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Safe Driving using Sensors

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ABSTRACT :

In whole over world road calamity are occurred due to alcohol drunk and drive main point of our paper is to prevent road calamity we are using alcohol detection sensor, eye blink detector and alcohol sensors are used to catch driver is drunk or not, the eye blink sensor is used for check the driver is sleepy or not with eye movements of operator. If the vechical owner is sleepy then it will trigger the alarm to awake the driver. The ultrasonic sensor is used to detect obstacles. It measures the area and detects a obstacle in given length if any obstacle is present then it certainly controls its velocity after coming near to thst obstacle it will certainly stop the car. In this process if the driver id drunk then the message or sms will send to relative driver and also local police for prevent accident. The primary objective of sensor based systems is to detect and respond to potential hazards in real-time, thereby assisting drivers in marketing informed decisions.

INTRODUCTION:

Everyday road accident are happening over the world according to statistics 20-40 percentage of drunk and drive. If the driver drunk means he/she will be comatose they will not be able to control themselves. In this situation if they drive the vehicle it can affect them and other too. Some of the drivers will be over speed after they drunk there are different modules to prevent. These kind of road hazards in this paper we are using alcohol detection sensor, eye blink sensor and ultrasonic sensors. The alcohol detection sensor is fixed in steering of the car, so that it can detect that driver consumed alcohol or not. If the driver consumes the alcohol then vehicle will not start itself. If the driver is drunk then the sms or message will send to his/her relatives and also to local police to prevent accidents. The eye blink sensor id also used in steering wheels of the car, it will check the movements of the driver means they are sleepy or not. The ultrasonic sensor is used to check the obstacles while driving the vehicle. The advent of sensor-based systems in automobiles has ushered in a new era of driving, one where vehicles are equipped with an array of sensors designed to detect and respond to potential hazards in real-time.

PROBLEM STATEMENT :

1. 1.Detection of Blind Spots: Despite advancements in vehicle design, blind spots remain a critical issue, leading to numerous accidents. There's a need for sensor-based systems capable of reliably detection vehicles or objects in blind spots and timely alerts to drivers to prevent collisions.
2. 2.Lane Departure Prevention: Lane departure accidents often result from momentary lapses in attention or driver fatigue. Developing sensors that can accurately monitor lane positioning and provide immediate feedback or corrective measures to prevent unintended lane departures is essential for enhancing road safety.
3. 3.Emergency Maneuver Assistance: In emergency situation such as sudden obstacles or evasive maneuvers, drivers may struggle to react quickly and effectively. Developing sensor-based systems capable of detecting imminent collision risks and providing guidance or assistance to drivers in executing emergency maneuvers could significantly reduce the severity of accidents in critical situations.
4. 4.Hazard Road Condition Detection: Inclement weather, road debris and other hazardous conditions can significantly impact driving safety. Implementing sensors capable of detecting and analysing road conditions in real-time, such as slippery surfaces or obstacles, could enable vehicles to adapt their driving behavior accordingly and mitigate the risk of accidents.

OBJECTIVES :

