

Signs with Smart Connectivity for Better Road Safety

TEAM LEADER : SAKTHIVEL S

TEAM MEMBER 1 : KAMALESH T

TEAM MEMBER 2 : RAKHUL RAGHAV A S

TEAM MEMBER 3 : PARTHIBAN S

LITERATURE SURVEY :

Kailas Shinde Published on “International Conference on Communication & Information Processing (ICCIP) 2021”. In modernizing countries, accidents are the main cause of death. If we tend to notice the dangerous roads in the world, they are all made up of mountain roads and winding roads. Intensity of the additional death zone unit in curvilinear curves. On mountain roads, there will be narrow roads, with sharp turns. In such forms, the dynamics of a vehicle cannot see the cars coming back from the alternative perspective. As a result of this inconvenience, thousands of people lose their lives every year. While we tend to talk about mountain roads here, another aspect could be due to the drop. The answer to this inconvenience is to warn the driver regarding the vehicle turning from another angle. One of the answers is provided in this article. We warn the driver by inserting an inaudible sensor element into one aspect of the road ahead of the turn and keeping the junction light on the other side of the turn, so if the vehicle is moving coming from the bend, element detection can detect the light weight of the car rectifier and the bright red junction in other respects. Looking at the red junction rectifier, light drivers will become wary and may impede the vehicle's speed. However, if a related accident occurs, we will save the victim's life by providing medical assistance like a shot. This will increase the chances of survival for the victims.

Srimantini Bhattacharya Published on “Interdisciplinary Research in Technology and Management (IRTM) 2022”. This article explores the advancements of the Internet of Things (IoT) and machine learning in the field of road traffic safety and accident prevention with a status quo assessment of various techniques applied to implementing the system. Intelligent road safety system. In this review, the focus is on driver behaviour, vehicle health (two-wheelers, four-wheelers), road health, and theft-related issues using frequency recognition. radio number (RFID). It can be seen that with the help of IoT, the safety system can be updated in real time, which can help to create a highly efficient, intelligent and intelligent road safety system. Artificial intelligence (AI) is applied to further enhance the technology that detects driver behaviour, such as drowsiness, using real-time camera feeds or high-resolution images high. In addition, the role of AI in detecting the condition of roads and bridges in preventing road accidents is also discussed. Although the paper gives a good overview of the application of IoT and machine learning in intelligent road traffic safety system, some limitations are still highlighted.

Ashish Sharma Published on “IEEE India Council International Subsections Conference (INDISCON) 2020”. There are more cars on the road today. As a result, managing traffic bottlenecks and accidents on the roads around the world is difficult for society. The performance of the total road safety management system can be greatly enhanced by artificial intelligence (AI) technologies like machine learning (ML) algorithms. Numerous practical applications of AI are employed to make any system intelligent. The Smart Road Traffic Management System (SRTMS) recognises the impact that unplanned modifications have on traffic safety with ease. The SRTMS not only notifies the appropriate authorities but also recognises risky driving behaviours. Real-time monitoring of human activity is made possible via the Internet of Things (IoT). Sensors are a frequent component of Internet of Things (IoT) devices and nodes and are used to recognise and respond to electrical and other signals. The most popular technology today for automating transactions, or the sharing or exchange of information between IoT devices or nodes, is Blockchain (BC). Information sharing on the network is made possible by BC technology in a decentralised, secure, persistent, anonymous, appropriate, and reliable way. Blockchain aims to coordinate communication between nodes without the help of a third party or intermediary organisation thanks to consensus algorithms and smart contracts. AI has the potential to develop robots that are both intelligent and capable of making decisions, much like human minds. In order to address traffic congestion, road accidents, and information dissemination to all stakeholders, this article suggests the SRTMS paradigm. This recommended model.

W. H. D. Fernando Published on “International Research Conference on Smart Computing and Systems Engineering (SCSE) 2021”. Sensors are a frequent component of Internet of Things (IoT) devices and nodes and are used to recognise and respond to electrical and other signals. The most popular technology today for automating transactions, or the sharing or exchange of information between IoT devices or nodes, is Blockchain (BC). Information sharing on the network is made possible by BC technology in a decentralised, secure, persistent, anonymous, appropriate, and reliable way. Blockchain aims to coordinate communication between nodes without the help of a third party or intermediary organisation thanks to consensus algorithms and smart contracts. AI has the potential to develop robots that are both intelligent and capable of making decisions, much like human minds. In order to address traffic congestion, road accidents, and information dissemination to all stakeholders, this article suggests the SRTMS paradigm. This recommended model in intelligent transportation systems, but challenging procedure. To address the significant problems they encounter, numerous initiatives have been made. Using a method that first detects a traffic sign's bounding box, the goal of this work is to address the detection and recognition of road traffic signs. When a traffic sign is noticed, it will then be quickly recognised and put to use. The YOLOv4 network was used in this study because safe driving requires the real-time monitoring of traffic signs. On our dataset, which was composed of 43 distinct traffic sign classes identified through manual annotations, YOLOv4 was assessed. Averaging 84.7% accuracy, it was able to recognise objects. A simple yet successful model for the real-time detection and identification of traffic is presented in the paper, adding value overall.

Sharmila Published on "International Conference on Innovative Trends in Information Technology (ICITIIT) 2022". Road safety is the biggest issue today, with thousands killed and injured on the roads due to fatigue and drunk driving. To prevent and reduce these traffic accidents, simple sensors are used in vehicles to perform various functions, such as horn control and cruise control, to monitor and control the speed of the vehicle in various places (such as bridges, overpasses, roads and schools). The vehicle is checked at traffic lights and when the signal is red, the vehicle stops automatically. The RF transmitter includes four buttons, such as no horn, speed control, green signal and no parking. This RF transmitter is located on the signal board, which sends the signal to the RF receiver connected to the Node MCU. The LCD displays messages by pressing the desired button on the transmitter.

