IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

SMART VEHICLE

ANUJA MALI[1], D.O.SHIRSATH[2], DEEPAK NAIK[3] SNEHAL PATIL[4] PRAJAKTA ZAMBRE[5]

[1]Student, [2]Assist Professor, [3]Student,[4]Student, [5]Student
[1,2,3,4,5], PVPIT Budhgaon, India

Abstract : In modern situation for license identity, RTO officers want to stop each car and check their license. In traffic rule damage instances a lot of the rule of thumb breakers run faraway from paying quality or prices. Many underages also drive the vehicle that's illegal. In the following proposed machine RTO officials have now not want to prevent the automobile and check the license due to the fact this gadget automatically identifies the license. If the driving force breaks the rule then penalty will rate automatically so no one can ran away. In accident detection this device helps to find the principle perpetrator. This machine additionally hit upon the alcoholic man or woman. In quick this machine assist to make vehicle clever, to shop cops time, and increase a disciplinary.

IndexTerms **- Accident Detection, License Detection, Alcohol Detection, Traffic Rule Detection, GSM, ATMEGA328, RFID, EM-18 Card Reader, Microcontroller, COB LED**

I INTRODUCTION:

Site visitors congestion ends in lengthy and unpredictable travel times, environmental pollutants and gasoline wastage. Those negative results are greater acute in developing countries like India, where infrastructure growth is slow because of value and bureaucratic problems. Frustration with the traffic lighting consequences in an boom in injuries from vehicles transferring when the traffic mild, indicators them to stop. Smart traffic management and higher get admission to visitors information for commuters can assist alleviate congestion problems to a certain quantity. The traffic lighting make certain that cars from each route get a danger to continue through the intersection in an orderly fashion. Usually, we can have the visitors signal lighting fixtures programmed for precise time periods. However, in day- to-day life we examine that visitors on one side on a -manner avenue is predominantly more while as compared to the other. In this kind of scenario programming equal durations of time for each forms of traffics, attributes to congestion during hours of heavy visitors, making visitors delays. But, here we endorse a system that generates the visitors mild alerts primarily based on the vehicle density, contrary to the antique technique of dishing out the identical time periods to all roads irrespective of their traffic density. This type of traffic mild signaling system is in recent times utilized in all the metropolitans. In this method to monitor site traffic, the density of visitors is measured with the aid of various sensors; those sensors are placed on both facets of the road. The sensors output is given to a microcontroller as a way to take motion thus. Within the past few years, site visitors accidents & congestions have elevated particularly. Although the car extent has improved exponentially, the road infrastructure has not been improved proportionately. This in turn ends in accelerated visitors congestion and street injuries. Distinctive technology are there to locate visitors congestion and to make congestion management extra efficient, but those technology have numerous drawbacks, consisting of set up problems, complexity, cost, etc. In a try to reduce the troubles related to traffic & enhance the site visitors area, advanced technological solutions has been proposed in this paper.
.

II LITERATURE REVIEW

For the selection of the project, the following literature review has been done.

1)Automatic Vehical Accident Detection and Messaging system (S. Paraneswaram, D. Naveen, Harshiya Banu)
The paper gives the accident is detecting using vibration sensor. By this method the emergency facility will be efficiently used during the road accidents. Accelerometer sensor can be used in car alarm application. Due to advancement technology there is need for the identification of exact vehicle location.
2)IoT based Smart Vehicle Monitoring System (S.R. Mallidi, V.V. Vangipurapu)
The paper IOT based smart vehicle monitoring system: by using the svms, accident will be detected immediately with security level and will be intimated to authorities without any delay. But at present the image classification model has been trained with only two sets of training images due to lack of data unavailability.
3)Traffic Signal Violation Detection and Penalty Application System –
This paper explores the use of Radio Frequency (RF) signals to detect vehicles that violate traffic signals. The increasing congestion on the road hinders accurate recognition of traffic intruders and, hence, they are not held accountable. Previous efforts to resolve this issue include the use of Computer Vision (CV) algorithms on traffic surveillance footage to identify vehicle registration numbers, Global Positioning System (GPS) to monitor the movement of the vehicle, and intrusive sensors like magnetometers. Unlike other existing methods, RF signals can be transmitted accurately despite hindrances in line-of-sight, and

the cost of construction is relatively less. The proposed methodology involves the transmission of vehicular data through RF signals, picked up by receivers placed on-site. This receiver further filters the intruder data using a detection algorithm, and the necessary action is taken. Additionally, this paper presents a generalized system architecture and examines the implementation of violation detection and penalty notification.

