Accident Prevention by Eye Blinking Sensor and Alcohol Detector

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Abstract-This system provides a unique method to curb drunken and drowsy people. This system has an alcohol sensor and eye blinking sensor embedded in the vehicles. Whenever the driver start vehicle, the sensors senses the eye blink and measures the content of alcohol in his breathe and automatically sends the signal to buzzer, gsm and lcd. In this system the outputs of sensors are given to the microcontroller for comparison. If the value reaches to fixed limit then automatically gsm will send the sms, buzzer will produces sound and lcd will display the message.

Keywords:Accident, Alcohol sensor, Eye blinking sensor, Buzzer.

INTRODUCTION

This project involves measure and controls the eye blink & alcohol content using IR sensor & alcohol detector. The IR transmitter is used to transmit the infrared rays in our eye. The IR receiver is used to receive the reflected infrared rays of eye. If the eye is closed means the output of IR receiver is high otherwise the IR receiver output is low. This to know the eye is closing or opening position. Alcohol detector detects the content of alcohol in the breath and thus it attempts to clamp down alcoholics. This system uses microcontroller, LCD display, alcohol detector, GSM and buzzer. The output of the sensor is directly proportional to the content of alcohol consumed . This output is given to logic circuit to indicate the alarm. This project involves controlling accident due to unconscious through Eye blink & alcohol detector. Here one eye blink sensor and alcohol detector is fixed in vehicle where if anybody loses conscious and indicate through alarm,LCD and GSM..The circuit has an alcohol sensor. This sensor measures the content of alcohol from the breath of drunken people. Output of the sensor is directly proportional to the alcohol content. When the alcohol molecules in the air meet the electrode that is between alumina and tin dioxide in the sensor, ethanol burns into acetic acid then more current is produced. So the more alcohol molecules more will be the current produced. Output of the sensor is then fed to the microcontrollerfor comparison. The output of the sensors are in the analog nature which should be converted into digital format. This is done by the analog to digital converter of the microcontroller unit. The microcontroller controls the entire circuit.. The LCD displays the message, GSM sends message and buzzer produces alarm. The working conditions and various constraints were properly studied before carrying outfurther steps.
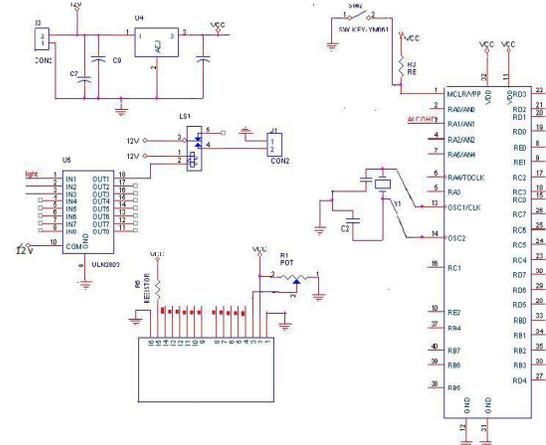
BASIC MODEL OF THE SYSTEM
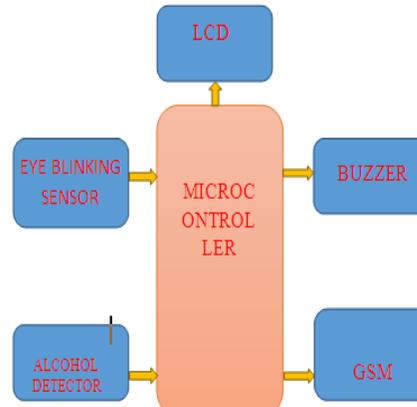

