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Bike Automation Using Esp8266 with Implementation of RSSI Protocol

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ABSTRACT: A smart bike is a type of protective model, it is used by the rider which makes bike driving safer than before. The main purpose of this system is to provide safety and automation of the bike. This can be implemented by using advanced features like alcohol detection and use as a hands free device. This makes it not only a smart bike but also a future extension of a smart helmet i.e., it is compulsory to wear the helmet, without which the ignition switch cannot turn ON. An RF Module can be used as wireless link for communication between transmitter and receiver. If the rider is drunk the ignition gets automatically locked, and sends a message to the registered number with his current location. The distinctive utility of project is tracking live location of the bike.

KEYWORDS: Alcohol Detection, Wireless Communication.

I. INTRODUCTION

In recent times helmets have been made compulsory in India. Traffic accidents in India have been increased every year. As per Section 129 of Motor Vehicles Act, 1988, every single person riding a two wheeler is required to wear protective headgear following the standards of BIS (Bureau of Indian Standards). Also drunken driving under the influence (DUI) is a criminal offence according to the Motor Vehicle act 1939, which states that the bike rider will get punishment. Currently bike riders easily escape from the law. These are the three main issues which motivates us for developing this project.

The first step is to identify whether the helmet is worn or not. If helmet is worn then ignition will start otherwise it remains off. For this, Force Sensing Sensor (FSR) sensor is used. The second step is alcohol detection. Alcohol sensor is used as breath analyzer which detects the presence of alcohol in rider's breath and if it exceeds permissible limit ignition cannot start. It will send message to the number saying that "Rider is drunk and is trying to ride the bike". MQ-3 sensor is used for this purpose. When these two conditions are satisfied then only ignition starts. The third main issue is accident and late medical help. If the rider has met with an accident, he may not receive medical help instantly, which is one of the main reasons for death. Every second people dies due to delay in medical help, or in the case where the place of accident is unmanned. In fall detection, we place accelerometer in the bike unit. By this mechanism accidents can be detected.

Existing System

In existing system we can start the bike by using as a key. And we can't stop the bike when the rider doesn't wear helmet. And we can't lock the ignition when the rider is drinking mode. We can't find the accident spot where the accident occurs.

Dis advantages:

This driving is very dangerous for himself or herself and others.

Proposed System

The designed Smart bike automation ensures the safety of the rider by making it necessary to wear helmet, and also ensures that the rider hasn't consumed alcohol more than the permissible limit. If any of these prime safety rules are violated, the proposed system will prevent the biker from starting the bike.

In this system main usage is bike can be operated by using the mobile, it is having android application, It is prepared by using MIT App Inventor. By using this app we can easily controlled the bike ignitions and self-start of bike and also make indication of bike. Here we can also see the IOT based bike automation through the Wi-Fi, when the



mobile came near to the bike, the bike will automatically on and when the mobile is away from the bike it will automatically off the engine.

And also this system is very useful for night riders. Because of in this system we arrangement of led strips for indication purpose. When the rider is going take left indication, the strip also blink. It is very useful to find the rider by the followers or another vehicles.

Advantages:

It is useful to bike riders.

It is very useful to night riders.

II. RELATED WORK

Inference on Alcohol Detection

It takes being alive and healthy to tackle challenges for sustainable development as well as harness the benefits thereof. The scourge of drink driving has led to loss of life and properties. Control measures to ensure drivers are not under the influence of alcohol while driving such as Blood Alcohol Content (BAC) check remains unrealizable due to the huge personnel, equipment and maintenance cost involved. A less consuming effort has been proposed using mq3 gas sensor mounted on the steering wheel, powered by the ignition of the vehicle, to detect alcohol level of the subject controlling it. The alcohol detected from the subject is processed by an ATMEGA 16 Microcontroller that compares it with a set threshold for compliance. If the threshold is exceeded three modules are simultaneously triggered. The fuel supply control module is activated by a relay to cutoff supply towards bringing the vehicle to a momentary halt. The Liquid Crystal Display (LCD) module is activated to show alcohol has been detected. The Global System for Mobile communication (GSM) module sends the same notice on the LCD to subject's next-of-kin/law-enforcement-agent phone line for immediate attention. This system was developed and tested using a toy car. The result showed that it could be implemented in real life situation provided that all specifications are taken into consideration.

