

Advanced Intelligent Car System to Prevent Accidents Using Alcohol Detector and Eye Blink Sensor

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Abstract: This paper describes a real-time online prototype driver-fatigue monitor. It is about making cars more intelligent and interactive this may notify or resist user under Unacceptable conditions, they may provide critical information of real time situations to rescue or police or owner himself. In this paper, we provide by means of accident prevention using eye blink sensor and alcohol detector where the vehicle is stopped immediately and intimated where ever needed. If the driver is drunk then the buzzer indicates and the vehicle doesn't allow the driver to start the vehicle. If the driver is drowsy, then the system will give buzzer signal and the speed of the vehicle is reduced and using ultrasonic sensor it checks whether any vehicle is present on the left side, if not the vehicle is parked. According to this project when a vehicle meets with an accident immediately pressure sensor will detect the signal and sends an alert message through the GSM MODEM including the Location to police control room or a rescue team.

I. INTRODUCTION

Vehicle accidents are most common if the driving is inadequate. These happen on most factors if the driver is drowsy or if he is alcoholic. Driver drowsiness is recognized as an important factor for the vehicle accidents. It was demonstrated that driving performance deteriorates with increased drowsiness with resulting crashes constituting more than 30% of all vehicle accidents. But the life lost once cannot be re-winded. Advanced technology offers some hope to avoid these up to some extent. The accidents due to the drowsy state of the driver is prevented using eye blink sensor which detects the drowsy state and alarms the driver using buzzer and a LCD message. Similarly an accident due to the drunken state is prevented using alcohol sensor which detects the alcohol from breath and doesn't allow the driver to start the vehicle. [3]

II. LITERATURE SURVEY

K. Srijayathi, M. Vedachary investigated in, "Implementation of the Driver Drowsiness Detection System" is Driver fatigue is a significant factor in a large number of vehicle accidents. The aim of this project is to develop a prototype drowsiness detection system. [1]

Abhi R. Varma, Seema V. Arote, Chetna Bharti investigated in, "Accident Prevention Using Eye Blinking and Head Movement" is that describes a real-time online prototype driver fatigue monitor. It uses remotely located

charge-coupled-device cameras equipped with active infrared illuminators to acquire video images of the driver. [2]

III. PROPOSED SYSTEM

The main purpose of this project is to prevent the accidents using alcohol detector and eye blink sensor. Ignition key acts as a switch, and serves as a key for any vehicle to start up the engine. First the alcohol test is done on the driver; if the sensor detects the alcohol in the breath of the driver then the ignition doesn't start, if not the ignition will on. the driver wears the eye blink sensor glasses, if he is drowsy then it is detected , then buzzer activates and the vehicle will slow down, the ultrasonic sensor checks whether any vehicle is present in the left side if not the vehicle is parked. Otherwise his vehicle will slow down. If the person meets with an accident then the pressure sensor is used to detect that whether the accident is serious or not. If the threshold value is greater than the neutral then alert message is sent including the location using GSM and GPS, otherwise it doesn't send

IV. SYSTEM DESIGN:

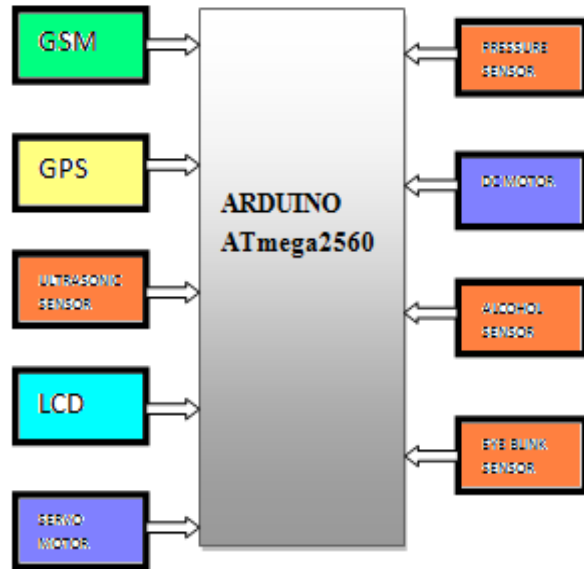


Fig1: Block diagram

Figure1 shows the proposed model comprising of following modules attached.

ARDUINO: The arduino board is the central unit of the system. All the components are interfaced to the board and programmed as per their functionality to operate in synchronization.

ALCOHOL MODULE: It is used to sense the alcohol. The analog output of which is applied to the arduino board.

GSM: It is used to send an SMS to the contacts of the user about the location of the vehicle. It is beneficial in emergency situations.

GPS: It is used to track the location of the user which is send via SMS through GSM module.

LCD: If alcohol is detected it displays the message indicating "ALCOHOL DETECTED".

DC MOTOR: It is used as a dummy for indicating the engine locking facility whenever alcohol is detected.

ULTRASONIC SENSOR: Ultrasonic sensors can detect movement of targets and measure the distance to them in many automated factories and process plants.

PRESSURE SENSOR: A force-sensing resistor is a material whose resistance changes when a force or pressure is applied.

