DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

IDEATION PHASE

IBM – LITERATURE SURVEY

PROJECT TITLE

SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

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S. no	Title of Paper	Advantages	Disadvantages	Technology used
1	Traffic Sign Recognition using Deep learning for Autonomous Driverless Vehicles	The smart vehicle became efficient so that these human factors can be Eliminated. Auto-driving technology will assist, and do the driving process completely, which is very important to liberate the physical structure and significantly cut back the number of accidents	Errors in algorithms may leads to false detection of signs.	Smart cars can detect and recognize traffic signs By the proposed algorithm. Initially, spatial threshold Segmentation is employed by the HSV color space, and traffic signs are effectively detected to support the features.
2	Improved Traffic Sign Detection and Recognition Algorithm for Intelligent Vehicles	The accurate recognition rate and average processing time are markedly improved. Which reduces the accident rate and enhances the road traffic safety situation, providing a strong technical guarantee for the steady development of intelligent vehicle driving assistance.	The viewpoint of traffic sign recognition accuracy but algorithm more time-consuming.	LeNet-5 convolutional neural network model by using the Gabor kernel and selecting the Adam method as the optimizer algorithm. The traffic sign classification and recognition experiments are conducted based on the German Traffic Sign Recognition Benchmark.
3	Smart roads: A state of the art of highways innovations in the Smart Age	A smart highway will allow for Technological integration into current transportation roadways, Including connected devices and IoT, to increase transport efficiency, Drivers' and pedestrians' safety, clean energy consumption, And to promote sustainability. The key functions of the smart road: self-awareness; information And connection; self-adaptability; energy Harvesting	Advanced innovations may use with great concern, otherwise leads to the exploitation of clean And renewable energy sources. Loss of privacy and security of data due to a large amount to store.	Three major methods for traffic data, The collection is roadside data, wide-area data, and floating car data. The most modern technologies are based on Information and Communications Technologies, such as end-user Internet service systems, Internet of Things, Connection and Cooperation Services, Big Data, Augmented Reality, Artificial Intelligence, and Edge Computing are used for data collection and road automation works.

4	Safety Applications: Intelligent Transport System (ITS)	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	Installation of wireless environment at every cross point would be costly.	Vehicles are connect via multiple complementary technologies of vehicle to-vehicle (V2V) and vehicle-to-infrastructure (V2I) connectivity based on Wi-Fi, Dedicated Short Range Communication (DSRC)/WAVE wireless media to periodically broadcast their position information.
5	Geographic Information Systems to Improve Road Safety	Pedestrian collisions and clashing, which together account for more than 65% of all fatal accidents will be reduced.	Complexity may occur due to improper traffic management.	DCRE system (driver - car - road - environment), from the point of view of all its constituent components interaction, that is, to consider road traffic accident (RTA) as a consequence of this system.
6	Reliable Smart Road Signs	A matter Of time for autonomous driving to replace of human drivers Completely. Reliable identification of Road signs by smart vehicles	The cost associated with false alarms is due to not being able to detect the signs.	The road sign and smart vehicle can be viewed as a transmitter and a receiver, respectively. Then, the message is the type of the road sign, the signal carrying that message is the physical road sign, and the signal received is its digital image taken by the smart vehicle.
7	Vision-Based Traffic Sign Detection and Analysis for Intelligent Driver Assistance Systems	On-road applications of vision have included lane Detection, driver distraction detection, and occupant pose inference.	The problem in TSR is the lack of use of standard Sign image databases. This makes comparisons between Contributions very hard.	The KUL Data set includes four recorded sequences, which used for tracking experiments. Colors and signs are detected.

8	An IoT Architecture for Assessing Road Safety in Smart Cities	Possible to identify behaviors Such as exceeded speed limit, rolling stops, drowsy, Sleepy, asleep, and fatigued. The model also enables characterizing distracted driving, as well as the nature of distraction.	Various errors are introduced when crash data is reported.	The viability of an economic road safety monitoring and assessment solution through exploiting Advances in the internet of things (IoT). Hidden Markov Modelling (HMM) is a powerful statistical Tool for modelling time-series systems.
9	Traffic Sign Board Recognition and Voice Alert System using Convolutional Neural Network	This system in which traffic signs are automatically detected using the live video stream and are read out aloud to the driver who may then take the required decision.	Raspberry Pi board at one's discourse for implementation which is quite costly	Raspberry Pi is used in detecting and recognizing Traffic Signs with much less coding. A video is Acquired and broken down into frames. Image preprocessing is done. Voice Alert System using Convolutional Neural Network.
10	Traffic Sign Detection for Intelligent Transportation Systems	Enhances the safety by informing the drivers about the current state of traffic signs and offering valuable information about precautions.	Publicly available data sets do not include images captured under unsuitable conditions (At night, cloudy weather, etc.)	Road sensors, in-vehicle navigation services, electronic message Signs, traffic management and monitoring system alerts the driver to potential danger, or to avoid collisions by implementing safeguards And controlling the vehicle.