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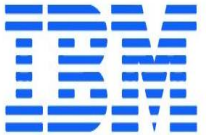

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

HX8001 - PROFESSIONAL READINESS FOR INNOVATION, EMPLOYABILITY AND ENTREPRENEURSHIP

SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

DOMAIN OF THE PROJECT : SAFETY (IOT)
BATCH ID : B12 - 6A2E
TEAM ID : PNT2022TMIDI3488
ACADEMIC YEAR : 2022 - 2023
YEAR / SEMESTER : IV / VII

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Table of Contents

Objectives

- To replace the static signboards, smart connected sign boards are used.
- These smart connected sign boards get the speed limitations from a web app using weather API and update automatically.
- Based on the weather changes the speed may increase and decrease.
- Based on the traffic and fatal situations the diversion signs are displayed.
- Guide (Schools), Warning and Service (Hospitals, Restaurant) sign are also displayed accordingly.
- Different modes of operations can be selected with the help of buttons.

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 changes the road signs accordingly if they are digitalized.
- Intelligent transportation systems (ITS) offer significant opportunities to save lives.
- 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.

Introduction

- Based on current research and development efforts, we can all be fairly certain that smart road signs will be broadly utilized in the years to come.
- They serve as one of the major components of an emerging system designed to enhance the current infrastructure.
- These indicators are useful tools, and they can have a positive impact on all who share the roads.
- Most importantly, this type of signage has the potential to improve our way of life.

Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
Proposing Lane and Obstacle Detection Algorithm Using YOLO	Phat Nguyen Huu & 2022	Advances in Multimedia	The paper mentions two main problems, namely, lane detection and obstacle detection (road signs, traffic lights, vehicles ahead, etc.,) through image processing algorithms
The potential of emerging digital technologies for improving road safety	ManuSasidharan, Leila C.W.Muchanga & 2022	Accident Analysis & Prevention	In this paper, the results show that digital technologies such as AI, Image processing and IoT have been widely applied to enhance road safety, due to their ability to automatically capture and analyse data while preventing the possibility of human error.

Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
Agent-Based Approach for Connected Vehicles and Smart Road Signs Collaboration	Mayssa Hamdani, Nabil Sahli & 2022	Computing and Informatics	In this paper to build Smart Road Signs (SRS) that can collaborate with Connected Vehicles in order to monitor traffic and warn drivers about any incident or danger
Do stop-signs improve the safety for all road users ?	BismarckNavarro, LuisMiranda-Moreno & 2022	Accident Analysis & Prevention	This paper investigated the safety effectiveness of converting MAS to AWS intersections using an observational before and after approach and surrogate measures of safety.

Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
Smart and Innovative Techniques for Safe and Smooth Road Transport System	Sanmit P. Nalawade, Pravin J. Pawar & 2021	International Journal of Research in Engineering and Science (IJRES)	Due to rapid increase in number of vehicles, unplanned road network system, low visibility due to weather, lack of street lamps, improper signals, sign boards & etc.,there is increase in traffic congestion, accident, Travelling time, Transportation cost
Advances in smart roads for future smart cities	Chai K. Toh, Francisco J. Martinez & 2020	Recent advances in smart roads.	In this paper, there are issues associated with traffic signs, such as poor visibility of traffic signs, challenges in placing signs, difficulty in remembering the highway code.

Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
Reliable Smart Road Signs	Muhammed O.Sayin, Chung-Wei Lin, Shinichi Shiraishi & 2019	Transactions on Intelligence	In this paper, A future trend in intelligent transportation system is "Smart road signs" that incorporate smart codes on their surface to provide more detailed information to smart vehicles.
The impact of road signs on driver behaviour, implications for road safety	BarryWatson, Jane A.Hinton & 2019	Transportation Research	In this paper, there is a need to empirically assess dwell time for changeable roadside advertising signs.

