Smart Way of Motorcycle Problems Solved Based on IOT

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Abstract: In this paper we show-cased to create a model of motor bike security system using IOT, as the number of bike thefts are increasing. This is because motorbikes are not provided with enough security system. Not only security purpose but also sudden situations may happens (accidents) or any other difficulties (prior fuel indication). In our model, devices like vehicle security, Fingerprint authentication is used. If the user wants to access the vehicle, Fingerprint authentication should be done. Furthermore, GPS are used to locate the motorbike and GSM is used to send the emergency alerts to police, parents and even guardians in case of theft or accidents. It also helps the user to find the motorbike in a heavy parking place through the GPS tracker. Therefore, to promote and encourage the use of this integration, an embedded system can be designed to enhance the safety of the bike. Also we have keyless ignition system, which is controlled by the user from his mobile (through Bluetooth) and we have voice assistance for fuel indication. So, whenever the fuel gets below the reserve level, the user will be intimated with voice assistant.

Keyword words: fuel indication, GPS tracker, Fingerprint authentication, GSM

I.INTRODUCTION

In cities, it is seen that many people drive vehicles, so that many problems can rise such as Fuel down, key got stolen, etc. So, to overcome this problem and to control it, an intelligent and improved system for bikes is required. Although various attempts were made before, for providing various means for controlling such events and thus few of the available systems and devices were discussed below.

A real-time data display device for bicycles has a mobile electronic device communicates with an image projection device to transmit real-time data by having a MEMS oscillatory mirror simultaneously operating with a laser diode emitting laser beams, to project a real-time image with data to the ground 25 ahead.

Information such as calories, distance, time, and navigation can be acquired by the rider and other road users are easily aware of the rider to ensure safety concerns. An alarm method and system of public bicycle. The method comprises the steps that after the public bicycle is locked, the state and locked position information of the public bicycle are acquired; when the public bicycle is in a locked state, the real-time position information of the public bicycle is acquired, and the distance between the real-time position information and the locked position information is further acquired; a distance threshold is set; based on the distance and the distance threshold, the alarm rule of the public bicycle is acquired. According to the alarm method and system of the public bicycle, the distance threshold is set, and the distance information is acquired, so that an alarm is sounded when the public bicycle is transferred. Automatic crash detection. Systems and methods are disclosed for determining whether a crash involving a vehicle has occurred.

These systems do not have any audio warnings. Therefore, to avoid the drawbacks of the existing system, there is need to develop a cost effective and automatic system for bikes. Hence, the present invention provides an IoT (Internet of Things) based Smart Bike.

II.LITERATURE SURVEY

The number of fatal accidents and causalities are increasing day by day. Motorcycle driving, maintenance knowledge, and service level, etc. are below the standard, which leads to major fatal road accidents. This research work proposed such a system that monitors a motorcycle as well as its rider's condition using IoT devices and an expert system to diagnose the vehicle for fault identification. The proposed scheme reflects on the embodiment of a smart helmet, having an alcohol detection sensor to diagnose if the rider wears a helmet or is drunk. The

system also processes the information about engine temperature, motorcycle speed, distance with the neighboring vehicle, and real-time location tracking. In the case of an accident, the system immediately sends an SMS, including Global Positioning System (GPS) location to the authorized contacts. The proposed approach also illustrates an Expert System (ES) which analyzes IoT cloud data and gives a possible solution to identified problems. Several types of experiments, such as sensor data calculation, location tracking, fault diagnosis using ES, and comparison among existing solutions, have been enumerated and interpreted to ensure safe driving in Bangladesh [1].

With increase in population, the problems related to transportation systems are increasing day by day, such as constrained car parking facilities, traffic congestion, and in particular traffic rules and road safety. The problem of traffic rules and road safety are becoming very critical for human being in existing metro cities and probably in future for smart cities. This paper discusses the implementation of smart vehicles which gather the information like the speed of the vehicle, the number of persons sitting on/in the vehicle, utilization of safety feature by owner/driver, the location of the vehicle, drunk and drive situation, etc. In case any rules are being violated, the information regarding vehicle will be sent to the central database system, from where the e-challan is generated and send to the concerned authority. Further, the implementation of such features avoids the accidents, provides the safe and secure ride to the persons driving the vehicle [2].

