

REAL TIME MONITORING PREVENTION OF ACCIDENT DUE TO DROWSY BY USING EYE BLINK SENSOR

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ABSTRACT

Recently technological and populace development, the usage of vehicles are unexpectedly growing and on the equal time the prevalence accident is likewise increased. Hence, the value of human lifestyles is neglected. Now you can actually save you the twist of fate, but can save their lifestyles by means of providing eye blink sensor and ultrasonic sensor. As the driver get drowsy the eye blink sensor detects the signal as a result the vehicle will be stopped and in the same way if any other vehicle is coming nearer to our vehicle the ultrasonic sensor receives the reflected signal and stops the vehicle.

Keywords: *Arm7 Board, Eye blink Sensor, Ultrasonic sensor, LCD, DC Motor, Buzzer & Relay.*

I. INTRODUCTION

Main motive of this mission is to prevent accidents. Accident preventions are taken care with the help of computerized breaking device the usage of ultrasonic sensor and eye blinking sensor. The eye blink sensor function is totally based on IR rays and ultrasonic as a ranging sensor, its function based totally on ultrasonic wave. After transmit with the aid of transmitter, the wave can mirror while obstacle detected and obtain via receiver. The primary goal for this mission is motors can routinely braking because of limitations whilst the sensor senses the barriers. The braking circuit characteristic is to brake the auto mechanically after received sign from the sensors.

II. EXISTING SYSTEM

In existing system the project containing only object detection i.e the engine gets slow down automatically when any vehicle comes near to the front our vehicle by detecting the ultrasonic sensor.

III. PROPOSED SYSTEM

This proposed system introducing a new technology to avoid the accidents when driver in slept condition while driving. In this undertaking we are making use of an eye blink sensor for prevention of accidents from the drowsy. If

the driving force is slumbering while using, this sensor will observe after which it's going to gives the alerting signal to the driver by a buzzer.

Block diagram:

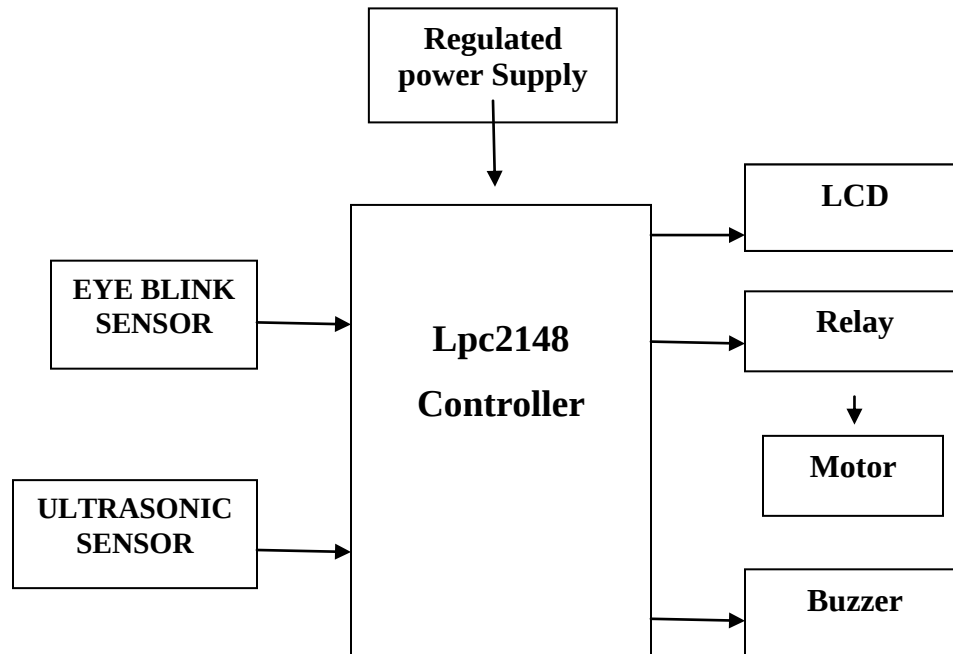


Fig1: Block diagram

IV. HARDWARE REQUIREMENTS

LPC2148 MICROCONTROLLER:

The ARM7 (advanced RISC gadget) pressers board primarily based complete on a 16/32-bit ARM7 its method of sixteen/32-bit ARM7 TDMI-S microcontroller, 8 computer reminiscence unit to forty pc reminiscence unit of on-chip static RAM and 32 laptop memory unit to 512computer reminiscence unit on-chip flash memory; 128-bit In-gadget Programming (ISP). 32-bit timers/out of doors occasion counters, PWM pulse width modulation unit (six outputs) and watchdog, Low electricity of actual-Time Clock (RTC), a couple of serial interfaces which has 2 UARTs , fast I2C-bus (400kbit/. There are sixty 4 pins of ARM7 processor and a couple of ports (port0, port1) forty five pins are enter/output.

