A REVIEW ON SMART IOT CAR FOR ACCIDENT PREVENTION

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***Abstract*-Car automation is an IoT technology by which we can control different things or can keep a track on a vehicle for the (i) Security, (ii) comfort and (iii) efficiency. The low cost alcohol sensor is equipped in the car for alcohol detection to avoid accidents due to alcohol consumption controlling the speed of the car using sonic sensor while facing the obstacles. The seat belt consists of an inbuilt heart beat sensor to automate the ignition of the car during medical emergencies. Threshold limit is set according to the age of the drivers which are collected while registration itself. All controls are available in car owners' dash board available both in car and also in mobile application. The periodic data is sent via internet and stored in cloud for further analysis and decision making. The Dash board consists of ON/OFF switch so that the ignition is controlled remotely during thefts and break failures.**

Keyword: Heart Beat Sensor, Alcohol Sensor, sonic sensor

I.INTRODUCTION

Drunk driving is the reason behind most of the deaths, so the Drunk Driving Detection with Car Ignition Locking Using Raspberry Pi aims to change that with automated, transparent, noninvasive alcohol safety check in vehicles. The system uses raspberry pi with alcohol sensors, dc motor, lcd display circuit to achieve this purpose. System uses alcohol sensor with, raspberry pi with dc motor to demonstrate as vehicle engine. System constantly monitors the sensitivity of alcohol sensor for drunk driver detection. If driver is drunk, the processor instantly stops the system ignition by stopping the motor. If alcohol sensor is not giving high alcohol intensity signals, system lets engine run. The raspberry pi processor constantly processes the alcohol sensor data to check drunk driving and operates a lock on the vehicle engine accordingly.

An android phone which is equipped with the accelerometer and an orientation sensor to known whether driver is drunk or not and during den braking then app gets activated start alarm. "Alcohol detector project" can be used in the various vehicles for detecting whether the driver as consumed alcohol or not. The entire system adopted the Arduino UNO microcontroller board (Based on ATMEGA 328).

II. LITERATURE SURVEY

Bhumit Patel 2017[1] has proposed "Iot based automated car--- Now a day internet of things has been great attention, because it is allows objects to be sensed and controlled remotely and standardization are being actively conducted. Network of physical things, which communicate and exchange the data with each other. A whole array of physical "things" – from people and places through cars and computers to domestic appliances and production machinery – is being equipped with embedded electronics systems, software and sensors. As we can see that now a day's car automation creates lot of attention in IoT. There are many challenge generated during implantation of system. In this paper we are controlling the different car function like over the internet. User can control his car anywhere in world, just basic 2G internet connectivity required. After completing this system car user can get flexibility because use can access his car over worldwide.

Suvarna nandyal 2017[2] has proposed "Smart car parking system using arduino uno"--- In the early times the concept of smart cities has gained great popularity. The proposed Smart Parking system consists of an on-site deployment of an IOT module that is used to monitor and signalize the state of availability of single parking space. This paper

introduce an IOT based coordinated framework for efficient and easy way of parking the vehicles by checking the availability of slots. The proposed Smart Parking framework comprises of an IOT module that is utilized to screen and signalize the condition of accessibility of single parking spot. The paper additionally depicts an abnormal state perspective of the framework engineering. Towards the end, the paper examines the working of the framework in type of an utilization case that demonstrates the rightness of the proposed show. The Ultrasonic Range Detection Sensor is utilized with Arduino to indicate the empty slot .By measuring the distance using ultrasonic sensor drivers are able to find the empty slot in parking to park the car and help the driver to find the slot easily and reduce the searching time.As the parking place is found to be empty it is detected using ultrasonic sensors which report it further. We achieved this by programming the sensors and Arduino.

Rohit Dhall 2017[3] has proposed "An iot based predictive connected car maintenance approach"--- Internet of Things (IoT) is fast emerging and becoming an almost basic necessity in general life. The concepts of using technology in our daily life is not new, but with the advancements in technology, the impact of technology in daily activities of a person can be seen in almost all the aspects of life. Today, all aspects of our daily life, be it health of a person, his location, movement, etc. can be monitored and analyzed using information captured from various connected devices. This paper discusses one such use case, which can be implemented by the automobile industry, using technological advancements in the areas of IoT and Analytics. 'Connected Car' is a terminology, often associated with cars and other passenger vehicles, which are capable of internet connectivity and sharing of various kinds of data with backend applications. The data being shared can be about the location and speed of the car, status of various parts/lubricants of the car, and if the car needs urgent service or not. Once data are transmitted to the backend services, various workflows can be created to take necessary actions, e.g. scheduling a service with the car service provider, or if large numbers of care are in the same location, then the traffic management system can take necessary action. 'Connected cars' can also communicate with each other, and can send alerts to each other in certain scenarios like possible crash etc. This paper talks about how the concept of 'connected cars' can be used to perform 'predictive car maintenance'. It also discusses how certain technology components, i.e., Eclipse Mosquito and Eclipse Paho can be used to implement a predictive connected car use case.

Younsun Kim 2017[4] has proposed "Proof of concept of home iot connected vehicles"--- The way in which we interact with our cars is changing, driven by the increased use of mobile devices, cloud-based services, and advanced automotive technology. In particular, the requirements and market demand for the Internet of Things (IoT) device-connected vehicles will continuously increase. In addition, the advances in cloud computing and IoT have provided a promising opportunity for developing vehicular software and services in the automotive domain. In this paper, we introduce the concept of a home IoT connected vehicle with a voice-based virtual personal assistant comprised of a vehicle agent and a home agent. The proposed concept is evaluated by implementing a Smartphone linked with home IoT devices that are connected to an infotainment system for the vehicle, a Smartphone-based natural language interface input device, and cloud-based home IoT devices for the home. The home-to-vehicle connected service scenarios that aim to reduce the inconvenience due to simple and repetitive tasks by improving the urban mobility efficiency in IoT environments are substantiated by analyzing real vehicle testing and lifestyle research. Remarkable benefits are derived by making repetitive routine tasks one task that is executed by a command and by executing essential tasks automatically, without any request. However, it should be used with authorized permission, applied without any error at the right time, and applied under limited conditions to sense the habitants' intention correctly and to gain the required trust regarding the remote execution of tasks.