4)Safety the Intended Driving Behavior Using Rulebooks

Autonomous Vehicles (AVs) are complex systems that drive in uncertain environments and potentially navigate unforeseeable situations. Safety of these systems requires not only an absence of malfunctions but also high performance of functions in many different scenarios. The ISO/PAS 21448 [1] guidance recommends a process to ensure the Safety of the Intended Functionality (SOTIF) for road vehicles. This process starts with a functional specification that fully describes the intended functionality and further includes the verification and validation that the AV meets this specification. For the Department of Electronics and Telecommunication Engg. Page Smart Vehicle using IOT path planning function, defining the correct sequence of control actions for each vehicle in all potential driving situations is intractable. In this paper, the authors provide a link between the Rulebooks framework, presented by [2], and the SOTIF process of. We establish that Rulebooks provide a functional description of the path planning task in an AV and discuss the potential usage of the method for verification and validation.

5)Autonomous Real-Time Speed-Limit Violation Detection and Reporting Systems Based on the Internet of Vehicles Over-/underspeeding is one of the leading causes of road accidents. Traditional systems of detecting and reporting speed-limit violations are not suitable for smart cities. Even the sophisticated conventional systems that use cameras or RFIDs for automating speed-limit violations have several drawbacks, including cost, complexity, reliability, and maintenance. In this paper, we present two systems based on the Internet of Vehicles (IoV) to automatically detect speed- limit violations and autonomously report the committed violations to the authorities. Our systems require no extra hardware or equipment: only the On-Board Unit (OBU), the Road Side Unit (RSU), and the Cloud Server software have to be updated to have a fully functioning system as long as the IoV infrastructure is deployed. One of the systems will be installed on the OBU. A second alternative system design is to use Cloud Servers (CSs) and the IoV beacons that are sent from the vehicles. Additionally, unlike the existing systems installed in specifc locations, all roads in the smart cities and highways will be fully monitored. Adaptive fne calculation according to new dynamic policies can be easily integrated into the proposed system. Furthermore, the proposed system can accurately operate in all weather conditions. Moreover, it allows the dynamic adjustment of the speed limits according to the current weather conditions. We have validated the proposed system by building a prototype system that effectively and accurately detects and reports over-/under speed traffic violations alongside any road.