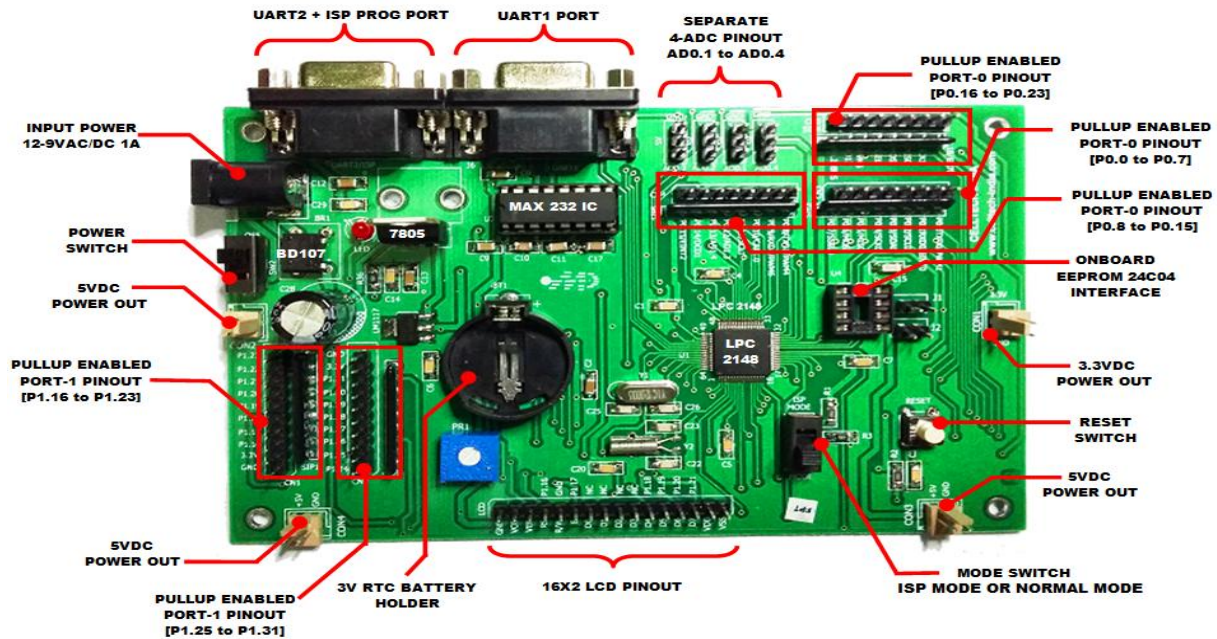


Fig2:-LPC2148 board

DC motors:

Motors are electro mechanical gadgets which are used for to transform the electrical alerts into mechanical indicators. All the D.C cars are having identical internal mechanism, both electro mechanically exchange the direction of modern-day glide in a part of the motor. In venture we're used for to transport the motor in unique course. We need to connect the motor to controller through driving force IC handiest.

