Literature Survey & Information Gathering

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TEAM ID	PNT2022TMID39076
BATCH	B1-1M3E
PROJECT NAME	SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

PAPER 1:

PUBLISHED YEAR : 2021
AUTHOR : Kailas Shindea , Pranjal Shindeb , Shivani Valhvankarc , Swapnil Narkheded
JOURNAL NAME : IoT Based Smart Road Safety and Vehicle Accident Prevention System

SUMMARY : There are a unit several existing plans towards safety against road accidents like thanks to advanced technology GSM associated GPS were introduced so they're useful in trailing the vehicles that met with an accident however they're not preventive for avoiding the accidents. Arduino based mostly vehicle accident detection system was planned as associate approach towards avoiding road accidents. During this planned model Arduino, GSM, GPS, LCD, vibration sensors were used. during this system vibration sensing element is employed as associate input supply to system that is analyzed by the Arduino and once the sensing element reading exceeds the conventional or threshold acceptable action starts going down because it can direct the GSM to send messages from the user mobile to the authority as they will send immediate facilitate to the accident victims

PAPER 2:
PUBLISHED YEAR : 2014
AUTHOR : Usha Devi Gandhi,Arun Singh, Arnab Mukherjee
JOURNAL NAME : Smart vehicle connectivity for safety applications

SUMMARY: Connected vehicle technology aim to solve some of the biggest challenges in the transportation in the areas of safety, mobility and environment. The safety application for Intelligent Transport System(ITS) is one

of the main objectives in this project. Safety application is research and industrial initiative which aim to contribute to the global advancement of automobile industry. In this project we focus on V2V communication, once cars are connected which is able to share data with other cars on the road and which help to reduce Highway accidents. Ultimately, vehicles are connect via multiple complementary technologies of vehicle to-vehicle (V2V) and vehicle-to-infrastructure (V2I) connectivity based on Wi-Fi, GPS, Dedicated Short Range Communication (DSRC).

PAPER 3:
PUBLISHED YEAR : 2018
AUTHOR : Abd-Elhamid M. Taha
JOURNAL NAME : An IoT Architecture for Assessing Road Safety in Smart Cities

SUMMARY: In its Global Status Report on Road Safety - the WorldHealth Organization (WHO) noted that the worldwide totalnumber of road traffic deaths has plateaued at.In millionper year, with tens of million either injured or disabled .Different initiatives, such as the United Nations' initiative for the. Decade of Action for Road Safety, have ledto improvements in road safety policies and enforcements.However, the WHO notes that the progress has been slowand has maintained the call for urgent action to reduce these figures. Added to the losses in human lives and wellbeing, con-siderable monetary losses are incurred in medical expenses,infrastructure repair, and production downtime.

PAPER 4:
PUBLISHED YEAR : 2021
AUTHOR : Yaswanth Kumar B , Nithish M , Thippesha J
JOURNAL NAME : Smart Real-Time Tracking and Controlling System During Health Emergency for Improved Road Safety

SUMMARY: According to World Health Organization, a specialized agency of the United Nations, the number of road traffic deaths worldwide hit 1.35million every year. The Latest studies show human error to account more than 90% to road fatalities leaving high improvement opportunities for technologies which can survive or avoid road-accidents. As a result, the automobile industry focuses more on surviving the road accidents. Over the past decades, passive safety systems.Like pre-tensioned seatbelts, airbags and energy-absorbing deformation zones have made a major contribution to road safety by reducing

the consequences of accidents. However, passive safety technology is reaching a level of maturity, so further room for improvement is limited.

PAPER 5:
PUBLISHED YEAR : 2019
AUTHOR : Chai k.Toh,Juan-Carlos Cano
JOURNAL NAME : Wireless digital traffic signs of the future

SUMMARY: Traffic signs have come a long way since the first automobile was invented. They have long served the purpose of warning and guiding drivers and also enforcing the traffic laws governing speed, parking, turns, and stopping. In this study, the authors discuss the issues and challenges facing current traffic signs, and how it will evolve into a next-generation traffic sign architecture using advanced wireless communications technologies. With technological advances in the areas of wireless communications and embedded electronics and software, we foresee that, in the future, digital traffic sign posts will be capable of transmitting the traffic sign information wirelessly to road users, and this will transform our roads into intelligent roads, where signs will appear promptly and automatically on in-vehicle displays to alert the driver. There is no longer the need to watch out for traffic signs since the detection will be automatic and performed wirelessly. This transformation will lessen burden on the drivers, so that they can then focus more on the traffic ahead while driving.

