

Deterrence of Accident Using IoT

C.M. Nalayini¹, P. Sreemathi², B. Nanditha³

¹Assistant Professor, Information Technology, Velammal Engineering College, Tamil Nadu, India

^{2,3}Student, Information Technology, Velammal Engineering College, Tamil Nadu, India

E-mail: ¹nalayini@velammal.edu.in, ²sreemathi2404@gmail.com, ³nandithachamarthi@gmail.com

Abstract

Now-a-days human beings have a tendency to transport in a faster pace which leads to greater street injuries. During night time motors typically tour in more velocity. When an coincidence happens in the course of night it is difficult for the rescue team to right away locate the place and shop the humans. This document gives a machine to robotically alternate between high and low beams with the aid of dimming the headlight of the different vehicles. Automatic collision prevention and detection is the device anticipated. It will become aware of a auto crash, and then ship the vital facts to the hospitals. This gadget substantially helps cars that have indulged in an accident in the search and rescue. The pace of the motors is one of the important reasons. If emergency offerings should achieve facts about accidents and attain them early, many lives can be saved. GPS has now end up a part of a vehicle framework. A GPS recipient is successful of checking the vehicle speed and recognizing mishaps dependent absolutely upon oversaw speed and sending an accident region to an Alert Service Center. We have put collectively an automated headlight dimmer prototype to stop such incidents. This adjusts the excessive beam routinely into the low beam, which reduces the depth of light by way of sensing the automobile approaching. It additionally eliminates the want for manual driver switching that is no longer constantly done. This paper talks about in element the building and blessings of this model.

Keywords: GPS module, GSM module, LDR sensor, ultrasonic sensor, vibration sensor, headlight beam control

1. Introduction

Everyone needs to attain their vacation spot in the modern-day world as shortly as possible, with the variety of automobiles growing each and every day. Vehicles are extra usual via day in order to retailer time, humans prefer to tour at night. During night time

driving, excessive car beam poses a notable danger. Most cars ' drivers use excessive brilliant beam all through their night time journey. The individual who travels in the contrary course is hence uncomfortable. For a brief time, he experiences a surprising burn. This is due to the fact the excessive depth of headlight is in the contrary route from the different vehicle. We hope the man or woman will dim the headlight beam in order to keep away from burning. This flames motive an individual to be quickly blind and lead to an accident at night time and so the depth of the headlight beam need to be decreased to stop an accident at night. Many human beings do not comply with the policies to make the beam faint, so it desires automation. Around 33 percentages of the accidents take vicinity throughout the night time as a substitute than for the duration of the day and have a tendency to reason a greater dying rate. The mission pursuits to detect and ship a message the use of a gadget internal your automobile machine to discover the car the place the car is located. Most of the time we cannot discover an accident web page due to the fact we do not be aware of the place the accident is going to occur. We first want to comprehend the place the accident passed off via neighborhood monitoring and send a message to your relation and to the emergency services in order to deal with people who has met with an accident.

The Internet of Things can join to the net units that are built-in in specific systems. If gadgets / objects can digitally characterize themselves, they can be managed anywhere. IoT can assist organizations enhance overall performance via IoT and IoT protection for higher results. IoT is additionally a transformational force. Increasing efficacy, asset use, and productiveness can assist corporations limit charges with IoT Platforms. Ensuring higher monitoring of gadgets / objects with sensors and connectivity can assist you take smarter choices by means of the use of actual time insights and analysis.

The Internet of Things (IoT) is the placing for interlinked laptop gadgets, mechanical and digital machinery, subjects, animals or people, who have a single kind of identifier and the potential for records trade via a device barring requiring verbal exchange between human beings or between people and PCs. IoT is a new thought which has developed from Wi-Fi technological know-how convergence. Wireless verbal exchange is records or sign transmission between two or greater factors which are no longer electrically connected. The machine-to-machine verbal exchange is feasible with IoT gadgets with the assist of the use of Wi-Fi.

Many of these obstacles are reduced currently. Wireless radios have fallen dramatically in dimension and cost. IPv6 allows us to allocate billions of units with a

communications address. Wireless web and mobile phone smartphone connectivity is constructed into a large range of gadgets by using electronics companies. In 2013, ABI Research estimates that greater than 5 billion Wi-Fi chips will be shipped. With many networks presenting broadband speeds, cellular information insurance has accelerated significantly. Although now not perfect, the battery technological know-how has increased and many units have included photo voltaic recharge. In the subsequent few years there will be trillions of objects connected to the network. Cisco's IOTG forecast, for instance, that greater than 50 billion related gadgets will be linked through 2020.

