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Deterrence of Accidents in Vehicle using IOT

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Abstract: ***The document provides a system to switch between high and low beams to automatically dim the headlight of the other vehicles. Automatic collision prevention and detection is the system envisaged. A traffic accident automatic alarm gadget is available. It may therefore detect a car crash; it can hunt down and then send the essential information to hospitals. This system greatly aids vehicles that have suffered an accident in the search and rescue. Vehicle accident speed is one of the main reasons. If emergency services could obtain accidents and reach them early, many lives could have been saved. GPS has now become a component of a vehicle system. A GPS receiver is capable of monitoring the vehicle speed and detecting accidents based on controlled speed and sending a crash location to an Alert Service Centre. We have manufactured an automatic headlight dimmer prototype to prevent such incidents. This switches the high beam automatically into the low beam, which reduces light by sensing the vehicle approaching. It also eliminates the need for manual driver switching that is not always done. This paper discusses in greater detail the construction, advantages of this model.***

I. INTRODUCTION

Everyone wants to reach their destination in the modern world as quickly as possible, with the number of cars increasing every day. Vehicles are more frequent by day in order to save time, people want to travel at night. During night driving, high vehicle beam poses a great danger. Most vehicles ' drivers use high bright beam during their night journey. The person who travels in the opposite direction is thus uncomfortable. For a short time, he experiences a sudden burn. This is because the high intensity of headlight is in the opposite direction from the other vehicle. We hope the person will dim the headlight beam in order to avoid burning. This flames cause a person to be temporarily blind and lead to an accident at night and so the intensity of the headlight beam must be reduced to prevent an accident at night. Many people don't comply with the rules to make the beam faint, so it needs automation. Around 33 percent of the accidents take place during the night rather than during the day and tend to cause a higher death rate. The project aims to locate and send a message using a system inside your vehicle system to find the vehicle where the vehicle is located. Most of the time we can't find an accident site because we don't know where the accident is going to occur. We first need to know where the accident occurred through local tracking and sending a message to your association or to the emergency services in order to treat injured people.

II. DOMAIN INTRODUCTION

The Internet of Things can connect to the internet devices that are integrated in different systems. If devices / objects can digitally represent themselves, they can be managed anywhere. IoT can help companies improve performance through IoT and IoT safety for better results. IoT is also a transformational force. Increasing efficacy, asset use, and productivity can help organizations reduce costs with IoT Platforms. Ensuring better monitoring of devices / objects with sensors and connectivity can help you take smarter decisions by using real time insights and analysis. The Internet of Things (IoT) is the setting for interlinked computer gadgets, mechanical and digital machinery, subjects, animals or people, who have a single type of identifier and the capacity for information exchange through a system without requiring communication between people or between humans and PCs. IoT is a new concept which has emerged from wireless technology convergence. Wireless communication is information transmission or signal transmission between two or more points which are not electrical connected. The machine-to-machine communication is possible with IoT devices with Wi-Fi. Many of these barriers are now overcome. Wireless radios have fallen dramatically in size and cost. IPv6 enables us to allocate billions of devices with a communications address. Wireless internet and cell phone connectivity is built into a wide variety of devices by electronics companies. In 2013, ABI Research estimates that more than 5 billion wireless chips will be shipped. With many networks offering broadband speeds, mobile data coverage has improved significantly. Although not perfect, the battery technology has improved and many devices have incorporated solar recharge. In the next few years there will be trillions of objects Connected to the network. Cisco's IOTG forecast, for instance, that more than 50 billion connected devices will be connected by 2020. IoT describes a system in which objects in the physical world are connected to the Internet via wireless internet and cable connections, and the sensors within or attached to these items. Sensors such as RFID, NFC, Wi-Fi, Bluetooth and Zigbee can also use different types of local area connections. Wide-range connectivity sensors such as GSM, GPRS, 3 G, and LTE can be used also. Communications, control, automation and saving costs are the Three Cs of IoT.

III. LITERATURE SURVEY

A. Victor Nutt, Shubhalaxmi Kher proposed this project. The intensity of the headlight provides better visual acuity, which inverts incoming traffic. This problem is aggravated by a higher intensity of the headlight setting for both drivers.

B. Vithalkar Akshay Ganesh, Khavare Vinayak Vittal, and Maitshaphrang Syiemlieh The system is advantageous over conventional front- lighting systems, as the battery drainage is reduced and the beam switching is controlled automatically.