Archana Hande 2016[5] has proposed "Internet of things for smart vehicles"--- In a Smart

City, all objects need to be smart hence would have embedded processors and capability to communicate with each other through wired or wireless connections .These increasingly intelligent objects would provide safe and convenient environment through growing interconnection and interoperability, which is also termed as Internet of Things (IoT), Within the objectives of IoT also lies the vehicle to smart object communications, vehicles play an important role for safe an d convenient travel. The main vision of the Internet of Things (IoT) is to equip reallife physical objects with computing and communication abilities so that they can interact with each other for the social good. As one of the important members of IoT, Internet of Vehicles (IoV) has seen rapid development in communication technologies. Now, vehicles can easily exchange safety, efficiency, comfort-related information with other vehicles and infrastructures using vehicular ad hoc networks (VANETs). Where vehicles are the key social entities in the machine-to-machine vehicular social networks. The near real time applications offer safe and efficient travel of the vehicle users, and the offline data ensures smart behaviour of the vehicles and data analysis for the transport authorities. We have identified the social structures of IoV components, their relationships, and the interaction types. We have mapped VANETs components into IoT architecture reference model to offer better integration of IoV with other IoT domains. Finally, we provide the implementation details and the experimental study to demonstrate the efficiency of the proposed system as well as include different application scenarios for various user groups, practical deployment of the proposed system and using it to collect real life IoV related multi-modal sensory information in city or urban areas can be another interesting direction We envision that the IoV would be an integral part of intelligent transport systems in the future smart cities.

III.An overview of Smart IoT Car

Drunk driving is the reason behind most of the deaths, so the Drunk Driving Detection With Car Ignition Locking Using Raspberry Pi aims to change that with automated, transparent, noninvasive alcohol safety check in vehicles. The system uses raspberry pi with alcohol sensors, dc motor, lcd display circuit to achieve this purpose. System uses alcohol sensor with, raspberry pi with dc motor to demonstrate as vehicle engine. System constantly monitors the sensitivity of alcohol sensor for drunk driver detection. If driver is drunk, the processor instantly stops the system ignition by stopping the motor. If alcohol sensor is not giving high alcohol intensity signals, system lets engine run. The raspberry pi processor constantly processes the alcohol sensor data to check drunk driving and operates a lock on the vehicle engine accordingly.

Fig: 3 Proposed System

3.1 HEART BEAT SENSOR

It senses the person's pulse rate whether its normal condition or not. Pulse rate sensor is used to detect heart beats. It can be wearing on the finger or earlobe and connected to raspberry pi 3 via cables. It also carries an open-source program to display heart beat rate via diagrams in real time. It is an optical heart rate sensor integrated with amplifying circuit and noise-cancellation circuit. Specification: Power supply: 3V~5V Package Include 1 x Heartbeat module for raspberrypi3 model.

Fig: 3.1Heart Beat Sensor

3.2 ALCOHOL SENSOR

The alcohol sensor used to sense the alcohol consumption and it will lock the ignition if drunken.

An alcohol sensor is placed near to mouth of the driver in the helmet to detect the presence of alcohol. The data to be transferred is coded with RF encoder and transmitted through radio frequency transmitter The receiver at the bike receives the data and decodes it through RF decoder. The engine should not ON if the condition is violated.

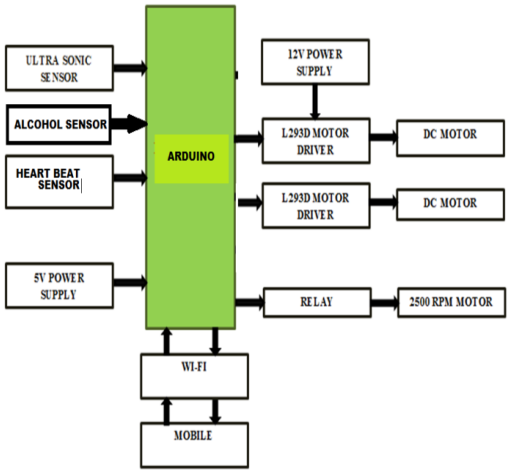
Fig: 3.2 Alcohol Sensor

3.3 SONIC SENSOR

As we are very familiar with this technique, this technique uses sound propagation to detect object. An ultrasonic sensor on one of the rear wheels helps keep track of the movements of the car. It also calculates number of rotation of the wheel to find exact location of the car with the help of GPS and GOOGLE MAP. And it also alerts the car about the obstacles in the rear.

Fig:3.3 sonic sensor

IV.SYSTEM ARCHITECTURE



V.ADVANTAGE

To known whether driver is drunken or not and during sudden breaking then app gets start alarm. It uses sound propagation to detect object.

VI.CONCLUSION

Now-a-days crucial problem facing in the world is an unnatural death due to drunk driving and driving under the influence. Drunk driving is the only one reason behind most of the unnatural deaths in the world. In this age of automation, human efforts are reduced at such a huge level. Deaths due to sudden medical emergencies while driving also found to be increased. Car automation during break-downs and thefts are addressed by many car manufacturers.

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