

MEENAKSHI COLLEGE OF ENGINEERING

B.TECH-INFORMATION TECHNOLOGY

INTERNET OF THINGS

LITERATURE SURVEY

**SIGNS WITH SMART CONNECTIVITY FOR
BETTER ROAD SAFETY**

TEAM ID PNT2022TMID2780

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SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

INTRODUCTION:

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. 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 accordingly.

Software used:

- python
- AI
- APPLICATION WEB SERVER
- DATABASE

Hardware used:

- Embedded system
- AI chip and sensor
- LED Display
- Traffic control system

Applications:

- Vehicle to vehicle communication.
- ATV Control

PAPERS	PARAMETER	DESCRIPTION
1.Base paper	<p>1.Aim: Smart Roads for Autonomous Accident Detection and Warnings</p> <p>2.Abstract: An increasing number of vehicles on the roads increases the risk of accidents. In bad Weather this risk almost doubles due to bad visibility as well as road conditions.</p> <p>3.existing system: All the previous accident-related techniques are based on some sort of continuous monitoring in the vehicle of its surroundings through various sensors with the help of a microcontroller-based processing unit. Calibration of these devices from time to time</p>	<p>Although a GPS offers easy and accessible localization, the precision of the GPS still has room for further improvement in providing accuracy. To be more specific, a GPS suffers influences from several factors (e.g. receiver noise; a multipath effect), such that the received GPS coordinates have large errors in the actual Sensors coordinates of the vehicle, thereby posing a threat to the safety of Avs or the precision of ITS applications . Another problem with GPS technology is that not all driving surfaces have satellite visibility. The received</p>

is necessary for proper function, which becomes costly. Communication between vehicles is carried out by wireless technology. Although a GPS offers easy and accessible localization, the precision of the GPS still has room for further improvement in providing accuracy.

4.proposed system: In BWC, MVCs can happen where a number of approaching vehicles can lead to another accident. In this case, damage and the number of injured people, and/or fatalities might increase. The common cause for this type of accident is poor visibility whereby drivers cannot see the accident until they come upon it (approximately 10 to 15 m away). At that distance, braking will

GPS data can be influenced in urban areas by building occlusions, making the data less accurate. On the other hand, post-accident techniques use a GPS to detect and find the location of the accident, with GSM and 5G technology for messaging to emergency service centers . These techniques require internet connection. SRs are roads that have some sort of sensing power given with the help of different types of transducers (devices that convert one form of energy to another) as well as control devices with communication capabilities. Several

not stop the vehicles in time and, as a result, they become part of the accident. In modern vehicles, some preventive and protective systems are installed for the safety of the driver and passengers.

5.advantages:

IR Sensor Module
Microphone Sensor Module
Smoke Detection Module
GPS 8M Module
HC-12 Wireless Communication Module
Breadboard and Jumper Wires
Relay Module

6.Disadvantage:

1. It cannot sense the sound produced by an accident/crash.
2. It cannot sense smoke from a fire.
3. It cannot sense an obstacle on the road for a period longer than the set

nodes are installed on the sides of the road to enable sensing at those points. By increasing the number of nodes, sensing power can improve. These nodes hold all the necessary sensing devices and a microcontroller board with a wireless communications system. The distance between nodes is directly proportional to the transmission power of the sensing devices. SRs do not discriminate among vehicle types, and can detect accidents involving Evs as well as EVs.

threshold.

4. When an accident was not detected by sound or obstacle detection, the alert comprising light and sound was generated on the node.

5. its cannot a message with the location, traffic direction, and fire detection information was sent to the immediately adjacent node.

2. Reference paper-

1. Existing system

Adaptive Traffic Control System adapts to real time traffic patterns to optimize the traffic flow by dynamically changing the green split timings. ATCS algorithm adjusts traffic signal timings continuously based on the traffic demand at the intersections and anticipated arrivals from adjacent intersections. It Improves travel time substantially by progressively moving vehicles through green lights and reduces congestion by creating smoother flow.

- Vehicle Detectors
- ATCS Edge Application
- ATCS Master
- Controller
- LED Signal Lamps
- Countdown Timers
- ATCS Web

Advantages:

- Vehicle Accident Prevention System.
- using GSM module and send location of accidental place using GPS module.
- In case accident happen only when we know the exact location of accidental place.