EYE BLINK SENSOR: Eye Blink sensor is IR based sensor. The Variation Across the eye will vary as per eye blink. If the eye is closed means the output is high otherwise output is low.

SERVO MOTOR: A servo motor is a rotary actuator or linear actuator that allows for precise control of angular or linear position, velocity and acceleration.

Flow chart

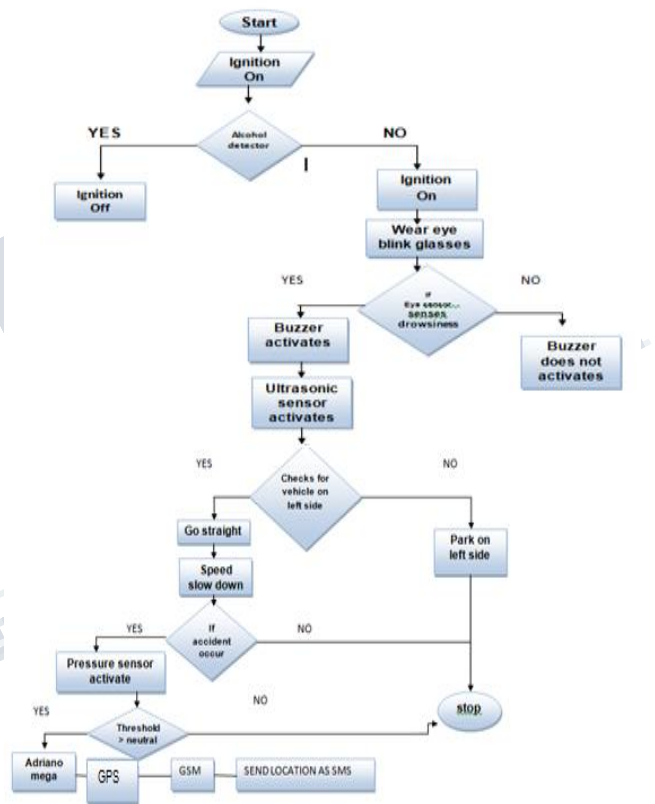


Fig 2: Flow chart of the proposed model

V. ADVANTAGES:

1. Accidents due to drowsiness can be avoided.
2. Drunken driving also prevented by using alcohol detector.
3. Safe parking with no damage or distraction to nearer vehicles.
4. Spectacle are used to detect the eye movement and closure, it's free from reflection & easy to use.

VI. RESULTS



Fig 3 Prototype of the proposed model

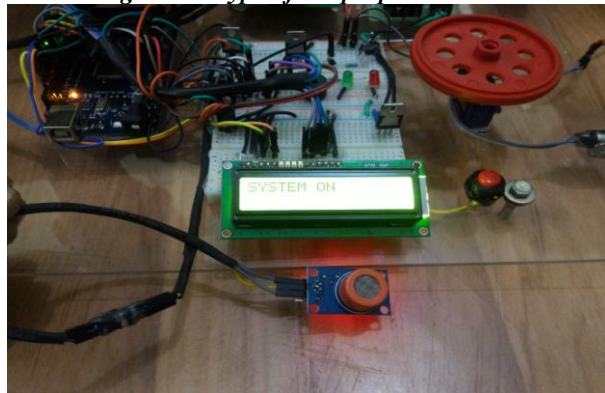


Fig 4 Prototype with ignition on

The system prepares for an Alcohol Test

Case 1 when Alcohol is detected in the breath of the driver



Case 2 when Alcohol is not detected



Once the vehicle starts to accelerated the eye blink sensor is activated, this sensor detects if the driver has slept or not while driving.

Case 3 if the eye of the driver is closed for more than 3 seconds then the system takes control over the vehicle.



Case 4 when object is detected



Case 5 when object is not detected



Case 6 if accident occurs pressure sensor activates and sends message to certain numbers



VII. CONCLUSION:

The Purpose of such a model is to advance a system for alcohol detection and to detect alcohol sensor, eye blink sensor for driver blink acquisition, GPS, GSM, pressure sensor, ultra sonic sensor and an adaptive speed controller designed using servo motor. We proposed an Autonomous car system for accident prevention and making the world with up gradation in technology for smart & safe living.

FUTURE SCOPE

1. Audio message to driver
2. Eye blinks sense from distance
3. Ultrasonic sweep for all directions.

ACKNOWLEDGEMENT:

As we present our paper on “Advanced Intelligent car system to prevent accidents using alcohol detector and Eye blink sensor”, we take this opportunity to offer our sincere thanks to all those without whose guidance this

work might have remained a dream for us. We express our deepest gratitude and thanks to Mrs. Sudha Arvin whose guidance and ideas channeled our conscientious endeavors towards this. We express our wholehearted gratitude to Dr.A.Raji Reddy Director, G.Srikanth Prof. & H.O.D of ECE Dept, CMRTC, Hyd. We also thank Emmanuel and Subin Philip for providing required guidance for result oriented implementation of ideas relevant to this field.

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