I. SCHEMATIC DIAGRAM
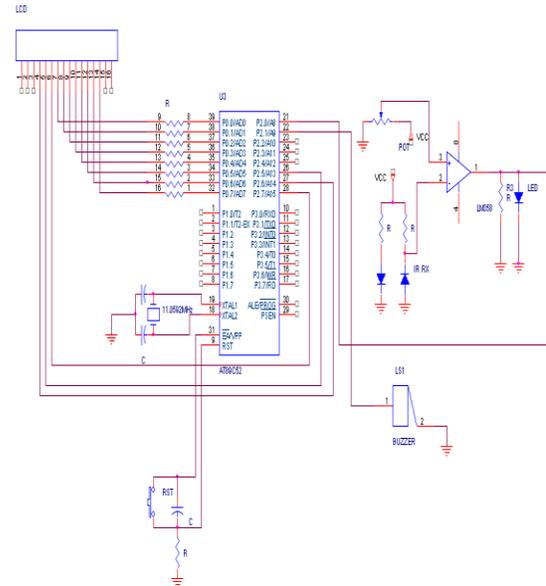
II. SCHEMATIC DISCRIPTION

A. MICROCONTROLLER

The AT89S8252 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of downloadable Flash programmable and erasable read-only memory and 2K bytes of EEPROM. The device is manufactured using Atmel's high-density nonvolatile memory technology and is compatible with the industry-standard 80C51 instruction set and pin out. The on-chip downloadable Flash allows the program memory to be reprogrammed In-System through an SPI serial interface or by a conventional nonvolatile memory programmer. By combining aversatile 8-bit CPU with downloadable Flash on a monolithic chip, the Atmel AT89S8252 is a powerful microcontroller, which provides a highly-flexible and cost-effective solution to many embedded control applications. The AT89S8252 provides the following standard features: 8K bytes of downloadable Flash, 2K bytes of EEPROM, 256 bytes of RAM, 32 I/O lines, programmable watchdog timer, two data pointers, three 16-bit timer/counters, a six-vector two-level interrupt architecture, a full duplex serial port, on-chip oscillator, and clock circuitry. In addition, the AT89S8252 is designed with static logic for operation down to zero frequency and supports two software selectable power saving modes. The Idle Mode stops the CPU while allowing the RAM, timer/counters, serial port, and interrupt system to continue functioning. The Power-down mode saves the RAM contents but freezes the oscillator, disabling all other chip functions until the next external interrupt or hardware reset.
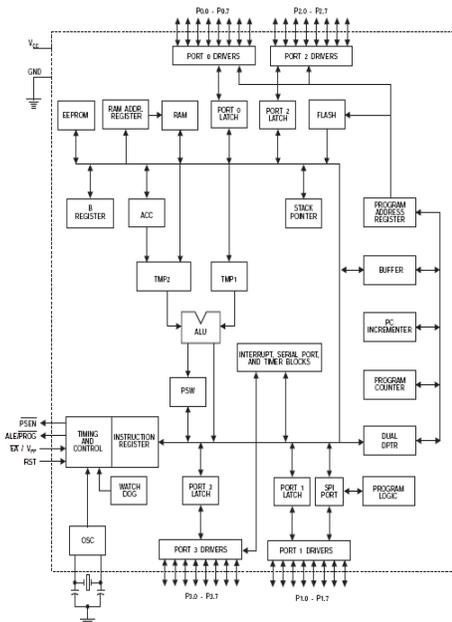

The downloadable Flash can be changed a single byte at a time and is accessible through the SPI serial interface. Holding RESET active forces the SPI bus into a serial programming interface and allows the program memory to be written to or read from unless lock bits have been activated.

A. EYE BLINKING SENSOR

This project involves controlling accident due to unconscious through Eye blink. Here one eye blink sensor is fixed in vehicle where if anybody loses conscious and indicate through alarm, gsm and lcd. This project involves measure and controls the eye blink using IR sensor. The IR transmitter is used to transmit. The infrared rays in our eye. The IR receiveris used to receive the reflected infrared rays of eye. If the eye is closed means the output of IR receiver is high otherwise the IR receiver output is low. This to know the eye is closing or opening position. This output is given to logic circuit to indicate the alarm, gsm and lcd. This circuit is mainly used to for counting application, intruder detector etc.
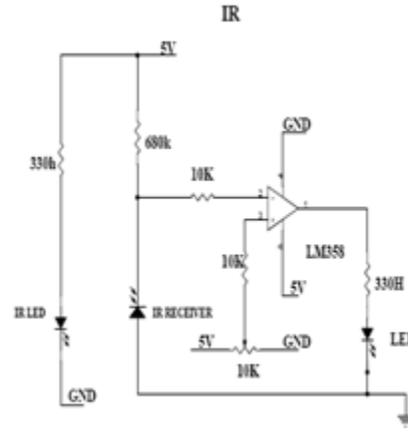