A common problem that occurs very often in society is motorcycle theft. The rampant cases of motorcycle theft, which are even carried out in the parking lot of homes, need to find the right solution. One solution to handling motorcycle theft cases and securing motorbikes is by installing smart vehicle technology. The purpose of this research is to design a motorcycle safety system based on the Internet of Things. The design uses the Arduino Mega microcontroller, the Wi-Fi module, a fingerprint sensor, and the Blynk application on a smart phone. Hardware design with fingerprint and microcontroller integration then designing IoT-based applications with the ESP8266 and combining a security system with notifications to smart phones. Application this can help to turn on and off the engine of two-wheeled motorized vehicles

remotely can assist users in supervising or monitoring two-wheeled motorized vehicles [3].

III.PROPOSED METHODOLOGY

In this section, we discuss the methodology of our proposed system, along with significant illustrations. The proposed system mainly consists of three interconnected modules. Firstly, the system checks the motorcycle and its rider's condition through several sensors. Secondly, the system collects and processes data from the sensors and sends the collected data towards the IoT server and shows the vehicle's condition on a dashboard. In the final module, our expert system collects data from the sensors for fault diagnosis. Fig. 1 shows the corresponding architecture overview of our developed system In this section, we discuss the methodology of our proposed system, along with significant illustrations. The proposed system mainly consists of three interconnected modules. Firstly, the system checks the motorcycle and its rider's condition through several sensors. Secondly, the system collects and processes data from the sensors and sends the collected data towards the IoT server and shows the vehicle's condition on a dashboard. In the final module, our expert system collects data from the sensors for fault diagnosis. Fig. 1 shows the corresponding architecture overview of our developed system.

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In this section, we discuss the methodology of our proposed system, along with significant illustrations. The proposed system mainly consists of following interconnected modules. The proposed invention relates to a smart bike which is based in Internet of Things. This invention has many features as it monitor's the traffic, bike start with mobile command

without key, also it shows the status of fuel, speed control, accident alert, GPS is used for easy monitoring, speed control. The preferred embodiment comprises of buzzer, IR sensor, GSM module, GPS module Bluetooth module, LCD display and Arduino. This work also provides an innovative solution for bike rider's safety and easy to use feature of sharing the virtual key, for controlling the bike and all its features. We hope it provides a very accurate and responsive crash detection system which uses a triple check verification system to confirm the crash and immediately sends an emergency prompt message to the SOS number provided by the user, Whenever the bike's fuel is low then the system automatically give the user with voice assistance from the speaker provided, Also one of the major problem facing now a days is locating our vehicle in heavy crowded parking so this system overcomes the problem by providing the GPS system, So we can locate our vehicle through mobile at any place by solving the user's problem.

Our proposed system deals with the following features according to facing problems on motorbikes:
a)   It reduces the feasibility of motor vehicle thefts.
b)   It gives an audio indication when the fuel level drops alarmingly before the reserve level.
c)   It enables user to authenticate the bike through the fingerprint-based system.
d)   In case bike was stolen by theft, the GPS system will track the bike.
e)   Not only in one case but also, we can find our motorbike in parking lots without remembering where we have placed before.
f)   It will send prior inform to the concerned persons whenever accidents occur.

A) System Architecture

The design of our proposed system, as well as the devices used in this model, is described in this section. In this project, sensors are in the role of collecting data for processing decisions. For ongoing tracking of the motorcycle and the rider's information, we have deployed a number of sensors. The framework evaluates the motorcycle's speed, fuel usage, engine temperature, GPS position. Sensors gather all of this data, which is then saved in a database on an IoT server. In order to prevent deadly traffic accidents, we have taken into account three important factors: Keyless and fingerprint based bike start, fuel information/indication through voice assistance, and having a system that sends the rider's information to the appropriate people through SOS in the event of an accident. Fig. 3.1 depicts the overall system's operation.