C. Okrah S.K, Williams E.A, Kumssah. F describes about, A Light Dependent Resistance (LDR) sensor is an automated headlight dimmer which reduces the headlight of incoming vehicles in order to prevent human effects. This switched the high beach automatically on a low beam and reduced the glare effect by sensing the light intensity value of the approaching vehicle and also eliminated the need for the driver to manually switch

D. Muralikrishnan.R explains Glare is a serious problem for drivers while driving. This is because the very bright light in the eyes is suddenly exposed; in this case, the bright headlights of the vehicles. This causes the effect of the Troxler to be temporarily blind. This is ultimately the biggest cause of night accidents.

E. Tejas Vijay Narkar Proposed this approach At night, while driving in towns, light can be seen everywhere, and the mode can change to manual mode, thus avoiding flickering headlights. If both cars have the "Automatic Dipper "mounted, both vehicles efficiently dip the headlight beam.

F. S.P. Bhumkar1, V.V. Deotare2, R.V.Babar3 describes about advanced automobile technologies to make it smarter and more interactive to prevent road accidents. This system is more efficient, more trustworthy and effective by using ARM7. Very fewer systems are implemented in or with cars for human behavior detection. It describes an online security prototype in real time that checks driver fatigue in vehicle speed. The goal of such a model is to develop a system to detect symptoms of fatigue in drivers and to control vehicle speed in order to prevent accidents.

G. Lakshmipraba Balaji1, Ranjit V Gujar2 explains, it is designed to develop a smart car system that reduces existing methods and also improves vehicle and human safety and reduces accidental injuries The text transmitted to several authorities contains vehicle details and their position. This application offers the best solution for poor emergency installations provided in the most practicable way to road accidents

H. Nishanth P.R[1] , Ancy John[2] explains, the use of an alcohol sensor before starting a vehicle verifies alcohol consumption. Using an eye blink sensor implemented using IR, Driver drowsiness is monitored. The car on the left side of the road is parked when the driver is drowsy. Intimate message also with GPS and GSM rescue service. A piezoelectric sensor is a device used by converting it into an electric charging to measure changes in pressure, acceleration, temperature, stress or force. For greater precision and efficiency, high-end sensors can be used

I. Surekha Pinnapati1, Manjunath Kamath K2 Now one day, due to hash driving, accident rates are rising day by day. With MEMS Sensor and Vibration Sensor the accident is detected. This app helps to provide a viable solution to the poor emergency. If an accident occurs on a motorway, the alert message is sent to a rescue team.

J. Surekha Pinnapati1, Manjunath Kamath K2, The assembly programming together with GSM is used in order to find a car accident by sending a message using a system inside the vehicle system. When an accident occurs, the signal will immediately be detected and sent to the microcontroller when a vehicle meets a shock sensor. The GSM sends a message of alert to an authorized mobile number by the microcontroller. The system's platform is IDE along with the sensor, GPS and GSM, interface which significantly reduces the alarm time and accurately locates the accident site.

K. Vardhini radhakrishnan describes about We can not detect the occurrence of the accident at this time, and consequently no information about the accident leading to the death of an individual. Even in dark clumsy areas where there is no network for receiving the signals, research work is ongoing to track the position of the car. GPS is used to track the vehicle's position, GSM is used for message sending. This implementation of the project will allow us to detect the position of the vehicle on the accident so that the first aid can be delivered as quickly as possible.

L. Manjula S C, Sushmitha M R 1 1, Dr. Parameshachari B D2 Vehicle headlights pose a major hazard during driving at night. Most vehicles ' drivers use high, bright beams during night driving. The person who travels from the other direction is thus uncomfortable. For a short time. He's experiencing a sudden glare. We have manufactured a prototype automatic headlight dimmer to prevent such incidents. This switches the high beam automatically into the low beam and reduces the blinding effect by sensing the nearby vehicle. It also eliminates the need for manual driver switching, which is not always done.

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IV. METHODOLOGY

The various components used in the circuit are LDR (light dependent Resistor), LCD, GPS, Relay switch.

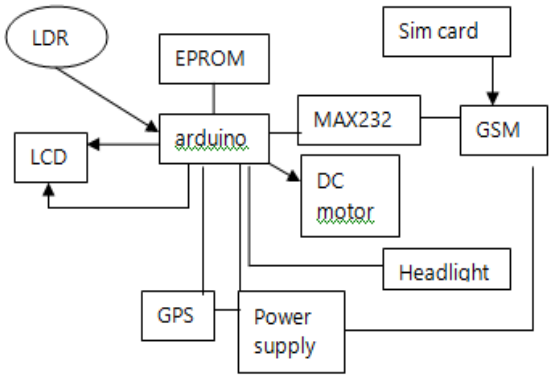

Fig: Vehicle 1 & 2

The impact sensor and the Electronic Control Unit were installed, which maintained a distance of at least half a meter from each other and established a physical interface with a special electrical cable with a socket at the two ends to make the gadgets smooth. The ECU was driven by a power adapter .