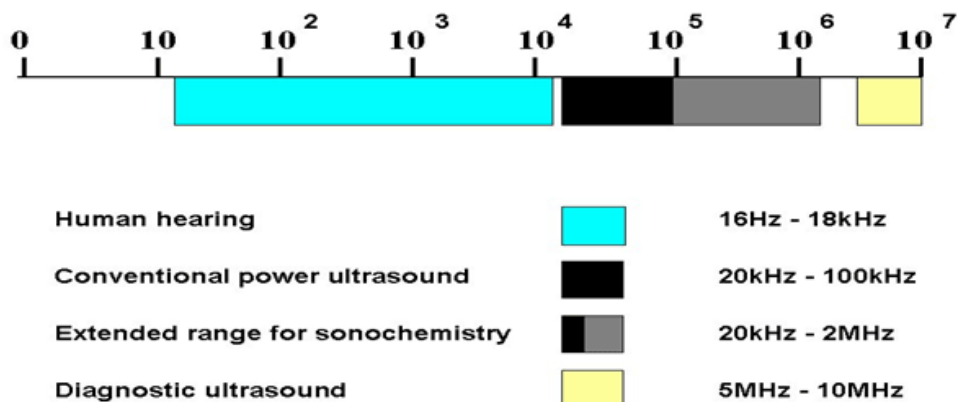


Fig5: DC motor

Ultrasonic Sensor

This sensor is a gadget that uses electro-mechanical energy transformation, the mechanical electricity being in the form of ultrasonic waves, to calculate the distance from the sensor to an object. Ultrasonic waves are longitudinal mechanical waves which excursion as a succession of compressions and rarefactions along the direction of wave propagation via the medium. Any sound wave above the human auditory range of 20,000 Hz is referred to as ultrasound. Depending on the form of application, the form of frequencies has been notably classified as tested within the discern under:

The Frequency Ranges of the Sound



When ultrasonic waves are incident on an item, subtle reflected picture of the power takes place over a large solid angle which might be as high as one hundred eighty stages. Thus a few fraction of the incident energy is contemplated once more to the transducer inside the shape of echoes and is detected. The distance to the item (L) can then be calculated thru the speed of ultrasonic waves (v) within the medium by means of the relation

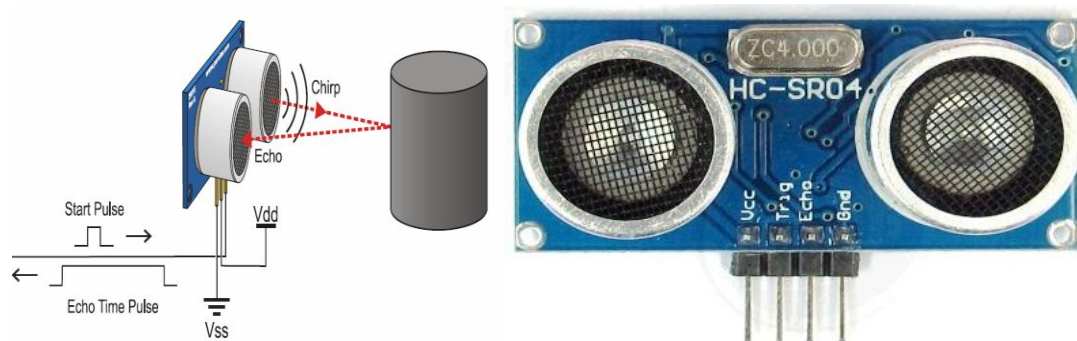


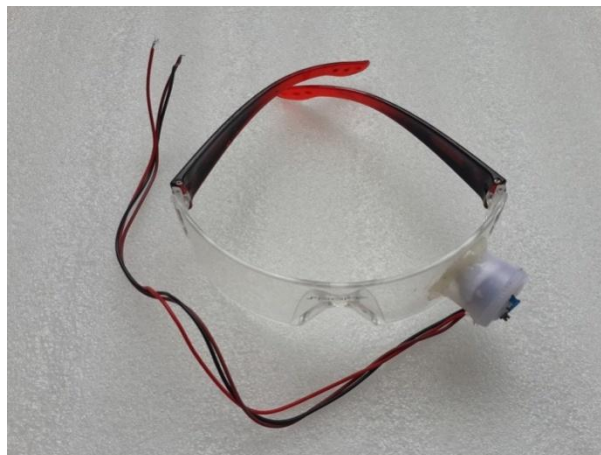
Fig 6: ultrasonic sensor

Buzzer:



A buzzer is an electronic device which makes a buzzing or beeping noise. The piezoelectric buzzer is a buzzer which is just a flat piece of piezoelectric material with two electrodes. This type of buzzer requires some kind of oscillator to drive it. If a DC voltage is applied you will get a click. They are used in places where it emits an audible tone, but don't care about high-fidelity sound reproduction, like microwave ovens, smoke alarms, and electronic toys. They are cheap and can be very loud without using very much power.

