc	Positive Supply
3	Vdd	Contrast adjustment
4	RS	Register Select; 0→Instruction Register, 1→Data Register
5	R/W	Read/write Signal; 1→Read, 0→ Write
6	E	Enable; Falling edge
7	DB0	Bi-directional data bus, data transfer is performed once, thru DB0 to DB7, in the case of interface data length is 8-bits; and twice, through DB4 to DB7 in the case of interface data length is 4-bits. Upper four bits first then lower four bits.
8	DB1	
9	DB2	
10	DB3	
11	DB4	
12	DB5	
13	DB6	
14	DB7	
15	LED-(K)	Back light LED cathode terminal
16	LED+(A)	Back Light LED anode terminal

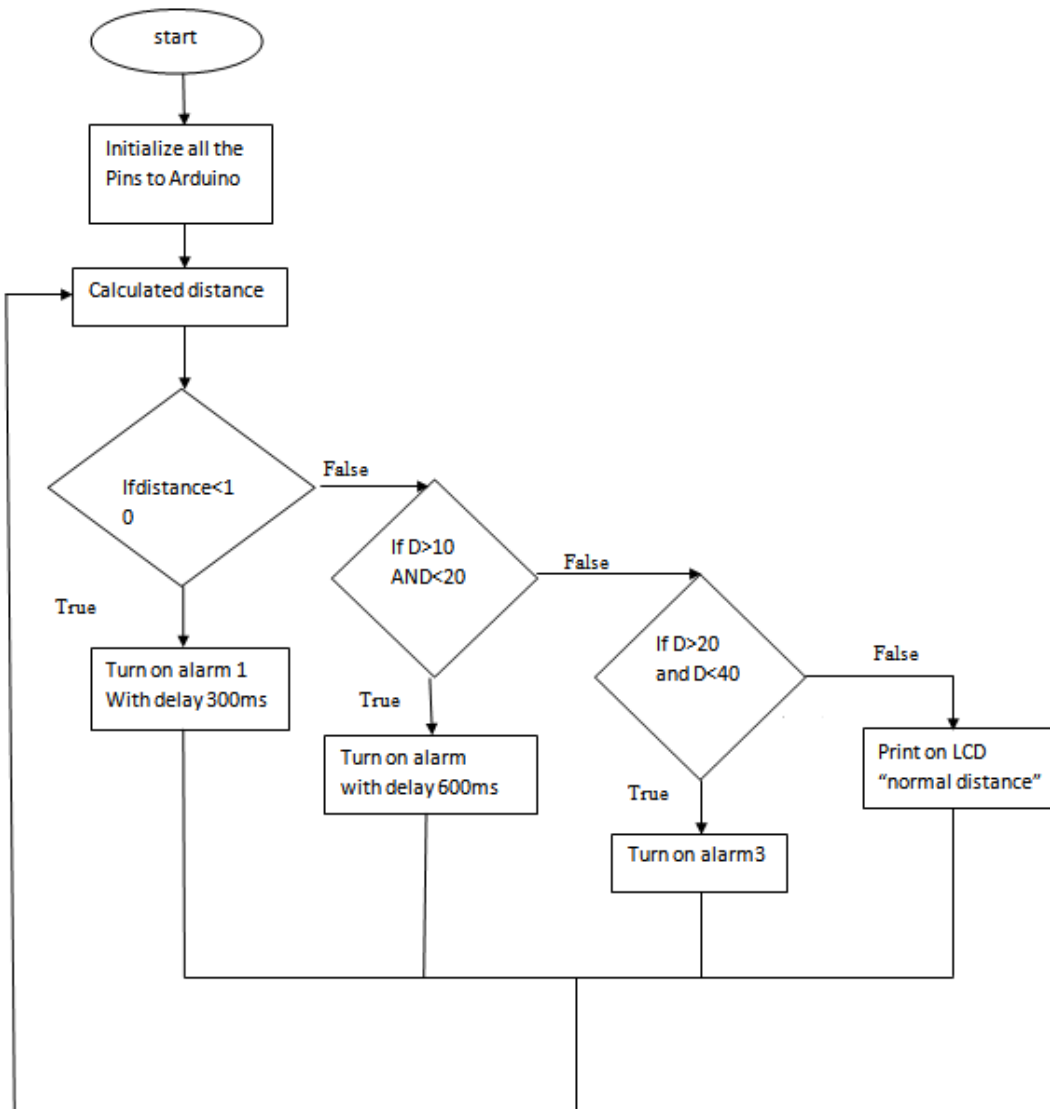


Fig 4. Flow chart of arduino based Highway vehicle security system

This is High sensitivity, Fast response and Automatic operation, performance is stable and long-life, this is specifically Simple drive circuit, Efficient vehicle control when sensors detect and low-cost design, power consumption is very less, Easily operable.