The GPS device has been implemented and powered by a battery. It has also been tested to provide that the SIM card gourmed by a mobile telephone provider Safaricom was installed by GPS on the GPS unit to facilitate data transfer by means of spacious data from GPS satellites and digital input.

Alert can be used for all types of vehicles, such as lorries, cars, rickshaws, bicycles etc. The Acci- Alert transmits the event of an accident to authorities and relatives, thus ensuring faster arrival and assistance. In isolated areas this is a boon for the victims. Because of its low cost and easy installation, this project is better than the methods currently available.

The configuration is less complex as it substitutes for a mobile app equivalent for the current methodologies like GPS, GSM modules etc. It can be easily integrated in any vehicle and is user-friendly. With aid of the Light Dependent Resistor sensors(LDR), vehicle 2 senses the high beam on vehicle 1, transforms the luminous intensity into an electric signal and transfers it to the signal conditioner or Analog to a digital converter (ADC).

Phototransistor is used to develop a system that provides a solution to the temporary light and obstacle alerting system to feel the light intensity of the vehicle to come. The light from the headlight of coming vehicles will be received by the phototransistor in analog form, which is converted into a digital signal. It monitors the intensity of the head light on this controller. If the head lights are high, information is passed to the arriving vehicles through the LDR sensor to decrease head lights. The process will take place similar to the two vehicles. This circuit reduces the light intensity.

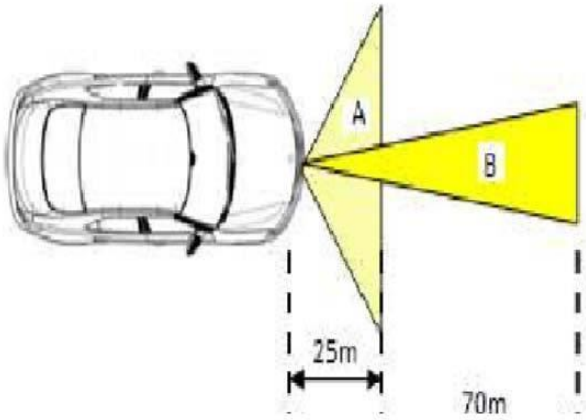

Fig: Range of low beam bulb (a) and high beam bulb (b) of a car

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A. Existing System

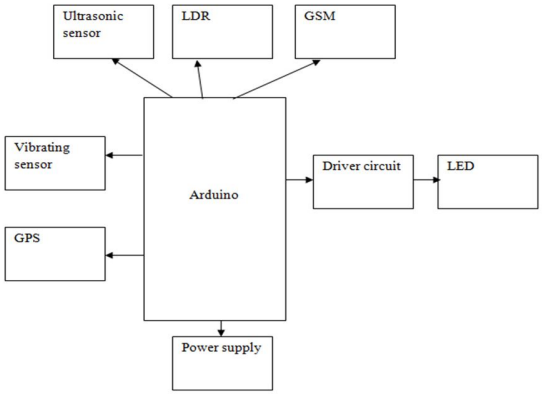
GPS and GSM modems with an eye-blink sensor are used in the existing system. They only detect the moment action of the eye blink sensors. The sensor generates the alarm sound to notify the conductor if the driver goes to the sleeping stage. Only when the driver monitors the eye action and only gives the alarm sound will the action never be recorded and only the driver is informed. It never took advantage of an accident to investigate further.

B. Proposed System

C. Working Procedure

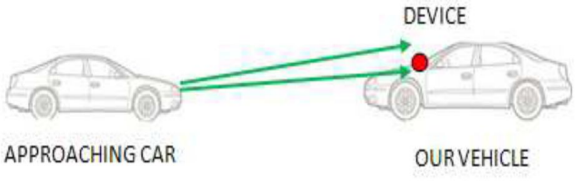
Arduino is used with a GPS receiver and a GSM module for monitoring the whole process. For the detection of vehicles co-ordinates, GPS receptor is used, GSM module for sending the SMS alert to the Google Map co-ordinates and links. For detection of accidents or changes of any axis, the

Accelerometer is used. An optional16x2 LCD is also used for status or coordinate display. We used the SIM28ML and GSM modules GPS Module.