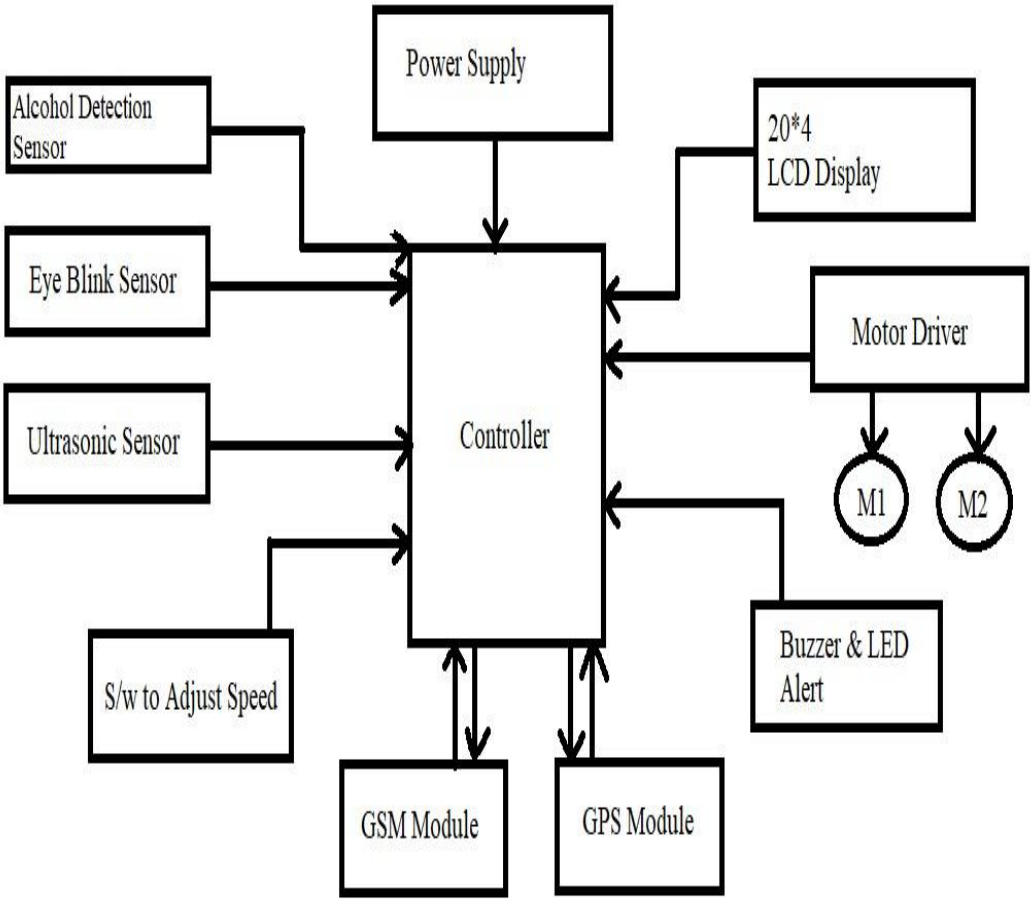
1. 1.Accident Prevention: The overarchiving goal of sensor-based systems is to prevent accidents by providing early detection and warning of potential hazards. This includes detecting vehicles in blind spots, alerting drivers to lane departures and identifying pedestrians or cyclists in the vehicle's path.
2. 2.Risk Mitigation: Sensors technologies aim to mitigate risks associated with driving by continuously monitoring the vehicle's surrounding

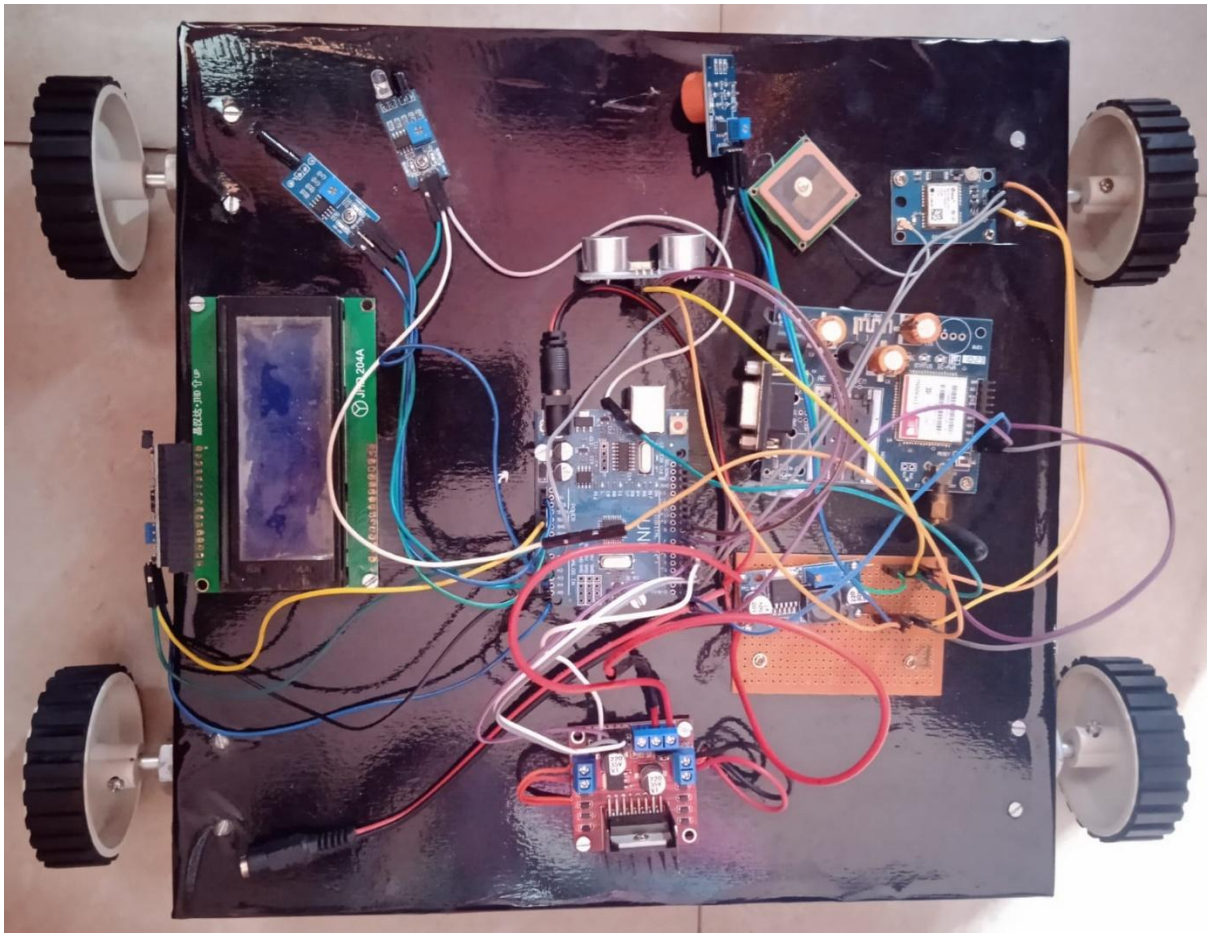
and assessing potential dangers. This includes identifying hazardous road conditions, such as icy surfaces or debris, and alerting drivers to make appropriate precautions.