PAPER 6:
PUBLISHED YEAR : 2011
AUTHOR : Jeong Ah Jang,Hyun Suk Kim
JOURNAL NAME : Smart Roadside System for Driver Assistance and Safety Warnings

SUMMARY: The use of newly emerging sensor technologies in traditional roadway systems can provide real-time traffic services to drivers through Telematics and Intelligent Transport Systems (ITSs). This paper introduces a smart roadside system that utilizes various sensors for driver assistance and traffic safety warnings. This paper shows two road application models for a smart roadside system and sensors: a red-light violation warning system for signalized intersections, and a speed advisory system for highways. Evaluation results for the two services are then shown using a micro-simulation method.

PAPER 7:
PUBLISHED YEAR : 2017
AUTHOR : Kelly Borden, Marc LaBahn, Matt Milliken
JOURNAL NAME: Improving Road Safety with Intelligent Transportation Systems

SUMMARY: The goal of our project was to propose current and future Intelligent Transportation Systems (ITS) solutions to decrease fatalities in areas with high crash frequency, or hotspots, in New Mexico. In order to accomplish this goal we addressed the following objectives: 1. Composed and analyzed a compilation of ITS solutions and their possible applications that would best benefit the NMDOT, referred to as a "toolbox" 2. Identified and Characterized Hotspots, or Dangerous Sections of Road, Where ITS Solutions Could Potentially be Applied 3. Develop a set of guidelines that the NMDOT could follow to increase traffic safety at hotspots

PAPER 8:
PUBLISHED YEAR : 2019
AUTHOR : Muhammed O. Sayin, Chung-Wei Lin
JOURNAL NAME: Reliable Smart Road Signs

SUMMARY: In this paper, we propose a game theoretical adversarial intervention detection mechanism for reliable smart road signs. A future trend in intelligent transportation systems is "smart road signs" that incorporate smart codes (e.g., visible at infrared) on their surface to provide more detailed information to smart vehicles. Such smart codes make road sign classification problem aligned with communication settings more than conventional classification. This enables us to integrate well-established results in communication theory, e.g., error-correction methods, into road sign classification problem. Recently, vision-based road sign classification algorithms have been shown to be vulnerable against (even) small scale adversarial interventions that are imperceptible for humans. On the other hand, smart codes constructed via error-correction methods can lead to robustness against small scale intelligent or random perturbations on them. In the recognition of smart road signs, however, humans are out of the loop since they cannot see or interpret them.

PAPER 9:
PUBLISHED YEAR : 2022

AUTHOR : Eric Masatu, Ramadhani Sinde, Anael Sam
JOURNAL NAME: Development and Testing of Road Signs Alert System Using a Smart Mobile Phone

SUMMARY: Road traffic accident is a major problem worldwide resulting in significant morbidity and mortality. Advanced driver assistance systems are one of the salient features of intelligent systems in transportation. They improve vehicle safety by providing real-time traffic information to the driver. Road signs play an important role in road safety. To be effective, road signs must be visible at a distance that enables drivers to take the necessary actions. However, static road signs are often seen too late for a driver to respond accordingly. In this study, a system for alerting drivers about road signs has been developed and tested using a smart mobile phone. The study was carried out in Tanzania along an 80 km highway stretch from Arusha to Moshi town. The Haversine formula was used to measure and estimate the distance between two pairs of coordinates using the smartphone-based navigation application, Google Map. The application provides a voice alert to a needed action that enhances driver's attention.

PAPER 10:
PUBLISHED YEAR : 2021
AUTHOR : Yaswanth Kumar B , Nithish M , Thippesha J
JOURNAL NAME: Smart Real-Time Tracking and Controlling System During Health Emergency for Improved Road Safety

SUMMARY: The two main functions of the system are, 1) to communicate the emergency message and 2) to auto-park on the drivers command. To achieve these tasks, it requires a suitable control system with appropriate elements all synchronized accordingly. Since the system is excited during an emergency condition, it has to perform both the functions swiftly, smoothly and simultaneously. It becomes difficult for one control unit to handle the situation as the two functions are totally different both method wise and equipment wise. Therefore, the system is operated with main and sub control units. The use of sub-control unit for emergency message communication increases the performance and reliability of the main control unit. The sub- control unit works under the supervision of main control unit which tells it what to communicate (Location or emergency message), how to communicate (call or SMS) and based on the communication status (successful call or disconnected call) – when to re-communicate.