M. Divyaprabha presented at "IEEE Computational Intelligence and International Conference on Computational Research (ICCIC) 2018". Transport systems must take road safety into account. Road safety problems are the cause of many accidents. Road accidents are becoming more common in India due to the rapid increase in the number of cars. One of the main factors contributing to road safety problems is the growth of traffic congestion which is increasing at a rate of 7-10% per year, compared to 12% per year for vehicles. Globally, traffic accidents cause 50 million injuries and approximately 1 million deaths each year. 70,000 people die in India every year, so it needs to be addressed to save lives. This document is based on, road safety issues. The comparison identified the root cause of, major accidents.

Xu Yiming presented at "IEEE International Smart Cloud Conference (SmartCloud) 2019". The World Health Organization has identified, traffic accidents as a social and public health problem. To solve this problem, Intelligent Transport System has been launched which is completely based on advanced ICT. However, the increase in road deaths requires the use of technology to predict future interactions and behaviors. To find solutions to detect human activity and road interactions in real time, this paper explores modern technologies such as computer vision and artificial intelligence.

Vasireddy Satish Published on "International Conference on Electronics, Communication and Aerospace Technology (ICECA) 2021". Population growth in countries like India is very fast, which leads to an increase in urban traffic. The World Health Organization (WHO) has published its global accident report for 2021 due to accidents. According to reports, between 50% and 60% of accidents result in personal death. Many reasons point to the cause of the accident. In one case, accidental deaths occurred mainly among two-wheeler riders, resulting from head injuries. Another case proved it due to driver drowsiness. Alcohol consumption is also one of the main causes of accidents that can lead to the death of the driver. Research by the Highway Traffic Safety Administration shows that the majority of traffic deaths among young people are due to reckless driving or driving under the influence. In this work, an advanced failure management method is proposed to prevent accidents. The Internet of Things (IOT)-based system is designed to start the bike or scooter only when the rider is wearing a helmet and has passed a breathalyzer test. Another method has been added, in which the alert system is activated when the driver is speeding. Sensors and microcontrollers are used for the proposed work.

Ali Raza Published on "IEEE International Conference on Internet of Things (iThings) and IEEE Green Computing and Communications (GreenCom) and IEEE Cyber, Physical and Social Computing (CPSCoM) and IEEE Smart Data (SmartData) 2017". This position paper suggests a way to reduce traffic accidents caused by mobile phone use. It features the use of recent advances in Internet of Things technology and the results of the famous Milgram experiment of 1963, which examined the struggle between submission to authority and personal awareness. In some countries, high-risk driving causes more than 75% of deaths due to driver behaviour. This article considers the use of cell phones to cause distraction as one of the main risks. Measures taken by road safety agencies include the use of high-tech cameras that can record the use of mobile devices. Cost constraints prevent agencies from providing full coverage for these devices. The position paper argues that the automotive and mobility industries should play a role in supporting road safety agencies. In addition, a new approach to smart road safety using IoT, geolocation and geolocation is introduced, which discourages the use of mobile phones and lays the foundation for future research. This article highlights recent research and technological developments that contribute to some aspects of the solution. Finally, the approach proposes new standards established between vehicle and mobile device manufacturers to enable smarter solutions.

Dasari Vishal Published on “International Conference on Electrical, Electronics, Communication, Computer, and Optimization Techniques(ICEECCOT) 2017”. Roads are an integral part of human civilization. They are the nerve system of any country, therefore they are placed on narrow slopes and hills, which poses a great threat to human life. Since roads play a vital role in our daily lives, they can be intelligently designed to provide us with enhanced capabilities. The architecture of the Internet of Things includes the ability to make things more connected and efficient. This paper synchronizes the concept of the Internet of Things with how to make it smart. The paper discusses the use of IoT technology to reduce the risk of traffic collisions with the onset of smart cities. Because every vehicle is equipped with the Internet of Things and connected to the Internet, we have effective technology to guide emergency vehicles on the road in the shortest possible time. The IoT system combines simple and cost-effective antenna technology with a fully automated Internet platform.

Aichi Prefectural Published on “IEEE World Forum on Internet of Things (WF-IoT) 2014”. In Japan, comprehensive measures to reduce traffic accidents have reduced traffic casualties for 12 years. Efforts include improving vehicle safety performance in both the passive and preventive safety domains. In terms of passive safety, airbag systems, seatbelts and vehicle crash safety have made significant savings. Preventive safety can play a more important role in further reducing traffic accidents. In recent years, driving support safety systems that adapt to the physical and mental conditions of drivers have been attracting attention in order to reduce traffic accidents. Therefore, it is necessary to clarify the effect of reducing the mind-body adaptive safety function and promote market penetration. Statistical analysis of traffic accidents is expected to assess the effects of traffic accidents on mind-body adaptive safety functions. To overcome this challenge, this study introduced an Internet survey by sending questionnaires to respondents. From the analysis of the collected responses, the main mental and physical condition of the driver seems to be impatience and distraction. As a first step, this study focused on driver distractions that can lead to serious traffic accidents. We used pattern recognition to measure the accuracy of driver distraction detection. The reduction effect of driver distraction in traffic accidents was estimated using the reduction ratios of both ASV (Advanced Safety Vehicle) and Intelligent Transportation Systems.