LITERATURE REVIEW :

Sensors technologies play a pivotal role in enabling safe driving by providing vehicles with real-time information about their surroundings. Ultrasonic sensors are valuable for close-range object detection, while IMUs aid in vehicle motion tracing. Sensor-based systems offers a range of applications aimed at preventing accidents and minimizing risks on the road. These include collision avoidance systems, lane departure warning systems, blind-spot detection, adaptive cruise control, and automatic emergency braking. Research indicates that these systems have the potential to significantly reduce the incidence od accidents by providing drivers with timely warnings and assistance in critical situations. Studies evaluating the effectiveness of sensor-based safety systems have yielded mixed results. While many systems show promise in controlled testing environments, their performance can vary under real-world conditions.

BLOCK DIAGRAM





WORKING DIAGRAM AND PERFORMANCE OF MACHINE

CONCLUSION :

People are becoming more susceptible to hazards nowadays so we need to take some action against this as an engineer and have the solution. We want any automation is created for the protection of the human being such a model has the function of advancing a program to identify fatigue symptoms in drivers and to regulate vehicle speed to prevent accidents up to some degree modern technology gives some hope to stop these paper involves measuring alcohol using alcohol sensor and monitoring eye blink with the help of an ir sensor. In this device sensor outputs are given for difference to the ardiuno. If the value hits a set level the buzzer automatically emits vibration LED glows and the car is slowly stopped automatically when the alcohol sensor or eye blink sensor receives the signal from the relay module. Alcohol sensor will identify the driver is drunk or not and the over speed controller sensor will check the vehicle speed and if the vehicle crosses the speed limit (30km/h) the over speed controller sensors will reduce the speed of the vehicle. It will also send the SMS to the police and relatives in case of drunk and drive.

FUTURE SCOPE :

1. 1.Intelligent Observation: Besides full controllability and data processing, intelligent observability is one of the prerequisites to enable a car to action on its own. To attain the objectives of full observability cars will need to process a wide variety of parametric data- including speed, current, pressure, temperature, positioning, proximity detection, gesture recognition etc. In terms of proximity detection and gesture recognition, great strides have been made over recent years, with ultrasonic sensors and time-of-flight(ToF) cameras now starting to be implemented into cars.
2. 2.Ultrasonic Sensors: As automation in vehicles progresses, we are not only seeing new technologies being applied to the automotive sector for the first time, but we also withnessing the adaptation of mature automotive technologies to the special requirements that automotive technologies to the special requirements that autonomous driving will mandate.

3. 3.Gesture Recognition: While ultrasonic sensor technology is used to observe the outside world, ToF cameras are focused on the car interior. As the transition to autonomous driving will be a gradual one, it is important that drives can switch from autonomous mode back to manual mode in specific scenarios.

REFERENCE:

1. Prithvi P.S.; Rajeshwari Devi, R,; Yogapriya, N,; Narayan, s. IoT based Wearable Device Monitoring Driver's Stress. Fatigue Drowsiness 2019, 10, 1218-1224. [Google Scholar].
2. Budak, U,; Bajaj, V,; Akbulut, Y,; Atilla, O,; Sengur, A, An Effective Hybrid Model for EEG-Based Drowsiness Detection. IEEE Sens. J. 2019, 19, 7624-7631. [Google Scholar].
3. Taran, S,; Bajaj, V,; Drowsiness Detection using Adaptive Hermite Decomposition and Extreme Learning Machine for Electroencephalogram Signals. IEEE Sens. J. 2018, 18, 8855-8862. [Google Scholar].
4. Lee, B.G., Park, J-H,; Pu, C.C,; Chung, W-Y. SmartWatch-Based Driver Vigilance Indicator with Kernel-Fuzzy-C-Means-Wavelet Method. IEEE Sens. J, 2015, 16, 242-253. [Google Scholar].