Internet of Vehicles for Traffic Management

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*Abstract***:** *Todays world is currently using Internet- of- Things (IOT) as a Digitization towards next era. Internet-of -Things (IoT) is a world-wide network connecting all the smart objects together When-ever those smart things being connected over internet are restricted to only vehicles, then it is called as Internet of Vehicles (IOV). It is consistently increasing urban population and rapidly smart cities, vehicle ownership has been increasing at an exponential rate. Hence, traffic management has become a great problem in our day toady life. This paper focusing on traffic issues our daily life. The internet is today's world is a global phenomenon. The monitoring of net based vehicular system will be prominent solution using Speed Trackers, CCTV cameras. It is logical but that the monitoring of pollution checks and emergency response speed to road accidents. IOV is the platform where communication is established between the vehicular system and human.*

Keywords **:** *IOT, Traffic Management, IOV, NodeMCU.*

I. INTRODUCTION

The internet in today's world is a global phenomenon. As present days many devices becoming internet connectivity, traffic management in transportation working with the internet becomes easier. It is logical but that the monitoring of pollution checks and emergency response speed to road accidents.Continuous monitoring of pollution checks of vehicle, tracking the readings of speed with the help of speed-trackers & CCTV devices will be best solution, but as the number of vehicles increase in count, it's a tedious task, IoT will provide a vital solution for it.Out of the many proposed methodologies with wireless sensor networks in traffic management, the prospects of Internet of Vehicles (IOV) stand out. This paper mainly focuses on discussing the methodology, advantages and hindrances in creating an IOV.

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The basic concept of loT in traffic management has been widely accepted and is being put to use in the construction on smart cities' infrastructures. IOV concept proposes important advantages in handling traffic. The connection of CCTV cameras, traffic lights and speed trackers to the internet as well as their interconnectivity enables to take decisions via pre-embedded algorithms[1]. Some instances are

1. When a traffic signal violation occurs, the speed cameras immediately take pictures of the driver and the credentials of the vehicles and report them to a centralized repository.

2. When a CCTV camera records an accident, the traffic signals work in a way to clear the route, for an emergency response vehicle to come through.

There are some instances where this system is trumped such as:

1. Monitoring individual vehicles in the traffic and alerting the vehicles that are 500 meters away from the place of traffic, to be redirected.

2. Keeping pollution check on all the vehicles on road so that the air pollution could be controlled to certain extent. Therefore the objective of this paper is to demonstrate how IOV can be an effective strategy in dealing with the drawbacks of conventional loT deployment techniques in traffic management

II. IMPLEMENTATION

The Internet of things (IoT) is the extension of Internet connectivity into physical devices and daily life objects[3]. Objects are connectivity trough the internet and many of devices controlled by remote. The Internet of things (IoT) is the network that contains electronics devices and connectivity which allows these things to connect, interact and exchange data and embedded systems. IoT technology can implement many applications and used many things.
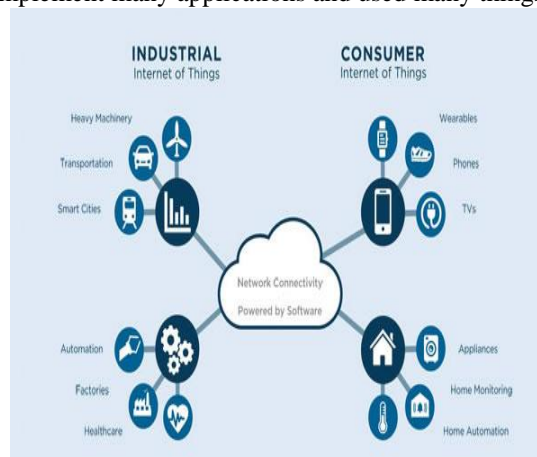

FIGURE 1: IOT CONNECTED DEVICES

Applications of IOT:

1. Consumer applications
2. Commercial applications
3. Industrial applications
4. Infrastructure applications
5. Transportation
6. Medical and Health care
7. Home automation etc.,,

Enabling internet in each and every vehicle on the road can pave way for complete automation of vehicles and traffic. The concept of Internet of Vehicles (loV) can be extended to all modes of transport making a important difference in the way that communication occurs between different media of transport. We can easily detect the navigation by using GPS. By using sensors we can know the distance, and we can alcohol detection. We can reduce the accidents Less traffic blocks, we can get message to our mobile through Blynk Server.
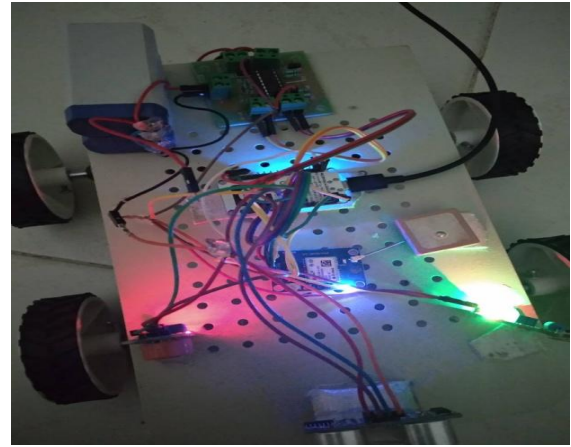

