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SAFER SECURE SMART VECHILE USING IOT TECHNOLOGY

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Abstract : This project describes the application of Internet-of-things (IoT) in monitoring the performance of the two wheeler. It has no key system, we have to use a number pattern lock system using arduino to secure our vehicle.Monitored and display the vehicle battery range and speed on the LCD.The obstruction detection ultrasonic sensor detect the object in front of the vehicle.If it detect the speed of the wheel shoul reduce the original rpm range to half range. Fix behind the two ultrasonic sensors in right and left side of the vehicle todetect acrossing vehicle moment.It is clear that an electric vehicle totally depends on the source of energy from a battery. However, the amount of energy supplied to the vehicle is decreasing gradually, which leads to the performance degradation. This is a major concern for battery manufacture.

IndexTerms **- Arduino UNO, raspberry pi 3b+, LCD, LED lights to avoid accident in obstacle detection, Ultrasonic sensor.**

I. INTRODUCTION

The **Internet of things** (**IoT**) describes physical objects (or groups of such objects) that are embedded with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks. The field has evolved due to the convergence of multiple technologies, including ubiquitous computing, commodity sensors, increasingly powerful embedded systems, and machine learning. Traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation),independently and collectively enable the Internet of things. In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "smart home", including devices and appliances (such as lighting fixtures, thermostats, home security systems and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as smartphones and smart speakers.

II. ABOUT THE PROJECT

Nowadays, electric vehicle (EV) is becoming popular since the fuel prices becoming more expensive. Due to these scenario, many vehicle manufacturer looking for alternatives of energy sources other than gas. The use of electrical energy sources may improve the environment since there are less pollution. In addition, EV produces great advantages in terms of energy saving and environmental protection.Most EVs used a rechargeable battery which is a lithium ion battery. It is smaller to be compared with lead acid. In fact, it has a constant power, and energy's life cycle is 6 to 10 times greater compared with lead acid battery. Lithium ion battery life cycle can be shortened by some reasons such as overcharging and deep discharges. On the other hand, EV usually has limited range of travelling due to battery size and body structure. Now, an important reason that limits the application of EV is the safety of existing battery technology.battery monitoring system only monitor and detect the condition of the battery and alarmed the user via battery indicator inside the vehicle.The password enabled vehicle locking system can be used for secure purpose.The system will for the validity of the password entered by the user and will check unlock only for the authorized users.This system proves to be an optimal solution for preventing the unauthorized entries.ultrasonic sensor in back of the vehicle,so we canknow which other vehicle across or left/right side crossing to us,it will indicate to us through LED In front of our vehicle and ultrasonic sensor fixed in front of the vehicle,it detects any obstacle in front of the vehicle , the wheel reduces the original rpm range to half rpm.

Literature Survey

In the Existing Asset of the system search user requests the content access to the vehicle. The purpose of the IOT is to make possible things to connect at any time, in any place, with anything and anyone ideally using Network and service. To avoid this loss, a monitoring and tracking system is implemented by an IOT based Fuel Monitoring in vehicles. Smart speed breakers are the traffic calming devices where over speeding vehicles will activate the speed breaker and it will raise the speed breaker above the surface of

the road and will give the physical remainder to the driver for slowing down the vehicle. If the speed of the vehicle will be in the given allowed speed limit then the speed bumps will remain flat on the surface of the road and the vehicle can pass through it comfortably. A graphical user interface is provided to the user inside the vehicle to monitor the distance and can avoid collision with the obstacle. This approach uses an ultrasonic sensor which is mounted on a vehicle with a servo motor which can rotate 0 to 180 degrees and can alert the person in the car about the distance between the vehicle and obstacle.

Proposed System

In this proposed system, we have to implement the digitized number lock for the vehicle security purpose.if who is authorized person in that vehicle, they only can access the vehicle,otherwise no one can access the vehicle.Next, our project's have E-vehicle, so we have to monitor the battery level by using LCD display and furthermost fixed the ultrasonic sensor in back of the vehicle,so we can know which other vehicle across or left/right side crossing to us,it will indicate to us through LEDs in front of our vehicle. In this project we designed to monitor the vehicle accessing data from the vehicle on a website which is developed by us.