IoT describes a system in which objects in the physical world are associated with the Internet via cable connections, wireless communications and the sensors inside or attached to these items. Sensors such as Wi-Fi, NFC, RFID, Bluetooth and ZigBee can also use different types of local area connections. Wide-range connectivity sensors such as GSM, GPRS, three G, and LTE may be used additionally. Communications, manipulate, automation and saving fees are the Three Cs of IoT.

2. Related Work

Now-a-days about 30% of road accidents is caused due to the alterness of the driver. This paper describes a method which detects the driver fatigue accurately in real time and to provide a warning signal [1]. This paper detects driver drowsiness by detecting facial expressions, however these are not enough for preventing road accidents [2]. Calculating the speed and GPS network to collect vehicle data. If the rider exceeds the speed limit, it provides voice alert and if the rider neglects the alert then parents will have the access to stop the vehicle through smart phones [6]. An automatic Headlight Beam Control System(AHBCS) for a motor engine vehicle incorporates two phototransistors as a typical light sensors, one has a field of view forward of the vehicle, while another has a field of view ordinary to the street surface and it works with auto-exchanging of the front lamp as well as, beam modulation. This article targets depicting the turn out achieved for the turn of events [7]. It likewise wipes out the prerequisite of manual exchanging by the driver which isn't done at all times. Two visions-scoptic and photopic. Our eye changes to scotopic vision with a range of 30-45 /m2 under dark and unlit conditions photopic vision to scotopic vision, it takes 4 seconds. The drawback of this paper is Fading effect, blind spot, enough to cause a disaster, the Troxler effect is suddenlyexposed to bright light[14]. Anadaptive ADB procedure is proposed, which can ascertain and foresee the point of the vehicle coming from the contrary street and turn off the relating LEDs to abstain from causing glaring.The

adaptive high beams are enlightened by group light-emitting diode (LED) particles as the light source. The luminous intensity distribution of single LED particle is determined along with the lighting zones of group LED particles. The advantage of proposed versatile high shafts is to keep away from glare impedance for further developing night driving safety. High end sensors can be conveyed for better precision and productivity [13]. It proposes a model of a programmed fog light diminishing framework, comprising of three significant sensors-LDR, rain and fogsensors which give inputs to Arduino Uno. It depends on plans to attempt to dispense with the human mistake of shaft exchanging in off-base environmental elements thus acting like a significant security danger to the driver or the encompassing vehicles. It focuses only on the headlight control systems and it is not fully achieved [10]. It surveys research papers and licenses to comprehend different approaches utilized in carrying out versatile headlamps and investigate the extension for future work around here of executing versatile headlamps and investigate the degree for future work around here of exploration. It likewise audits vehicle recognition calculations and different vehicle numerical models for headlamp control in light of guiding points. Intensity of light was not accurate and prevention of accidents is not achieved completely [11].

3. Proposed Work

3.1 Overview

Deterrence of Accidents using IOT is to reduce accidents. The demise rate is expanding step by step because of mishap. The prerequisite of headlamp light is extremely normal during night travel. Similar head lamp which helps the driver for better vision during night travel is additionally liable for some mishaps that are being caused. The front lamp must be changed by the light necessity by the driver. High light emission of an on-coming vehicle makes blinding difference and diminishes perceivability during late night driving hazardously. This makes an inconvenience the individual going from the other way. He encounters an unexpected glare for a brief timeframe. This is caused because of the great extreme head light beam from the other vehicle coming towards him from the other way. This paper contains ideas about how to dim the head light of opposite vehicles which has high-beam switched-on from high-beam to low-beam and also to detect accident using an automatic alarm gadget. We use LDR (Light Dependent Resistor) for this project. LDR is revealed to intense light from the opposite side, which is actually the headlight of another car. The LDR therefore has a resistance change. Whenever the LDR faculties a light, it consequently changes its obstruction from the high-shaft mode to the low-bar mode. The

Proposed system used Arduino UNO for perform designing for predicting Driver Drowsiness and alcoholic or not with Maximum accuracy. The system should start predicting drowsiness right from starting of the trip.