Figure2: Block Diagram of proposed work

III. RESULT AND DISCUSSION

We will get output in the blynk, when the person consumes alcohol, Alcohol sensor detects and it will send message through blynk app like "PERSON OVER DRUNK". If any accident occur to vehicle, Vibration sensor detects and then we will get message in blynk app like "ACCIDENT DETECTED". Ultrasonic sensor detects the objects when the vehicle is at certain distance to the objects,it will automatically stops the vehicle and will send a message through blynk app like "BE CAREFUL".

Figure 3: Output through Blynk

Figure 4: IOV Prototype

IV. CONCLUSION

This project identified the potential advantages posed by the concept of Internet of Vehicles (IOV) over the tradition Internet of Things (lot) in traffic management. This project is intended to suggest a much efficient way of traffic management and in making road travel better for everybody. This project can also be used in bringing up better architectures and strategies for road traffic management and to make an impact on the effectiveness of monitoring and Enabling internet in each and every vehicle on the road can pave way for complete automation of vehicles and traffic. The concept of Internet of Vehicles (IOV) can be extended to all modes of transport making a significant difference in the way that communication occurs between different media of transport.
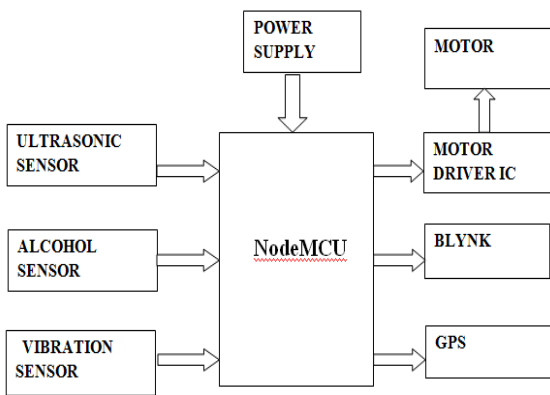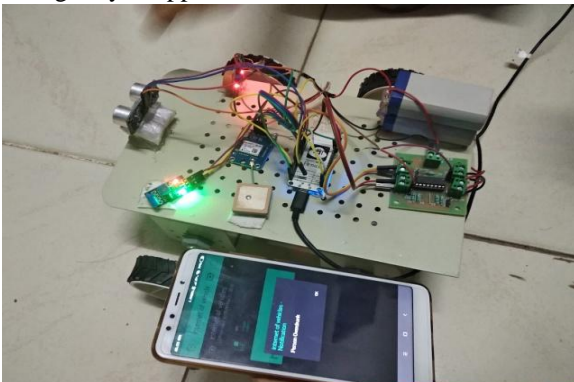
REFERENCES

1. Juhi R Srivastava, Sudarshan, T.S.B, "Intelligent Traffic Management with Wireless Sensor networks", IEEE, 2013.
2. L. Blincoe, T. R. Miller, E. Zaloshnja, "Date 6. Performing Organization Code 7. Authors", 2015
   Talal Bonny, M. Affan Zidan, Khaled N. Salama, "An Adaptive Hybrid Multiprocessor Technique for Bioinformatics Sequence Alignment", The 5th Cairo International Conference on Biomedical Engineering Conference (CIBEC'10), December 2010.
3. Nima Bari, Ganapathy Mani, Simon Berkovich, "Internet of Things as a Methodological Concept", Fourth International Conference on Computing for Geospatial Reasearch and Application, 2013.
4. H. Saivignesh, M. S. M, M. Nagaraj, B. Sharmila, M. Nagaraja, RF Based Automatic Vehicle Speed Limiter by Controlling Throttle Valve, pp. 18722-18728, 2015.
5. M. Hussain, A. Tayal, S. Singh, "Position matching based autonomous speed regulation system for vehicles", 2011 Int. Conf. Devices Commun. ICDeCom 2011 - Proc., 2011.
6. M. A. García-Garrido, M. Ocaña, D. F. Llorca, E. Arroyo, J. Pozuelo, M. Gavilán, "Complete vision-based traffic sign recognition supported by an I2V communication system", *Sensors*, vol. 12, no. 2, pp. 1148-1169, 2012.
7. S. Miyata, "Recognition of Speed Limits on Speed-Limit Signs by Using Machine Learning", 2017.

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