Now the vehicle is tilt and the accelerometer changes its axis values whenever there is an accident. Arduino reads these values and checks that there are changes in any axis. When any changes occur, Arduino will read the GPS data module co orders by removing $GPGGA String and send a predefect number of SMS to the localization codes of the accident to the police or ambulance or family member. The message includes a Google Map connection to the scene of the accident and makes it easy to trace the location. When we receive the message, we just have to click on the link and redirect to the Google map to see where the car is located. Vehicle speed is also transmitted by SMS in the knots (1.852 KPH) and shown on the LCD panel.

Every time a light is sensed in the LDR the light must be switched from high beam to low beam. The LDR senses this level of threshold and observes a decrease in resistance. This sends the transistor to a drive and switches the relay's contacts.



V. CONCLUSION

The Smart System for the road system which uses the IOT concept was implemented in this project. Drivers are comfortable during the night by using the automated headlamps. Automatic street light is the same principle to avoid manual switching.

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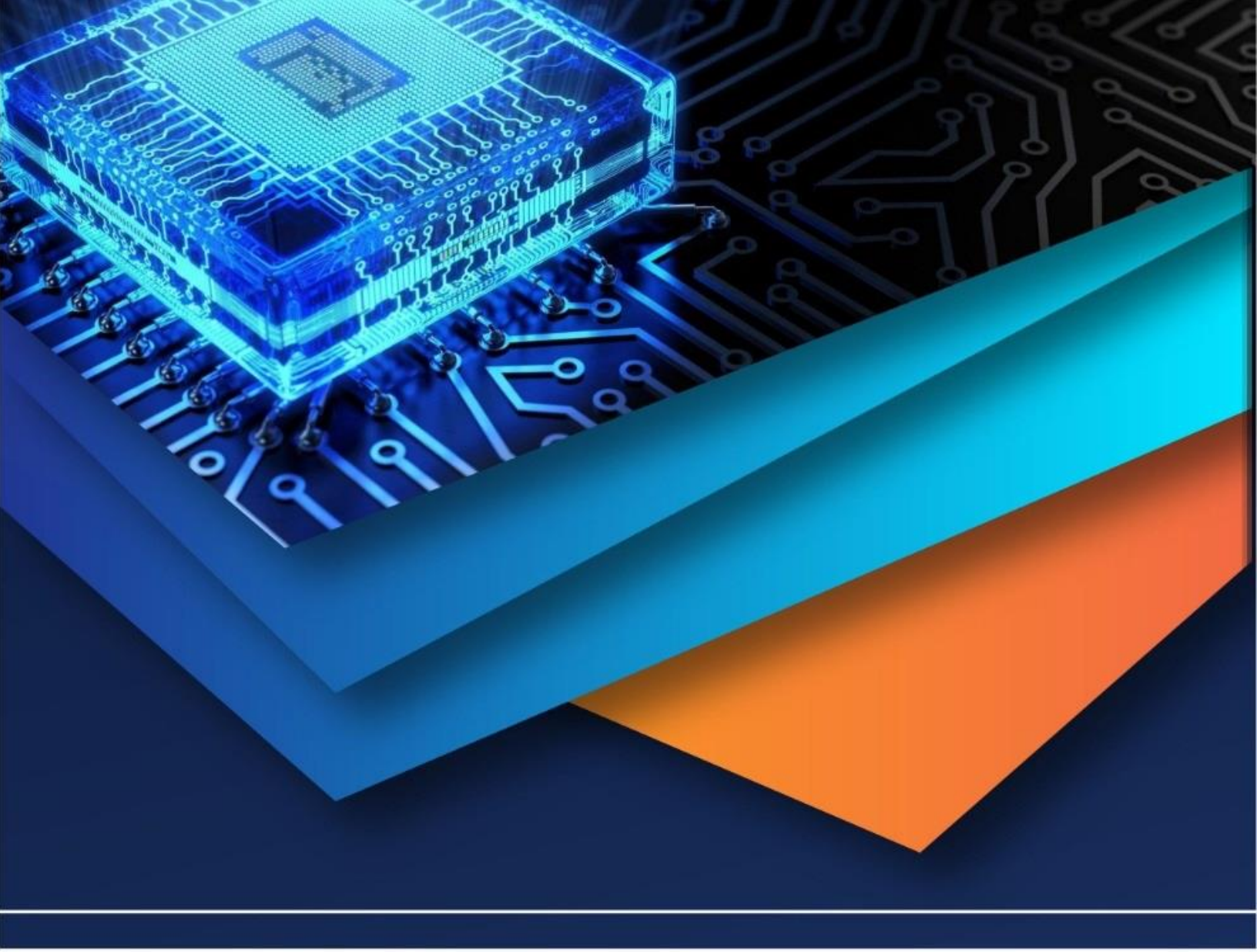

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