International Journal of Future Generation Communication and Networking

Vol. 13, No. 3s, (2020), pp. 321–324

Movable Road Divider Using IOT

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Abstract

Civil engineering deals with the new formation, invention, design, construction and maintenance of physical and naturally built environment, including works like towers, building, roads, canals, tunnels, dams and bridges. Construction of roads has always been one of the most important aspect of infrastructure and most fascinating challenges to civil engineers. Roads are designed on the basis of type of the user ,traffic density , intensity of vehicles of different types . movable road divider will eliminate traffic congestion and avoid delay in traffic . In this paper we present the need and importance of movable road divider using IOT is mentioned. Movable road divider is provided on the roads which cannot further expanded by width and one way traffic during rush hours is more. This type of Movable Road Dividers are preferred where one way traffic is high like IT parks which are ideal for eliminating one way traffic .

I. INTRODUCTION

Traffic is inherently chaotic and noisy. Identification of magnitude of traffic congestion is an essential requirement for defining the congestion and finding appropriate measure. The main focus of this project is aimed at understanding the recurring traffic congestion, its measurement, precautionary measure and suggests a remedial measure for the same. This report will discuss the implementation of movable traffic dividers as congestion release strategy for Pune in the traffic prone areas instead of traditional solution of widening the roads.

There are different types of Movable Road Dividers;

- Metal barriers dividers
- Zip type movable road dividers
- Movable road dividers using IOT

Metal barriers are the type of dividers which are made of iron ,tide by chains to keep then in sequence and to avoid movement of individual barriers . Each barrier are attached to small wheels for the movement purpose of divider. This type of dividers are operated manually so requires more man power. Such type of dividers are irresistable to weather changes. Wear and tear of the metal barriers is more, so high maintenance cost is required. Zip type Movable road dividers are combination of concrete barriers of span 1m to 1.5 m kept in sequence and this are shifted using a machine called zipper machine so called as zip type movable road divider. This are operated mechanically so require less man power. This barriers are heavy in weight ,and initial cost for casting of concrete barrier is high. Time required for shifting of divider is more approx it requires 2 hours for a kilometer distance.

ISSN: 2233-7857 IJFGCN

Movable road dividers using IOT we will be discussing in this paper.

II. LITERATURE REVIEW

In this literature it presents the standard traffic control system to pass emergency vehicles smoothly.[1] Each individual vehicle is equipped with special RFID tag (placed at a strategic location), which makes it impossible to remove or destroy. We use RFID reader, NSK EDK-125–TTL and PIC16F877A system-on chip to read the RFID tags attached to the vehicle. It counts number of vehicles that passes on a particular path during a specified duration. It also determines the network congestion, and hence the green light duration for that path. If the RFID-tag-read belongs to the stolen vehicle, then a message is sent using GSM SIM300 to the police control room. Also, when an ambulance is approaching the junction, it will communicate to the traffic controller in the junction to turn on the green light. This module uses ZigBee modules on CC2500 and PIC16F877A system-on chip for wireless communications between the ambulance and traffic controller. The prototype was tested under different combinations of inputs in our wireless communication laboratory and experimental results were found as expected.

With automatic traffic signal control based on the traffic density in the route, the manual effort on the part of the traffic policeman is saved. As the entire system is automated, it requires very less human intervention.[1] With stolen vehicle detection, the signal automatically turns to red, so that the police officer can take appropriate action, if he/she is present at the junction. Also, SMS will be sent so that they can prepare to catch the stolen vehicle at the next possible junctions. Emergency vehicles like ambulance, fire trucks, need to reach their destinations at the earliest. If they spend a lot of time in traffic jams, precious lives of many people may be in danger. With emergency vehicle clearance, the traffic signal turns to green as long as the emergency vehicle is waiting in the traffic junction. The signal turns to red, only after the emergency vehicle passes through. Further enhancements can be done to the prototype by testing it with longer range RFID readers. Also, GPS can be placed into the stolen vehicle detection module, so that the exact location of stolen vehicle is known. Currently, we have implemented system by considering one road of the traffic junction. It can be improved by extending to all the roads in a multi- road junction

In this article it represented the daily traffic condition, road accidents and prevention for it. [2]Every hour, nearly 40 people under the age of 25 die in road accidents around the world. According to the World Health Organization, this is the second most important cause of death for 5- to 29-year-olds. In India, drunk driving and inefficient law enforcements are major contributing factors. The current system of visual identification of traffic violation, conducted by the traffic authorities, cannot work everywhere and every time. There is a great demand for simple and cost-effective solutions to traffic safety problem. In this paper, we propose a traffic violation detection technique for vehicular adhoc networks to detect crossing speed limits and analysing the behaviour of driver. In this work, we used a sensor device, a digital map and GPS-based system for area of 1000m*1000 m. We analysed the behaviour of each vehicle in the network .Here, we have divided a network into a number of clusters, and each cluster has an infrastructure node (base station); the infrastructure node will be the point of contact for all the vehicles in that area. All infrastructure nodes communicate with a control centre (master control room). If the driver violates traffic rule(s), then the infrastructure node will send an alert message to the control centre. We have simulated our proposed model on a graphics package, and the simulation result suggests that drunken drivers can no longer escape from the law enforcers, which is the foundation for traffic safety.

ISSN: 2233-7857 IJFGCN

[2] The vehicular ad hoc network plays a vital role in the field of intelligent transportation system. We hope that future governments will adopt such systems in order to detect all traffic violations. Conducting real experiments on roads for this type of network is both expensive and dangerous. The cost may include many rented vehicles, many purchased communication equipment's, and many employed experimenters. Driving simulators help record and collect driver behaviour data at various situations. Different subjects of various sex and age can be chosen to perform driving .Along with other variables, SD measured from the simulation was compared with the values obtained from the driving simulator. There are existing methods on driver behaviour detection using driving simulators. The simulation can be extended to perform some other functionalities such as changing traffic signal on the basis of the density of traffic in that particular lane.

In this paper it presented the everyday traffic density on roads. For that they want to apply some traffic controlling system which was based on [3] Arduino Uno.Present era controlling traffic became very arduous because of increase in the automobiles such as cars, bikes, etc. Due to this, there is a longer time delays in the signalling systems. In order to overcome this problem, we have designed the density-based traffic signal with a delay of 1000ms to control the traffic based on density at the crossings or four-side lane or roads system using Arduino Uno ATMega 328P.

In present situation we need a very efficient and economical traffic management system in our country, as India meets with 384 road accidents each day. To overcome this congestion and unwanted time delay in traffic a sophisticated system is designed by us. By the practical field application of this technology, the exasperating chaos of traffic may be effectively channelized by distributing the time slots with delay supported the benefit of the vehicle load the lanes of multi junction crossing. We have designed and checked the same work in laboratory scale but in coming days we will try to make in commercial basis for bringing the revolutionary modification in traffic management system.

III. CONCLUSION

The paper concludes that for construction of any structure, importance and necessity of structure is important to know. Movable Road Divider is an important structure to eliminate accidents and to provide smooth and safe transport. It also help to selection and implementation of right type of divider which is important for the fast , safe and disciplined movement of traffic.

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ISSN: 2233-7857 IJFGCN

Vol. 13, No. 3s, (2020), pp. 321–324

ISSN: 2233-7857 IJFGCN