3.2 Methodology

The collection of elements utilized in this circuit are LDR, LCD, GPS, Relay change. The impact sensor and the Electronic Control Unit have been installed, which maintained a distance of at least half of a meter from every different and mounted a bodily interface with an exclusive electrical cable with a socket at the two ends to make the devices smooth. The ECU used to be pushed via a strength adapter.

The GPS system has been applied and powered by using a battery. It has additionally been examined to grant that the SIM card gourmet through a cell smartphone company Safari.com used to be mounted by using GPS on the GPS unit to facilitate facts switch through skill of spacious statistics from GPS satellites and digital input. Alert can be used for all sorts of vehicles, such as lorries, cars, rickshaws, bicycles etc. The Accident Alert transmits the tournament of an accident to emergency services and family members, consequently making sure quicker arrival and assistance. In remoted areas this is a boon for the victims. Because of its low fee and convenient installation, this task is higher than the techniques presently available.

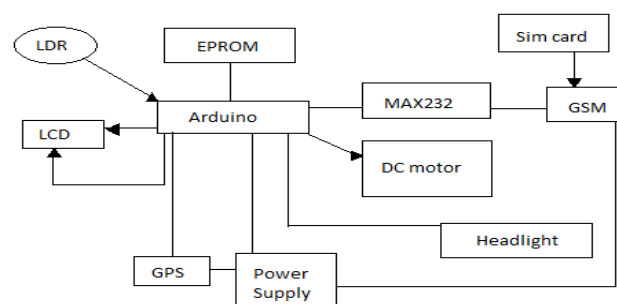


Figure 1. Vehicle 1 & 2 Block Diagram

The configuration is much less complicated as it substitutes for a cellular app equal for the cutting-edge methodologies like GPS, GSM modules etc. It can be effortlessly built-in in any automobile and is user-friendly. With useful resource of the Light Dependent Resistor sensors(LDR), automobile two senses the excessive beam on automobile 1, transforms the luminous depth into an electric powered sign and transfers it to the sign conditioner or Analog to a digital converter (ADC).

Phototransistor is used to enhance a device that gives a answer to the brief mild and impediment alerting device to experience the mild depth of the automobile to come. The mild from the headlight of coming cars will be acquired by using the phototransistor in analog form, which is transformed into a digital signal. It video display units the depth of the head mild on this controller. If the head lights are high, data is surpassed to the arriving cars via the LDR sensor to minimize head lights. The technique will take region comparable to the two vehicles. This circuit reduces the mild intensity.

3.3 Working Procedure

Arduino is used with a GPS receiver and a GSM module for tracking the entire technique. 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 optional 16x2 LCD is moreover used for repute or coordinate display. We used the SIM28ML and GSM modules GPS Module.

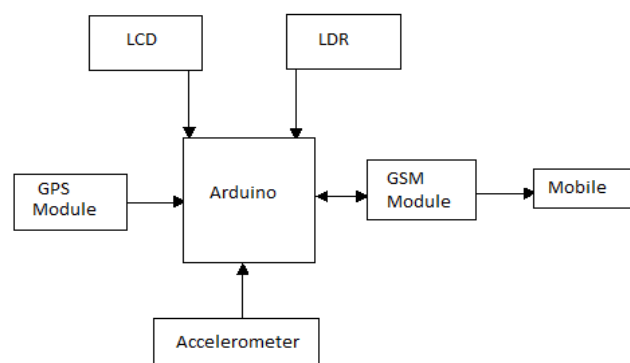


Figure 2. Modules and Sensors

Now the automobile is tilt and the accelerometer adjustments its axis values each time there is an accident. Arduino reads these values and assessments that there are adjustments in any axis. When any modifications occur, Arduino will study the GPS facts module co orders through getting rid of \$GPGGA String and ship a prefect range of SMS to the localization codes of the accident to the police and healthcare centers or household people. The message consists of a Google Map connection to the scene of the accident and makes it convenient to hint the location. At the point when we secure the message, we essentially need to tap on the hyperlink and divert to the Google map to see where the vehicle is found. Vehicle velocity is additionally transmitted via SMS in the knots (1.852 KPH) and proven on the LCD panel.

Every time a mild is sensed in the LDR the mild should be converted from high beam to low beam. This degree of threshold is sensed by LDR sensor and it observes a minimal in resistance. This sends the transistor to a pressure and switches the relay's contacts.

