Signs with Smart Connectivity for Better Road Safety

TEAM LEADER   :   Ramkumar P
TEAM MEMBERS 1:   Mugilan Karthik N
TEAM MEMBERS 2:   Kaushik N
TEAM MEMBERS 3:   Nishanth S

LITERATURE SURVEY:

- Muhammed O Sayin published on "IEEE 2019". We suggest a game theoretical and ad hoc intervention detection mechanism for trustworthy smart road signs in this research. Smart road signs, which contain smart codes (such as those visible at infrared) on their surface to give smart vehicles more precise information, are a potential trend in intelligent transportation systems. Road sign classification issues are now more in line with communication settings than they were previously. This makes it possible for us to incorporate proven communication theory results—like error-correction techniques—into the problem of classifying road signs. Recent research has demonstrated that algorithms for classifying traffic signs based on vision are susceptible to adversarial interference, even on a tiny scale that is undetectable to humans. On the other hand, smart codes created using error-correction techniques may become robust against random or small-scale intelligent disturbances. However, as people are unable to see or understand smart road signs, they are not involved in their recognition. Since humans function differently than machines, there is no equivalent concept of undetectable perturbations. Since the attacker can strike more forcefully without such a limitation, robustness against small scale perturbations would not be sufficient.

- Usha Devi Gandhi published on "International Conference on Reliability ,Optimization and Information technology 2014". The major problems in transportation, including those related to safety, mobility, and the environment, are being addressed through connected car technology. One of the key goals of this project is the safety application of the Intelligent Transport System (ITS). The goal of safety application is to develop the vehicle industry globally through research and commercial endeavours. In this project, our main focus is on vehicle-to-vehicle (V2V) communication, which, once automobiles are connected, allows them to exchange data with other vehicles on the road and helps to decrease highway accidents. In the end, connectivity between vehicles is achieved by a variety of complimentary technologies based on Wi-Fi, GPS, and Dedicated Short Range Communication (V2V) and V21 (vehicle-to-infrastructure) (DSRC). VANETS are also viewed as one of the most crucial safety simulations. Vehicle-to-vehicle (V2V) communication with minimal latency is supported by the usage of DSRC technologies.

- Kuppusamy Pothanaicker published on "Research Gate 2018". The Internet of Things revolution opens up countless dimensionalities for commercial, residential, and industrial usage. The process is efficient and takes less time to process the workforce thanks to the integration of sensors and manhandling devices with the current infrastructure. In order to speed up signal processing at road intersection traffic signal posts and decrease waiting times, jamming, and contamination, a unique smart traffic signal system is developed. It makes use of smart servers and cloud-oriented infrastructure. This suggested method also tracks moving vehicles by observing their motion and changing the signal used to guide them. This tracking system would be used to identify automobiles engaged in accidents and unlawful movement. The use of vehicles parked at a four-way intersection at a signalised intersection allows for the observation of multi-location data and the analysis of a single point well-designed decision using a genetic algorithm. The trials were carried out using an Arduino Uno kit, and the smart traffic light system was assessed by contrasting it with the conventional traffic system. The findings demonstrate that the suggested strategy makes travel hassle-free by reducing accidents and green signal wait times.

- Sharmin Akter Rima published on "Smart Security Surveillance Using IOT 2018". Life is changing drastically as a result of the development of technology and ICT. Internet of Things (IoT) has become an essential component of daily life in the twenty-first century thanks to the gift of the internet. IoT today imparts new types of breakthroughs in addition to enabling everyday living experiences. It has been discovered that IoT is crucial for ensuring security. The goal of this study proposal is to use an IoT-enabled smart security surveillance system to increase home security. The goal of the research is to create the smartest doorbell possible with increased security, adaptability, and connectivity. In this work, the system uses a sensor and a camera to detect motion in front of the door and take a picture, which is then delivered to the user's mobile phone along with the email containing the picture and a note about the detection. A push button is also taken into consideration for visitor engagement. While seated online, the user may view what is happening immediately in front of the door. On the basis of a passive infrared (PIR) sensor and a button, a camera module is set up to take a photo of the visitor and broadcast a video. The system for recognising and classifying the visitor's gesture using CV will eventually get more AI applied to it.

- Rishit Dagli published on "International Research Journal of Engineering and Technology". This essay offers a methodical method for implementing the smart city concept while keeping costs down. By using cameras (to monitor the situation), LEDs with varying intensities (to reduce power loss), an emergency call system (to prevent crimes), cost-effective and low-power beacons (to push notifications), and control devices in buildings, homes, offices, and hotels to save power through an app or website (which can also be done by voice).

- Abhinav Krishna Baroorkar published on "International Research Journal of Engineering and Technology". This essay seeks to offer remedies that will enhance riding comfort and safety. The bike won't start unless the user is wearing a helmet in order to enforce helmet use. The report also suggests a method for obtaining the rider's real-time location and for utilising it to turn off the horn in no-honking zones. The suggested system can identify an accident and provide emergency contact information with the aid of several sensors put on the helmet and bike. Solar power can be employed to boost the system's overall efficiency even more.

- Umesh Kumar Lilhore published on "Design and Implementation of an ML and IoT Based Adaptive Traffic-Management System for Smart Cities 2022". Traffic congestion, pollution, and delays in logistical transit have all been brought on by the rapid expansion in the number of automobiles in urban areas. IoT is a new breakthrough that is advancing the world toward intelligent management systems and automated procedures. This makes a significant contribution to automation and intelligent societies. Traffic regulation and effective congestion management assist conserve many priceless resources. In order to recognise, gather, and send data, autonomous cars and intelligent gadgets are equipped with an IoT-based ITM system set of sensors. Another method to enhance the transportation system is machine learning (ML). Numerous issues with the current transport management solutions lead to traffic jams, delays, and a high death rate. The design and implementation of an adaptive traffic management system are presented in this research paper. The suggested system's design is built on three key components: vehicles, infrastructure, and events. The design makes use of a number of scenarios to address every potential problem with the transportation system. The DBSCAN clustering algorithm, which is based on machine learning, is also used by the proposed ATM system to find any unintentional anomalies. The suggested ATM model continuously modifies the timing of traffic signals based on the volume of traffic and anticipated movements from neighbouring crossings. By progressively allowing cars to cross green lights, it considerably reduces travel time. It also eases traffic congestion by creating a smoother transition.

- Sunghee Lee published on "International Conference on Information and Communication technology convergence". Smart signage, which offers individualised service by adapting content to the user situation, is the next evolution of digital signage. However, because it is difficult to connect more sensing devices, prior smart signage firms have had trouble expanding their service. Additionally, earlier smart signage systems simply took into account a single sign for a service. In this study, we provide an IoT-based framework for smart signage. The suggested platform offers customizable service expansion through IoT-based communication between sensors and the signage platform. We also recommend connecting,

monitoring, and controlling signage using IoT. As a result, our platform can dynamically create a service group of signages and allow them to work together to provide a service across a large region. We put the smart nursing home service into place to demonstrate the performance of the suggested platform. The service demonstrates how IoT gadgets and billboards may connect to the platform dynamically and work together to provide a service across a large region.