Literature survey

Date	31 OCT 2022
Team ID	PNT2022TMID39232
Project Name	Signs with smart connectivity for better road safety

1.Internet of Vehicles Based Approach for Road Safety Applications Using Sensor Technology

April 201,Wireless Personal Communications 105(4), DOI:10.1007/s11277-019-06144-0
Author : Nikheel Soni, Reza Malekian, Darius Andriukaitis, D. Navikas

Abstract:-

In this paper, the Internet of Vehicles approach is used to develop a novel low cost sensor based system for road safety applications in intelligent transportation systems. It was found that major hazards that compromise road safety include weather related factors, poor road surfaces and presence of sharp turns. A wireless sensor network based solution consisting of embedded systems for the vehicular clients and infrastructure waypoints is developed for detecting road safety hazards and warning users about potentially hazardous events from causes that include presence of speed bumps, sharp turns and weather related factors of rain and fog. Hazards detected by the embedded systems are conveyed to the user by using the Vehicle-to-Vehicle communication and Vehicle-to-infrastructure communication interfaces developed in this study for inter-vehicle communication and obtaining sensory information from infrastructure waypoints respectively. Accuracy achieved was 88% for speed bump detection, 73.86% for detecting sharp turns and 100% for detection of rain and fog. Communication systems in the designed solution are optimized by reducing the size of packet being exchanged which improves transmission speed, packet losses and congestion on the network. Thus, the designed solution is capable of improving road safety by using an Internet of Vehicles approach.

2.Automatic Speed Controlling System Using IoT

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Abstract:-

Road accidents are the most common phenomenon that occurs quite often. Most of the lethal accidents that take place are due to over speeding. An increase in speed may multiply the risk of accident and danger of injury during an accident. So, to reduce this hitch our group has come up with a project that aims to control the speed of vehicles automatically in the restricted area. In the recent studies, on the IoT-based topic, it has been observed that accidents near the zones like hospitals and schools have increased enormously, because of their lack of impatience to reach their desired place soon. Therefore controlling the speed of the vehicle has been a key issue to be considered. We through this IoT-based project, we are aiming to provide an uncomplicated design that can control vehicle speed, which can be installed in zones like school/college, hospital, sharp turnings to reduce the number of accidents from happening. This Automatic Speed Controlling System is built using the Microcontroller based platform of the Arduino Uno R3 board. Here, the microcontroller is programmed in such a way that, the imposed speed limit is integrated with the transmitter unit which transmits the signals using an antenna, and is received by the receiver incorporated inside the vehicle. Alongside the Microcontroller, RF (Radio Frequency) module is also used for sending and receiving the signals. There are two types of RF module, RF transmitter and RF receiver. RF transmitter is placed near the restricted zones and RF receiver is placed inside the vehicle. The speed of the vehicle is then compared and controlled by the Microcontroller. Keywords: Arduino Uno R3, RF Transmitter, RF Receiver, Motor.

3.IOT BASED SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

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International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8, Issue-1, May 2019.

Abstract:-

Nowadays, road accident has become a national catastrophe for over populated developing countries. One of the main cause of accident in the sensitive public zones like school, college, hospitals etc. and sharp turning points is the over speed of vehicles avoiding the speed limit indicated in the traffic sign board. Drivers endanger the lives of passengers, pedestrians and fellow drivers not limiting their vehicle speed in these sensitive public zones. The main objective of the proposed system is to operate the vehicles in a safe speed at critical zones minimizing the possible risk of unwitting accidents and casualties. This project paves a system to alert the driver about the speed limits in specific areas and reduce the speed of the vehicles in sensitive public zones without any interference of the drivers. The controls are taken automatically by the use of a wireless local area network. The system operates in such way that the accident information is passed to the vehicles entering the same zone to take diversion to avoid traffic congestion.

SCOPE OF WORK :

- The main objective of the proposed system is to operate the vehicles in a safe speed at critical zones minimizing the possible risk of unwitting accidents and casualties.
- Monitoring the speed limit in vehicle.
- Vehicle safety
- Efficiency
- Convenience
- Overall customer experience
- Operational performance

4.Road Markings and Signs in Road Safety

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Abstract:-

Due to the dynamic nature and complexity of road traffic, road safety is one of the most demanding social challenges. Therefore, contemporary road safety strategies incorporate a multidisciplinary and comprehensive approaches to address this problem and improve the safety of each individual element, i.e., the human, vehicle, and road. Traffic control devices are an important part of road infrastructure, among which road markings and road signs play a significant role. In general, road markings and signs represent basic means of communication between the road authorities and road users and, as such, provide road users with necessary information about the rules, warnings, obligations, and other information related to the upcoming situations and road alignment. The aim of this entry is to briefly present the main functions and characteristics of road markings and signs, and their role in road safety. In

addition, practical issues and future trends and directions regarding road markings and signs are discussed. Keywords: road markings; road signs; road safety; traffic control devices; road infrastructure

SCOPE OF WORK :

Currently, both humans and vehicle technologies use vision as the key tool for gath ering information from the surroundings, so it is necessary to ensure that all road infras tructure elements, i.e., primarily road markings and signs, have good visual properties. Although the literature contains mixed reports regarding the impact of road markings and sign quality on road safety, i.e., the frequency and severity of crashes, several stud ies confirmed that properly designed road markings and signs with an adequate level of quality positively impact all road users and vehicle technologies. Apart from their quality, road markings and signs should also be standardized and uniform so that road users of all ages (and modern vehicles) can comprehend their meaning and adjust their behavior accordingly