System is complex, in some places where there is no provision of GSM networks which is difficult, if the hardware destroys when the accident occur the communication is difficult.

II. Conclusion

This paper titled “ARDUINO BASED HIGH WAY VEHICLE SECURITY SYSTEM” was designed to help a Friendly hardware interaction for the user. In the proposed system we can monitor Status of LDRS and ultrasonic sensor which alerts the user for safe driving and helps to reach their destination safely. This scheme is very supportive to the society to control the traffic efficiently, economical and reduces accidents on highways.

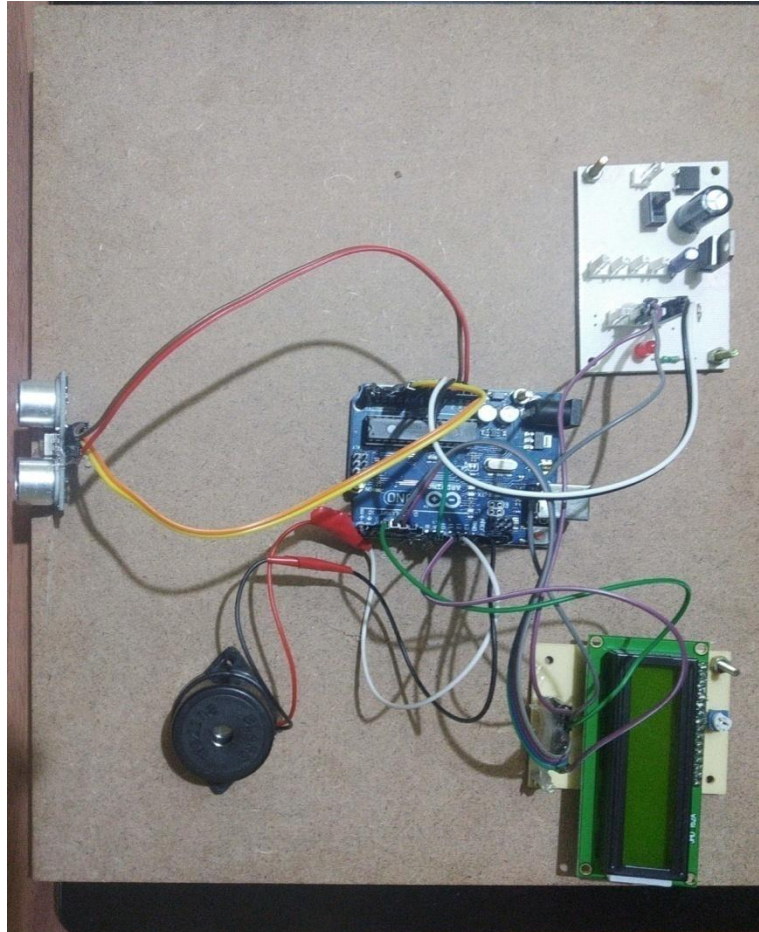


Fig 5 HVSS KIT BEFORE ON

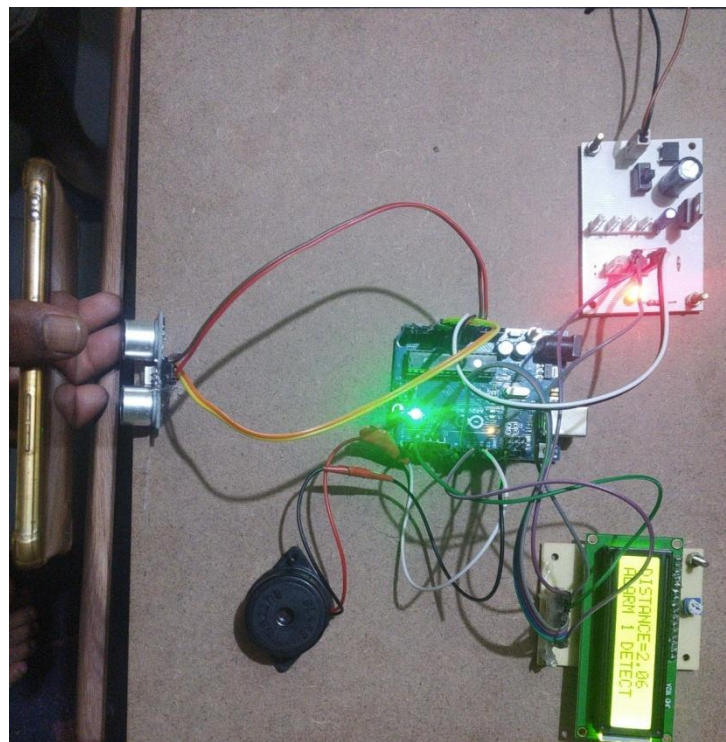