Eye blink sensor:



It is vital in our operating to locate the blinking of eye, due to the fact it's miles used to force the device and to function events. So blink detection must be performed, for which we will avail quite simply available blink hit upon if there is no student determined for the certain duration of pre-determined that is time greater the human eye blinking time then recollect an occasion referred to as "blink", for which the set of operations can be followed. Here, in this example we need to set time as 2 seconds or above it, as blink event isn't like normal eye blinking. We need to perform trying out for only blink occasion estimation, and In this undertaking we strive has been made to save you an coincidence the usage of eye blink sensor. Drivers with a shrinking vigilance stage are afflicted by a

marked decline of their perception. Recognition and car manipulate competencies and therefore pose a serious risk to their own lives and the lives of the other humans .Many efforts were mentioned inside the literature for growing an active safety system for decreasing the range of motors accidents due to reduced vigilance. Drowsiness can be usually divided in to following ways: Sensing of physiological characteristics, motive force operation, vehicle response and Monitoring the response of driving force. Sleep related accidents have a tendency to be greater serve ,probable Because of the higher speeds concerned and due to the fact the driver is not able to take any averting action, or even brake ,previous to the collision. Horne describes normal sleep related injuries as ones wherein the motive force runs off the street or collides with any other vehicle or an item, with none signal of tough braking earlier than the impact.The aim of this assignment is to design an accident prevention system which enables in stopping injuries.

Relay

Relay could be an important device currently days. They're utilized in varied circuits and lots of people have drawback of a way to use a relay. With the assistance of this text I actually have tried to clarify 2 things.

1. Operation of relay

2. The way to use a relay

1. Electromagnet- It consists of iron core wounded by coil of wires. Once electricity is tried and true it become magnetic thus it's referred to as magnet.

2. Armature-The movable magnetic strip is thought as coil. Once current flows through them, it energizes the coil and turn out force field that is employed to form or break the usually open (N/O) or usually shut (N/C) points. Coil is affected with electrical energy (DC) yet as AC (AC).

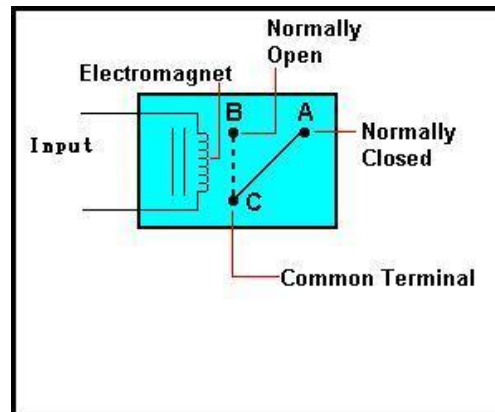
3. Spring - once no current flow through coil magnet, the spring pulls the coil away so circuit can't be completed.

4. Set of electrical contacts- There are a unit 2 contact points:

A. usually open-In this device connected to that can work once relay is activated and disconnect it once relay is inactive.

B. usually close- during this the device connected to that won't work once relay is activated and therefore the circuit is connected once relay is inactive.

5. Molded frame-Relays area unit coated with plastic or glass so we are able to observe its operating while not gap or removing its cowl.



V. SOFTWARE DESIGN

In this proposed contrivance, as we tend to use LPC2148 we wish to use following software package instrumentation to program for it.

1. Keil4 Vision
2. Flash Magic

The Keil4 Vision is an IDE for Embedded C language. In this IDE, we desire to import the utilities and libraries consistent with the controller. This IDE may be very more without difficulty and is consumer pleasant thanks to apply, assemblers, and debuggers in it. It simplifies the manner of embedded simulation and trying getting into conjunction with Hex file generation. The flash magic is a programming software. The C/C++ software written in IDE could be processed into Hex record i.e. in .Hex layout. By the use of hex report we have a tendency to produce the code into microcontroller and carry out utility.

