BHARATH NIKETAN ENGINEERING COLLEGE, AUNDIPATTI

ELECTRONICS AND COMMUNICATION ENGINEERING

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LITERATURE SURVEY

TITLE : Signs with Smart Connectivity for Better Road Safety

DOMAIN : IOT

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ABSTRACT:

In present Systems the road signs and the speed limits are static. But the road signs can be changed in some cases. We can consider some cases when there are some road diversions due to heavy traffic or due to accidents then we can change the road signs accordingly if they are digitalized. Intelligent transportation systems (ITS) offer significant opportunities to save live

A Road safety International task force, comprising leading international experts in road safety and connected mobility, has focused on the relation between interconnected mobility and road safety

This project proposes a system which has digital sign boards on which the signs can be changed dynamically. If there is rainfall then the roads will be slippery and the speed limit would be decreased. There is a web app through which you can enter the data of the road diversions, accident prone areas and the information sign boards can be entered through web app. This data is retrieved and displayed on the sign boards according.

INDRODUCTOIN :

With new pressures for cities to develop more effective roadways and highways, smart infrastructure is essential for modernization. Smart roads built on IoT and information and communications technology (ICT) can make it possible for cities and transportation authorities to collect and analyze data to improve day-to-day traffic management. Smart road infrastructure can also help cities adapt for long-term sustainable transportation needs. With IoT sensors, cameras, radar, and 5G-equipped technologies, data can be analyzed in near-real time and used to improve congested roadways, streamlining traffic flow. Data can also be sent to the cloud for long-term analysis, providing critical insight for efforts such as reducing CO2 emissions.

Edge computing opens myriad possibilities for smart and connected roads.

LITERATURE SURVEY:

- From the beginning of civilizations, transportation has been one of the most important requirements for humans. Over the years, it has been evolved to modern transportation systems such as road, train, and air transportation. With the development of technology, intelligent transportation systems have been enriched with Information and Communications Technology (ICT). Nowadays, smart city concept that integrates ICT and Internet-of-Things (IoT) have been appeared to optimize the efficiency of city operations and services. Recently, several IoT-based smart applications for smart cities have been developed. Among these applications, smart services for transportation are highly required to ease the issues especially regarding to road safety. In this context, this study presents a literature review that elaborates the existing IoT-based smart transportation systems especially in terms of road safety. In this way, the current state of IoT-based smart transportation systems for safer roads are provided. Then, the current research efforts undertaken by the authors to provide an IoT-based safe smart traffic system are briefly introduced. It is emphasized that road safety can be improved using

Vehicle-to-Infrastructure (V2I) communication technologies via the cloud (Infrastructure-to-Cloud – I2C). Therefore, it is believed that this study offers useful information to researchers for developing safer roads in smart cities.

- According to United Nations (UN) 2030 agenda, the transportation system needs to be enhanced for the establishment of access to safe, affordable, accessible, and sustainable transport systems along with enhanced road safety. The highway road transport system is one of the transport systems that enables to transits goods and humans from one location to another location. The agenda of UN 2030 for the transport system will be accomplished with the assistance of digital technologies like the internet of things (IoT) and artificial intelligence (AI). The implementation of these digital technologies on highways empowers to provide reliable, smarter, intelligent, and renewable energy sources experience to the users travelling along the highways. This study discusses the significance of the digitalization of highways that supporting and realizing a sustainable environment on the highways. To discuss the significance of digitalization, the study has categorized digitalization into five subcomponents namely smart highway lighting system, smart traffic and emergency management system, renewable energy sources on highways, smart display and AI in highways. An architecture-for smart highway lighting, smart traffic, and emergency management are proposed and discussed in the study. The significance of implementing smart display boards and renewable sources with real-time applications is also addressed in this study. Moreover, the integration of AI in highways is addressed with the perspective of enhancing road safety. The integration of deep learning (DL) in the edge-based vision node for predicting the patterns of traffic flow, highway road safety, and maintenance of quality roads have been addressed in the discussion section. Embedding the deep learning techniques in the vison node at the traffic junction and the highway lighting controller is able to deliver an intelligent system that provides sustained experience and management of the highways. Smart reflectors, adoption of renewable energy, developing vehicle-to-vehicle communication in vehicles, and smart lamppost are the few recommendations for the implementation of digitalizing highways.

REFERENCE :

M. Derawi, Y. Dalveren and F. A. Cheikh, "Internet-of-Things-Based Smart Transportation Systems for Safer Roads," 2020 IEEE 6th World Forum on Internet of Things (WF-IoT), 2020, pp. 1-4, doi: 10.1109/WF-IoT48130.2020.9221208.

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