Disadvantage:

- Vehicle Alert
- Accident Alert
- This style of observance Protects electrical device And Overall System therefore System dependability And Stability will increase.

Interface

- Real Time Reports
- ML Based Forecasting
- API Services

2.proposed system

To improve quality of power Remote sensing.

To Maintain Continuity of offer • Real time observance. It will ready to notice The Faults thanks to Over Current, Over Voltage, magnified Temperature at Real Time.

Monitoring Multiple Transformers Sitting In associate workplace is feasible.Pre fault Condition is well Detected and Cleared at Same Time to Avoid System Failure. Fault observance needs Less Time conjointly Use Of wireless local area network provides Most correct, Fast Response.

3. Reference :

1. Traffic Accident Happened in the Year 2016–2017 All over Pakistan. Available online: http://www.pbs.gov.pk/sites/default/files//tables/Traffic%20Accidents_0.pdf (accessed on 22 April 2019).
2. Grossman, P.Z.; Cearley, R.W.; Cole, D.H. Uncertainty, insurance and the Learned Hand formula. *Law Probab. Risk* **2006**, *5*, 1–18. [[CrossRef](#)]
3. Hasan, M.; Mohan, S.; Shimizu, T.; Lu, H. Securing Vehicle-to-Everything (V2X) Communication Platforms. *IEEE Trans. Intell. Veh.* **2020**, *5*, 693–713. [[CrossRef](#)]
4. Leu, F.; Chuang, S. Cluster-RLM: Establishing a Routing Path with Cluster-Based Redundant Link Minimization in Wireless Sensor Networks. In *Proceedings of the 2015 10th International Conference on Broadband and Wireless Computing, Communication and Applications (BWCCA)*, Krakow, Poland, 4–6 November 2015; pp. 380–385. [[CrossRef](#)]

4.Reference:

- [1] Ashutha K., Ankitha K., "Smart Shopping cart using embedded system and wireless module", *Recent Patents on Computer Science (CSENG)*, UAE, Vol. 8, pp. 1-6, January 2016.
- [2] Ashutha K., Shetty Arpitha., ET. Al "Novel wireless data communication for fisherman", *International journal of computer science and mobile computing (IJCSMC)*, Vol. 5, Issue 4, pp. 511- 517, April 2016.

[3] Ashutha K., Ankitha K., "Error Minimization in BCH Codes", International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering (IJIREEICE), Vol. 4, Issue 5, pp. 402- 405, May2016

[4] Duy Tran, Weihua Sheng., et.al. : A Hidden Markov Model based driver intention prediction system, IEEE Int. Conf. on Cyber Technology in Automation, Control, and Intelligent Systems (CYBER).pp.115- 120(2015).

5.Reference:

[1] WorldHealthOrganization, "Global status report on road safety

2015," [https://www.who.int/violence injury prevention/road safety status/2015/en/](https://www.who.int/violence_injury_prevention/road_safety_status/2015/en/).

[2] World Health Organization, "Decade of Action for Road Safety

2011-2020 seeks to save millions of lives," [http://www.who.int/roadsafety/decade of action/en/](http://www.who.int/roadsafety/decade_of_action/en/).

[3] F. Wegman, "The future of road safety: A worldwide perspective,"

IATSS Research, vol. 40, no. 2, pp. 66–71, 2017.

[4] World Health Organization, "Save LIVES - A road safety technical package," 2017.

6.Reference:

[1] A. Zanella *et al.*, "Internet of things for smart cities," IEEE Internet of Things Journal, vol. 1, no. 1, pp. 22–32, Feb. 2014.

[2] Y. Mehmood *et al.*, "Internet-of-things-based smart cities: recent advances and challenges," IEEE Communications Magazine, vol. 55,no. 9, pp. 16–24, Sept. 2017.

- [3] K. N. Pallavi, V. R. Kumar, and B. M. Chaithra, “Smart waste management using internet of things: a survey,” in Proc. International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), Palladam, India, 2017, pp. 60-64.
- [4] M. T. Lazarescu, “Design of a WSN platform for long-term environmental monitoring for IoT applications,” IEEE J. Emerging Sel. Top. Circuits Syst., vol. 3, no. 1, pp. 45–54, 2013.