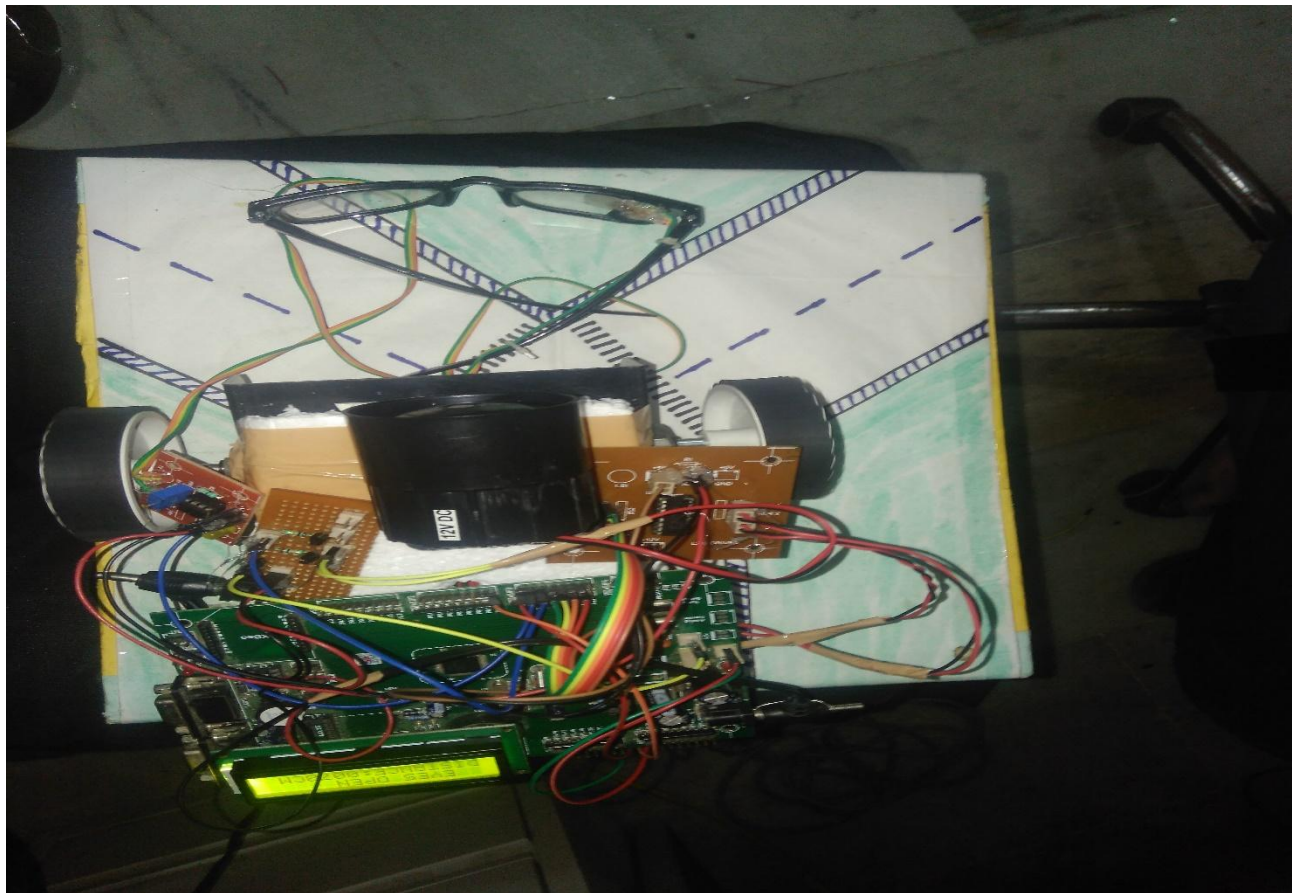
VI. WORKING PROCEDURE

The primary goal of this is to layout an ARM based totally ultrasonic and eye blink sensor twist of fate preventions, detection and monitoring system. In this venture LPC 2148 processor is used. As the ARM processor calls for 3.3 volts of deliver, so a step down transformer of 230/12V is used to get the desired AC output. To convert that AC deliver to DC supply is performed by means of using rectifier. DC output includes ripples, to remove those ripples we use filter capacitors. To get output voltages of +5v & +12v we're the use of voltage regulators 7805 & 7812. ARM processor includes modes of operation i.e.; program mode and run mode. Program mode is used for dumping of this system into ARM processor from any external tool inclusive of pc. Run mode is used for the execution of application. For the reason of accident detection we use run mode of operation. If any vehicle detected near our vehicle the ultrasonic detects and stops the vehicle also gives the alarm and the detection will be displayed on LCD. In the same way if the driver is getting drowsy the eye blink sensor detects the drowsy and send the information to

the controller. The controller transmits the signal to the relay as a result the motor will be stopped also gives the alarm and detection will be displayed on LCD. In this manner we can prevent the accidents and save the human life.

VII. RESULT

The “Real Time Monitoring Prevention of accident due to drowsy by using eye blink sensor” prevents the accidents with the help of ultrasonic and eye blink sensor.



VIII. CONCLUSION

With our machine, a secure journey is practicable which would decrease the injuries for the duration of injuries and additionally reduce the twist of fate rate due to drowsy. This device has also accident prevention technology which might reduce the twist of fate of the automobile in crowd areas by ultrasonic sensor. In future we can interface distinctive sensors with this work, which includes coronary heart charge detector, etc. In terms of these we are able to in reality save you from accident. Security sensors to identify theft also can be brought. It can be reprogrammed

to switch off car and music the car in robbery. Safety car braking device generation might be further stronger and equal can be carried out in aircrafts, submarines.

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