A. BUZZER

A buzzer or beeper is a signaling device, usually electronic, typically used in automobiles, household appliances such as a microwave oven, or game shows. It most commonly consists of a number of switches or sensors connected to a control unit that determines if and which button was pushed or a preset time has lapsed, and usually illuminates a light on the appropriate button or control panel, and sounds a warning in the form of a continuous or intermittent buzzing or beeping sound. Initially this device was based on an electromechanical system which was identical to an electric bell without the metal gong (which makes the ringing noise). Often these units were anchored to a wall or ceiling and used the ceiling or wall as a sounding board. Another implementation with some AC-connected devices was to implement a circuit to make the AC current into a noise loud enough to drive a loudspeaker and hook this circuit up to a cheap 8-ohm speaker. Nowadays, it is more popular to use a ceramic-based piezoelectric sounder like a Sonalert which makes a high-pitched tone. Usually these were hooked up to "driver" circuits which varied the pitch of the sound or pulsed the sound .The circuit is designed to control the buzzer. The buzzer ON and OFF is controlled by the pair of switching transistors (BC 547). The buzzer is connected in the Q2 transistor collector terminal. When high pulse signal is given to base of the Q1 transistors, the transistor is conducting and close the collector and emitter terminal so zero signals is given to base of the Q2 transistor. Hence Q2 transistor and buzzer is turned OFF state. When low pulse is given to base of transistor Q1 transistor, the transistor is turned OFF. Now 12v is given to base of Q2 transistor so the transistor is conducting and buzzer is energized and produces the sound signal.
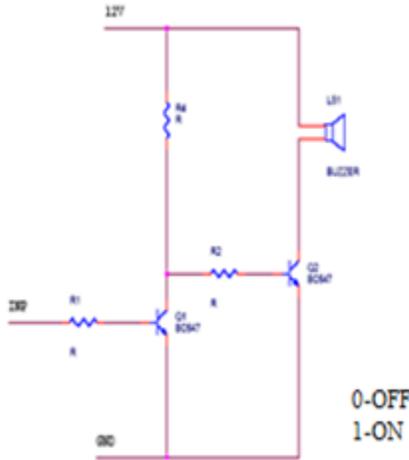
A. ALCOHOL DETECTOR

The alcohol detector detect the concentration of alcohol in person breathe. Here MQ 7 alcohol sensor is used. The sensor composed by micro AL2O3 ceramic tube, Tin Dioxide (SnO2) sensitive layer, measuring electrode and heater are fixed into a crust made by plastic and stainless steel net. The heater provides necessary work conditions for work of sensitive components. The enveloped MQ-3 have 6 pin, 4 of them are used to fetch signals, and other 2 are used for providing heating current. As shown in Fig 2, standard measuring circuit of MQ-3 sensitive components consists of 2 parts. One is heating circuit having time control function (the high voltage and the low voltage work circularly). The second is the signal output circuit, it can accurately respond changes of surface resistance of the sensor.
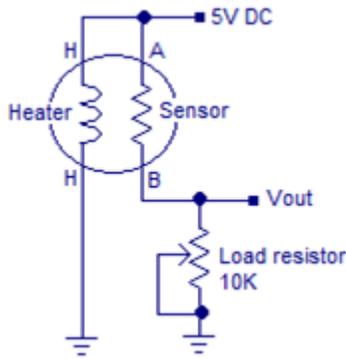
A. GSM