Fig 6 HVSS CKT WITH ALARM 1 DISTANCE<10CM

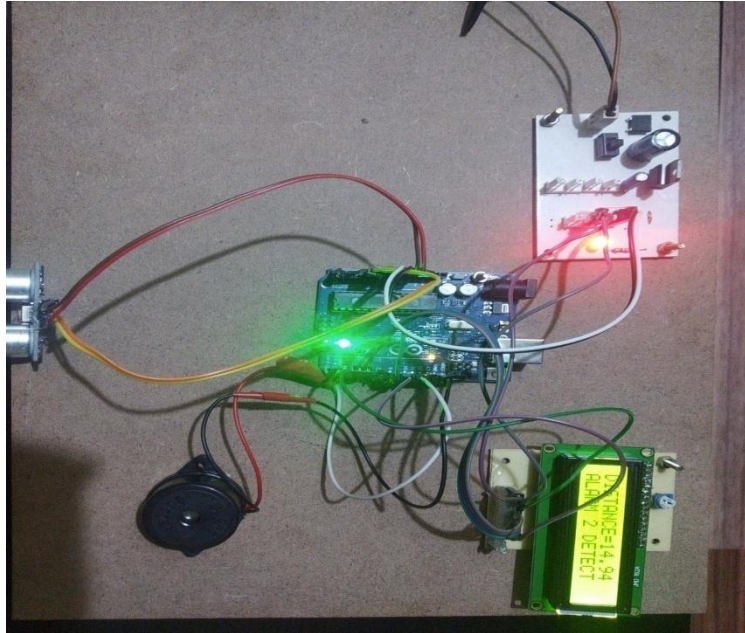


Fig 7 HVSS CKT WITH ALARM 2 DISTANCE <20CM

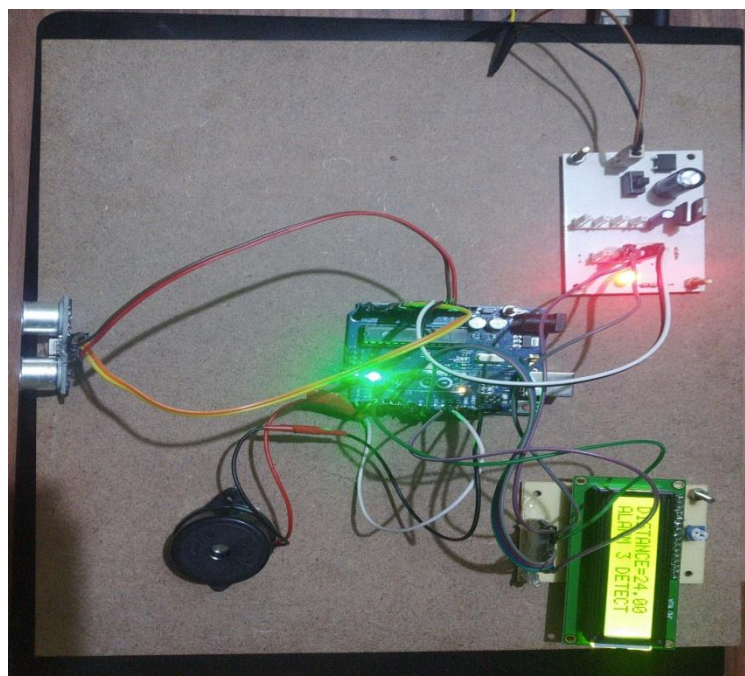


Fig 8 HVSS CKT WITH ALARM 3 <30CM

III. Future Scope

We can invoke the technology, so that tracking the person can be done effectively with low cost and we can achieve the task of automatically overriding the signals perfectly. By using IOT technology we can develop our country and also reduces the risk of accidents and make the society accident free and monitors the whole traffic system smoothly.

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BIOGRAPHIES

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