

Review on Road Safety in Hilly Area using WSN and IoT

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Abstract - The rapid increase of vehicular traffic and congestion on the hilly area began hampering the safe and efficient movement of traffic. In this paper we will be designing a system with some innovative idea like minimizing accident, landslide, bridge break, sharp turn mainly in hilly area and showing direction to driver. These parameter are reliable for safety driving in hilly area. Road safety system is the innovative concept which makes driving in hilly area convenient for driver. The circuit will be designed in such manner that driver will informed about the natural calamities before arrival of the spot. Some of author has discussed about landslide tracker. But landslide is not the only reason for the safety measures many other circumstances are too, we will be working on that issues also. The road safety system is the combination of all features which are been studied n applied by other author and there will be many more other additional features developed by us in this paper.

Key Words: GPS module, GSM module, water sensor, landslide detector, sharp turn parameters, accident detector.

1. INTRODUCTION

The thought of developing this paper comes to do some good things towards society. Day by day the accidents in hilly are increasing and leads to loss of many lives. The reason may be many such as no proper knowledge about roads in hilly area while travelling about any natural calamities etc. Roads accident due to sharp turn are very common in hilly area day by day its increasing and landslide or river over flow may occur suddenly it may cause loss of lives. In order to put an end to this misery we have developed the road safety system for driver travelling in hilly area. It is being featured with the GPS and GSM based system in order to track location in hilly area. The paper is being implemented with all the sensor which will send the information to module connected with the vehicle wirelessly.

2. LITERATURE SURVEY

“Driver safety field based on driver vehicle road interaction” by Jianqiang Wang, Jian Wu, and Yang Li
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS.

In this paper author has discussed vehicle driving safety is influenced by many factors, including drivers, vehicles, and road environments. The interaction among them are quite

complex. Consequently, existing methods that evaluate driving safety perform inadequately because they only consider limited factors and their interactions. As such, it is difficult for kinematics-based and dynamics-based vehicle driving safety assistant systems to adapt to increasingly complex traffic environments. In this paper, we propose a new concept, i.e., the driving safety field. The concept makes use of field theory to represent risk factors owing to drivers, vehicles, road conditions, and other traffic factors [2].

“Smart vehicle with everything” 2016 2nd International Conference on Contemporary Computing and Informatics (ic3i).

In this paper the number of vehicles is increasing day-by-day, the question of how to obtain information about the Vehicles is becoming more and more difficult. In such a situation Intelligent Transportation Systems (ITSs) has emerged as a solution that is an advantage from the unique features and capabilities of Wireless Sensor Networks (WSNs) and Internet of Things (IOT). WSNs are composed of tiny devices that work in manner to sense the parameters of the vehicle. ITSs can also solve situations like intimating ambulance after occurrence of accident and track the location of the vehicle using GPS sensors. This paper presents an efficient architecture that will increase the safety of road travel using the concepts of WSN and IOT. We have proposed a low cost system to prevent road accidents and to sense speed of vehicles during road travel and also to transmit data to the cloud. [1]

“Wireless machine-to-machine communication for intelligent transportation systems”: Internet of Vehicles and Vehicle to Grid Ntefeng Ruth Moloisane, Reza Malekian, Dijana Capeska Bogatinoska MIPRO 2017, May 22- 26, 2017, Opatija, Croatia

In this paper machine to machine communication in intelligent transportation is a technology that aims to interconnect various components such as sensors, vehicles, road infrastructures and wireless networks. The significance There of is to solve problems such as road congestion, road accidents and high vehicle fuel consumption. This paper gives an overview of how Machine-to-machine (M2M) communication can be used in intelligent transportation systems (ITS) improve road safety and efficiency, where Vehicular ad-hoc networks (VANETs) play a major role.[3]

3. DISCUSSION

In the 1st research paper author has worked on the drivers safety measures in highly areas and vehicle to vehicle communication, so that the driver should get the proper information regarding the road on which they are travelling.

In the 2nd research paper they have discussed about the vehicle tracking system in which the system track location in case any accident occurred they have used wsn and iot based system, for tracking location they used GPS system and ITSs to solve the problem of accident by informing ambulance. The main purpose of this system is to track the vehicle and help the rider.

In the 3rd research paper the author describes about the machine to machine communication that interconnect the system with the other system of the other vehicle. IN this the road congestion and accident on road can solve by using VANETs.

In the Road safety in hilly areas will working on all parameters together which will be more advanced. Road tracking, accident detector, landslide detector, river overflow which could be the advantageous system for a rider. it would be using arduino and WSN and Iot. The rider would get the information about the natural calamities occurred, and sharp turns will get before the rider reach to the location of it by glowing the buzzer or alert notification.

4. CONCLUSION

This paper review the safety system for the rider. In some paper they have used WSN, VANET, ITSs which will sense the parameter of vehicle and which is not only the possible requirement and vehicle communication, data communication, traffic management, standardized safely separately. In future the safety system will feature all that is natural calamities, location detector, sharp turns, accident detector together. The other feature are too advance that the driver will get the information about any landslide river overflow before it reaches to the spot. these features are been used in the road safety system.

5. ADVANTAGES

- Landslide detector
- River overflow (bridge break)
- Sharp turn
- Location tracking
- Low cost
- Accident detector

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