GSM is a cellular network. This is developed by European Tele-communication Standard Institute in 1992. GSM network operate in four different frequency ranges. Most GSM networks operate in the 900 MHz or 1800 MHz bands. A Tri-band GSM/GPRS module SIM300 is used for message sending. The introduction of the Global System for Mobile Communication (GSM) and particularly the use of hand-held mobile phones brought the innovation of distance communication at remote location. Based on this, research utilizes this facility for avoiding accidents.
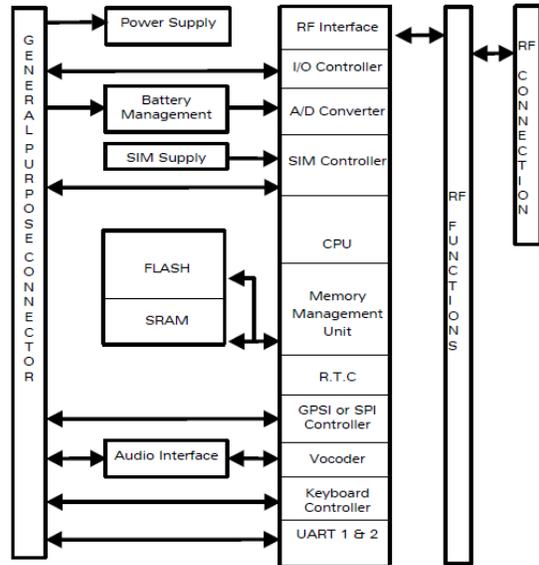

The enable pin (E) functions as the command/data latching signal for the LCD. The LCD will latch in whatever is on the Data Bits and process it on the falling edge of the E signal. We are using the LCD in Read and Write mode. If you want to read from the device, DB7 is the busy flag (BF) that when clear means the LCD is ready for the next command. If this is done the delays in the below flow chart are unnecessary.

III. APPLICATIONS

This device provides much advanced facilities in now a days life as it can be easily implemented in vehicles. This device provides safety for government transports. It is useful for tour & travel agency.It can also be used in schools, colleges, offices and some public places taking attention of drunken persons. Military application where high intensity monitoring of soldier is needed.

IV. RESULT
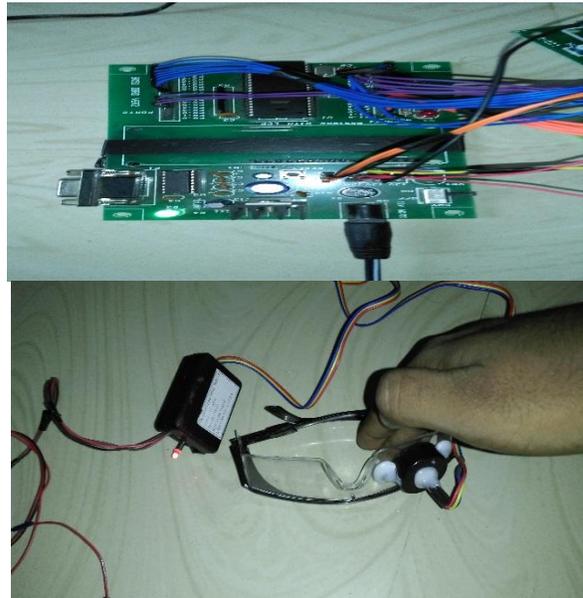
V. FUTURE SCOPE

If drivers are not quite sober, the car locks up the ignition system thereby preventing the driver from getting on the road. Instead of alarm we can use Automatic Braking which will slow down or stop the vehicle. By using wireless technology ,if the driver is drunken it will send signals to vehicles nearby about this so others driver become alert.

VI. CONCLUSION

Our project Accident Prevention by Eye Blinking Sensor and Alcohol Detectorwas implemented successfully. This device provides much advanced facilities in now a days life as it can be easily implemented in vehicles. Thus we can reduce alcohol and drowsy related road accidents and hence these kinds of detectors have a great relevance. It can also be used in schools, colleges, offices and some public places such as hospitals, libraries etc.Through this project we present hardware programming of microcontroller to facilitate as alcohol sensor, eye blinking sensor.

VII. REFRENCES

i.Dr. Charles Kim,Embedded computing with pic16F877A.
ii.Martin Jawitz,Printed circuit board materials hand book.
iii.8051 Microcontroller Complete Reference, 3rd Edition Handbook on different displays.
iv.Electronic Device and Circuits, Millman.
v.Electronic Circuit Analysis, K.Srirnivasan.

XIV. BIOGRAPHY

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