Fig.3.1. an architectural framework of smart way of motorcycle problems solved based on IoT.

b). Implementation and Working

The main aim of this project is to provide good safety features for riders and make journey easily and quick response for those who are met an accident during the time of journey. To do this, we implement a model such that we mainly focused on bike thefts and rider safety. When we started our design and plan for the project, for first the motorcycle security system can be done by changing the manual system of motorcycles to be automatic, digital, and flexible and use the latest technology by incorporating the number of useful sensors for data gathering, once the system is implemented by using IOT (Internet of Things).It makes the riders' desires to improve safety and ease of operation on a motorcycle also.

We implement a system that can checks the finger prints of authorized people if not it makes sounds with the help of buzzer therefore the authorized person alerts there is something happened to my bike. On the other hand if someone we know wants to use our bike we can give them permission through mobile app, in such situations we can start the bike through mobile app without fine print access. Also if any incidents during the journey, with the help of GSM modem we can send the messages alert immediately it will be informed to concern family members as well as nearest police station and ambulance.

Finally, when our bike gets stuck in any parking lot and it is difficult to locate it, we have set up our smart bike system with Bluetooth and GPS navigation system therefore we can easily locate the bike in parking lot easily without wasting our valuable time.
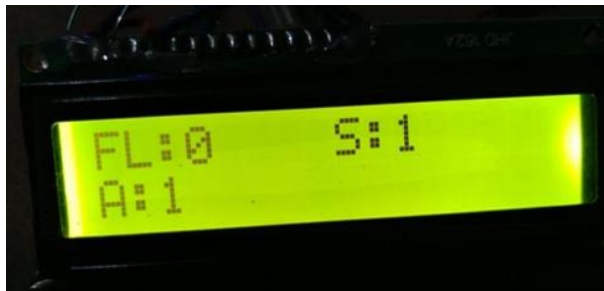
IV.RESULTS

In this section, we will discuss the results of our developed system as well as the relevant discussion. The following results show the proposed system working model of our system.
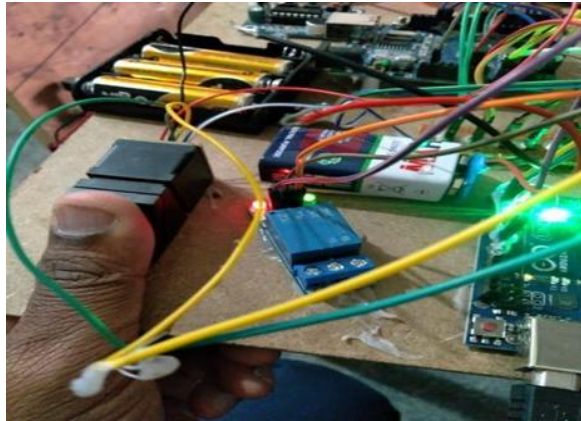
a.   Fingerprint Access
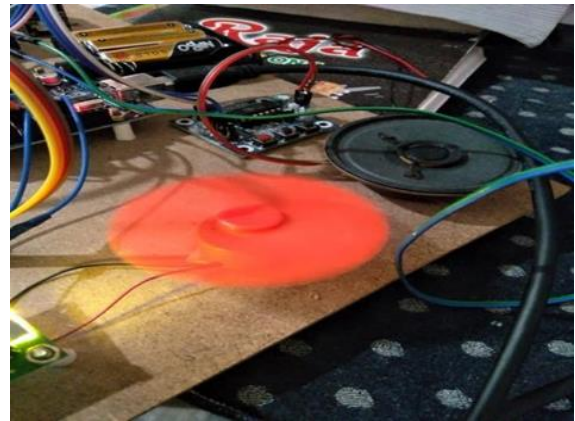
b. Motor Started

c. Fuel is low, so through voice assistant it can be informed alerts through GSM messages is sent

d. Accident met case so, it indicates A=0 and buzzer

IV. CONCLUSION AND FUTURE SCOPE

In this project, we proposed and discussed the implementation of vehicle monitoring system for smart cities. The main idea of this system is to minimize the road accidents which are increasing day by day by alerting and warning the driver of their ride styles and providing them the best security necessary

and also send the alerts to the parents and one concerned person about the driving behavior of the driver. IOT applications provide personal assistance that can alarm on every action

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