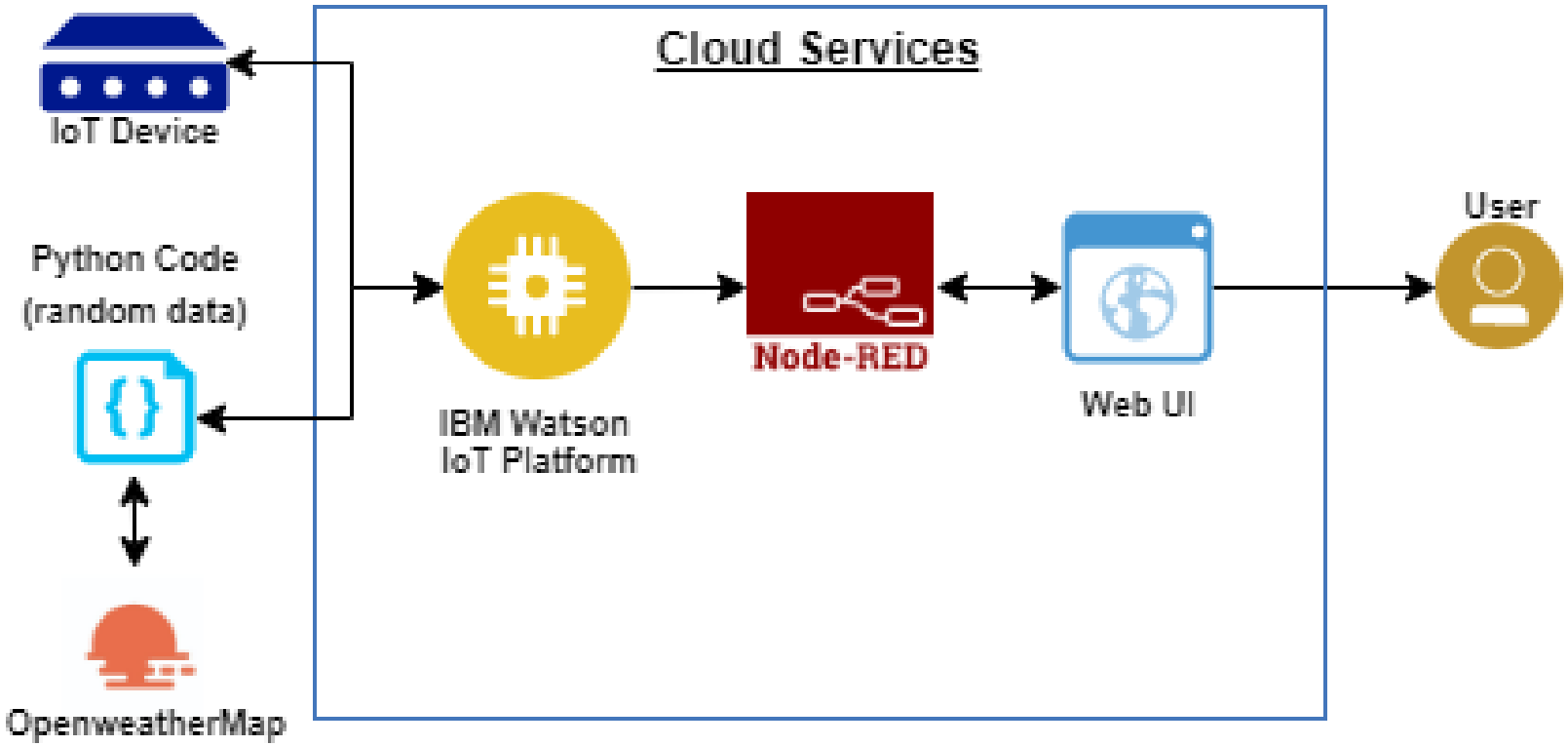
Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
safety failures, security attacks for autonomous vehicles	Lin Shen Liew, Giedre Sabaliauskaite, Fengjun Zhou & 2019	Ad Hoc Networks	This paper presents to assist/replace the human drivers in maneuvering the vehicle, thereby reducing the likelihood of road accidents caused by human error, as a means to improve the road traffic safety
An Overview of Vehicular Communications	Fabio Arena and Giovanni Pau & 2019	Future Internet	The main aim of the review carried out in this paper is to examine and assess the most relevant systems, applications, and communication protocols that will distinguish the future road infrastructures used by vehicles.

Problem Identification

- As we all know, road signs are the most vital role for road safety.
- 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 changes the road signs accordingly if they are digitalized.
- This is project proposes a system which has digital sign boards on which the signs can be changed dynamically.
- If there is rainfall the 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 accordingly.

Block Diagram



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Questions
&
Discussions

Thank you