III PROPOSED METHODOLOGY

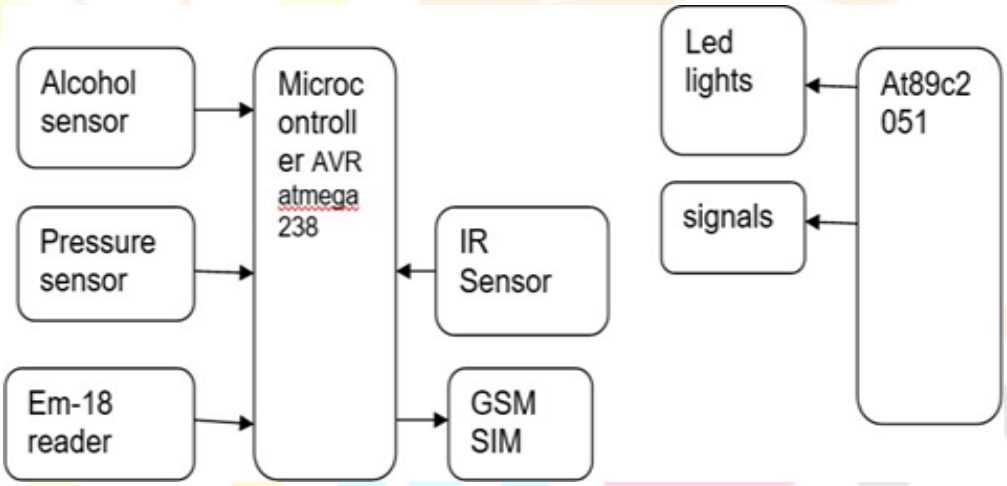

Fig:Block Diagram

a Smart Penalty Charging

As we know that time is the most valuable thing now-a-days, so many of people breaks the traffic rules just to reach at time to their destination. The reason behind breaking the traffic rules is to wait for more time whether the traffic is present or not. So, the proposed system is able to reduce this problem of people and it will inform the people about penalty for breaking the traffic rules by sending message through IoT which is designed for our system. wireless charge transfer interfaced to the system will continuously monitor the vehicles breaking the traffic rule by reading the transfer of charge tag of that particular vehicle. Whenever any vehicle will cross zebra crossing when signal is red then break of traffic rules is detected i.e. crosses the signal when red LED is glowing, the charge transfer will inform controller and then controller will send this data to the website via SMS, where an message is sent to the traffic police about rule breaker and at the same time owner of vehicle about penalty SMS.

b Accident detection, drunk detection, licence as a key to ignite vehicle

Pressure sensor is used to detect accident occurrence of vehicle after it occurs immediately sms will be send to RTO office. In drunk case detected by sensor penalty will directly deducted from bank account. One more new feature is added that is licence as a key to start vehicle, so that only authorized person will get access to vehicle.

IV EXPERIMENTAL RESULT

i. First proposed system display sms on lcd display to show your license.

ii. Whenever user/driver show license this is key for egnite the vehicle. When License is in contact of Card reader then there is coil communication takes place.

iii.If driver do not show their license within the set of delay Time the sms will be send to RTO office.

iv. Pressure sensor converts pressure into electrical signal and transmit it into controller. A piezoelectric transducer converts mechanical force into electrical output. When the force is applied to stretch or bend it, an electric voltage. Piezoelectric force sensors should have an operating temperature range from -50 to 350 ºC and should have sensitivity of approximately 105 p C/N. Piezoelectric pressure sensors should have rise time less than 2.0 micro seconds The maximum pressure applied by the piezo electric sensor can be 1000 psi and the voltage measurement range can be up to 5 Volts.

v.IR sensor emitting or detecting infrared radiation Infrared sensors are also capable of measuring the heat being emitted by an object and detecting motion of vehicle and transmit signal to microcontroller and whenever red led is on and vehicle crosses the CoB light that time sms will display rule break.The IR gives an output of 5V when the IR light is reflected back to the IR detector.

vi.The alcohol sensor is technically referred to as a MQ3 sensor which detects ethanol in the air. When a drunk person breathes near the alcohol sensor it detects the ethanol in his breathe and provides an output based on alcohol concentration. If there is more alcohol concentration more then it shows that person is drunk. The MQ3 alcohol sensor operates on 5V DC and consumes approximately 800mW. It can detect alcohol concentrations ranging from 25 to 500 ppm.

V CONCLUSION

The proposed design will deal with critical issues faced by public and traffic police to keep track on rules break and force public to follow traffic rules in the present and future to avoid unwanted accidents and save lifes.The proposed system fulfills the development of a Smart Vehicle, time-saving for detection of exact culprit, a disciplined and regulated India, Hit and run detections, Drunk and drive detection, Violation detection with penalty deductions all these objectives will be achieved.

VI REFERENCES

[1] Fraade-Blanar, M. Blumenthal, J. Anderson, and N. Kalra, Measuring Automated Vehicle Safety: Forging a Framework. RAND Corporation, 2018.

[2] International Organization for Standardization "ISO/PAS 21448: Road vehicles - Safety of the intended functionality," Geneva, Switzerland, pp. 1–64, 2019.

[3] S. V. Bhate, P. V. Kulkarni, S. D. Lagad, M. D. Shinde and S. Patil, "IoT based Intelligent Traffic Signal System for Emergency vehicles," International Conference on Inventive Communication and Computational Technologies, pp. 788–793, 2018.

[4] Reddy, S. Patel, K. P. Bharath, and R. Kumar, "Embedded vehicle speed control and over-speedviolation alert using IoT," in Proceedings of the 2019 Innovations in Power and Advanced Computing Technologies (i-PACT), vol. 1, pp. 1–5, Vellore, India, March 2019.

[5] Automatic Vehical Accident Detection and Messaging system (S. Paraneswaram, D. Naveen,Harshiya Banu).

[6] IoT based Smart Vehicle Monitoring System (S.R.Mallidi, V.V. Vangipurapu).