4. Results and Discussion

The transformation of high beam into low beam by Light Dependent Resistor(LDR) sensor. When an opposite vehicle gets in our path, due to Troxler effect the driver may not get the clear vision of that vehicle. So, by the conversion of high to low beam, the risk of accident can be reduced.

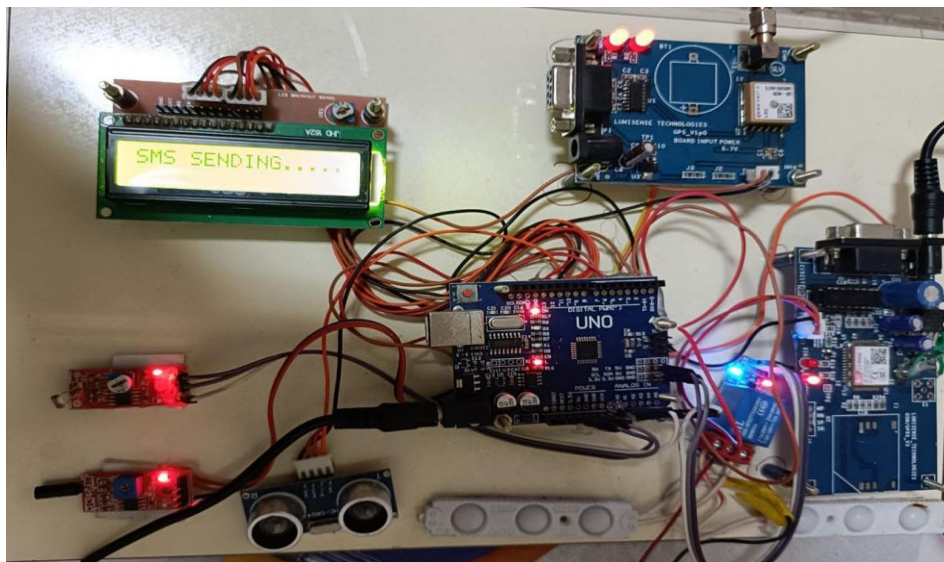


Figure 3. Implementation of Sender Side

The Figure 3 is the outlook of the project. It contains Arduino UNO, GSM Module and GPS Receptor. The GSM Module contains a sim card and it sends the corresponding message to the loaded phone numbers. With GPS Module we can know the latitude and longitude values in order to find the location where the accident has been occurred. The output in which the values of latitude and longitude are sent to the loaded phone numbers and these values can be located in the Google maps to know the exact location.

5. Conclusion

The proposed framework manages the mishap alarming and location. Arduino is the core of the framework which helps in moving the message to various gadgets in the framework. The smart system for the avenue machine which makes use of the IoT notation

was applied in this project. Drivers are relaxed at some stage in the night time by means of the automatic headlamps. Automatic road mild is the identical precept to keep away from guide switching. 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. The exactness of the device relies on the exhibition, performance and the number of sensors used. The product efficiency is mainly affected by the network service. Also the device won't work if the mobile phone is damaged / destroyed in the accident. The device can be additionally updated by consolidating a caution or alert which will go off after the mishap to alarm close by civilians. So the citizens might know an event of mishap by the caution sound.

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Author's biography

C. M. Nalayini is an Assistant Professor has nearly 15 years of experience in teaching. She has published over 10 research papers in international journals, 10 in International Conference and 11 in National Conference. She has also published book chapters in Springer Book Series. She has given Computer Training to Government School Higher Secondary Students in Chennai. She has taken classes for Women Welfare SHG Group. She has authored books such as C- Programming and Programming and Data Structures-II. Her area of specialization is Network Security. <https://www.linkedin.com/in/c-m-nalayini-6a0875203/>

P. Sreemathi is an aspiring Engineering student who is pursuing my under graduation from Velammal Engineering College. She is basically from Information Technology department. She have done projects and attended symposiums. She have done my internship and got placed in Aspire Systems and get to learn many new things on technologies. She has done projects in domains like Web development and Mobile applications.

B. Nanditha is a student from Velammal Engineering College currently doing my under graduation on Information Technology. She has experience in Web development domain and have developed a project. She got placed in a reputed organization- Accenture. She have also participated in symposiums and got certifications from online courses like NPTEL. She is very much interested in my domain and loves to explore many new things. She also like to learn new technologies and gain knowledge from it.