3.1 SMART VEHICLE

In today's world as the population increases day by day the number of vehicles also increases on the roads and highways. This results in more accidents that interns lead to the traffic jams and the public should get help instantaneously. Recent technological developments have made a lot of improvements in avoiding accidents and ease human life. Now it is suffice to say that the implementation of certain highway safety means such as speed restrictions, among others, alone has done a lot in reducing the rates of these accidents. Many motorists have had to travel through areas with little light under much fatigue, yet compelled to undertake the journey out of necessity. It is therefore imperative to consider the advantages of an early warning system where the driver is alerted of a possible collision with some considerable amount of time before it occurs.Due to his iot it has been used. IoT has made promising improvements in developing some methods to avoid accidents. The obstacles which are the main reasons for accidents can be detected and accidents can be avoided. So that a smart vechile as been proposed which can also be implemented in future.

3.2 SECURITY SURVEY

Security Systems for Vehicles Different anti-theft systems have been developed over the past few years. Intelligent Computerized anti-theft system [ICAT] which uses the concept of Radio frequency Identification (RFID) is implemented in many vehicles. The limitation here is that keyless RFID cards can be easily stolen.In addition, key may malfunction when it is in contact with metallic object.The recent developments in biometrics recognition lead to improvements in reliability and accuracy. The related works for Fingerprint Recognition (FR) for vehicle security system are summarized in this section.

3.3 FUNCTIONALITY OF THE SYSTEM

The system is able to detect objects within the sensing range. The system can calculate the distance of the obstruction with sufficient accuracy. This device has the capability to interact with other peripheral if used as a secondary device. This can also communicate with PC through its serial port. This offers a low cost and efficient solution for non-contact type distance measurements.

3.4 SURVEY OF OBSTACLE AVOIDANCE VEHICLE

The system is able to detect objects within the sensing range. The system can calculate the distance of the obstruction with sufficient. This device has the capability to interact with other peripheral if used as a secondary device. This can also communicate with PC through its serial port. This offers a low cost and efficient solution for non-contact type distance measurements.

3.5 FUNCTIONALITY OF ULTRASONIC SENSOR

Automatic change overs of traffic signals, Intruder alarm system,Counting instruments access switches parking meters ,Back sonar of automobiles .

3.6 FEATURES OF THE SMART SECURE VEHICLE

Battery Monitoring for Future Vehicles, Automated Speed Breaker to control the speed of the Vehicle, Obstacle Detection and Alerting System in Vehicles, Digitalised locking system.

IV MODULES

- ✓ 1.Digitalisation
- ✓ 2.Deduction process
- ✓ 3.Motion process
- ✓ 4. Battery Range

V FUNCTIONAL REQUIREMENTS

HARDWARE	SOFTWARE
Raspberry pi 4, Arduino IDE Ultrasonic sensor 3 12v battery DC motor Potential meter Relay signal LED Connecting wire One wheel	REACT REST API HTML CSS EMBEDDED C

VI SYSTEM ARCHITECTURE

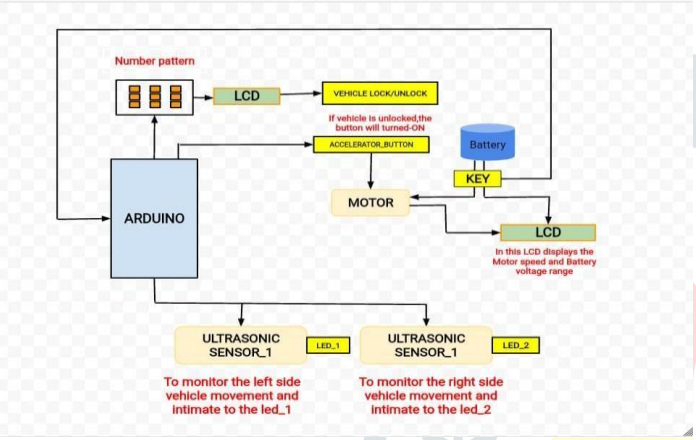

fig 6.1: Architectural diagram of 4 modules

IV. RESULTS AND DISCUSSION

In this thesis, we proposed a new framework, named Safer Secure Smart Vehicle Using IOT, that can give the pattern for digital content for users. And it makes the system decentralized which allows any user to preview the content. The smart features which eliminate human to operate and eliminates machine error. Using IOT technology, this system creates a permanent and immutable record of every safe travel. There may be delay in information transformation and representation of web-application. . The system is also reliable to be used in other authorization applications involving robotics, border management, banking security involving ATMs etc. In future further there will be enhancement of this application. Enhancing the system security from unauthorized access is also open issue to develop.

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