Inference on IoT

Monitoring Dams safety and water management is extremely important considering both the situations like water scarcity and excess of water. It is of crucial importance and needs to develop information system based on existing system allowing utilization of intelligent sensors network. Basic idea is to describe possibilities of IoT applications in Dam Safety and water management. Here the entire dam and the main pipeline is sensed 24x7 through various sensors. These wireless sensor nodes connected with each other and transmits the data to a gateway. Common storage space 'CLOUD' stores and provides on line information to the observer. Employing an IoT for the said purpose will definitely help saving the most precious natural resource the water. Here in this paper an attempt is made proposing an electronic circuit design employing an Internet of Things concept for the purpose.

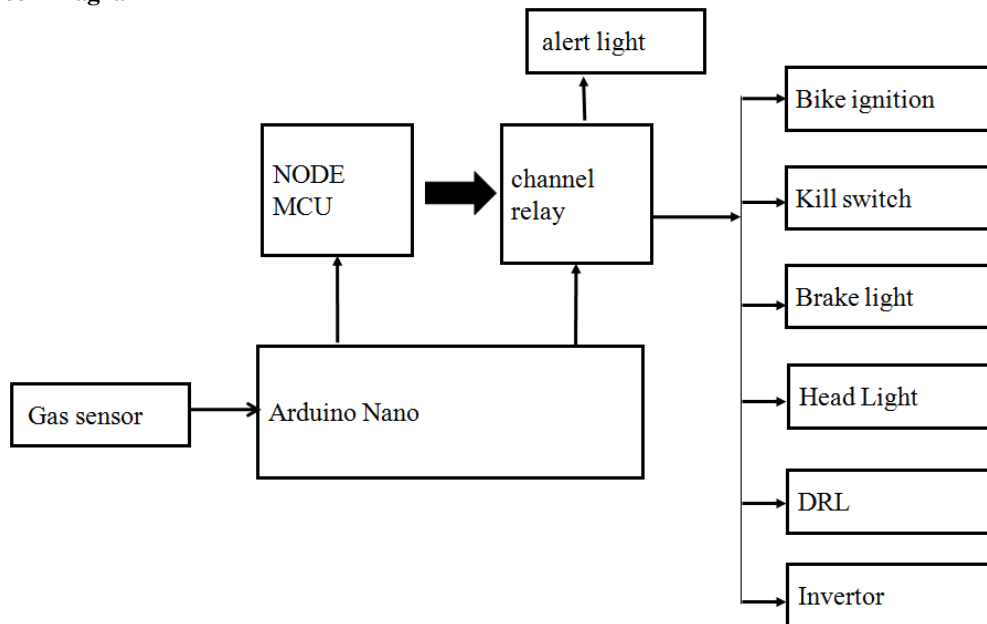
The Internet of Things, or IoT, refers to the billions of physical devices around the world that are now connected to the internet, all collecting and sharing data. Thanks to the arrival of super-cheap computer chips and the ubiquity of wireless networks, it's possible to turn anything, from something as small as a pill to something as big as an aeroplane, into a part of the IoT. Connecting up all these different objects and adding sensors to them adds a level of digital intelligence to devices that would be otherwise dumb, enabling them to communicate real-time data without involving a human being. The Internet of Things is making the fabric of the world around us more smarter and more responsive, merging the digital and physical universes.

Inference on Smart Bike

The Connected Bike project combines several technologies, both hardware and software, to provide cycling enthusiasts with a modern alternative solution for training. Therefore, a trainer can monitor online through a Web Application some of the important parameters for training, more specifically the speed, cadence and power generated by the cyclist. Also, the trainer can see at every moment where the rider is with the aid of a GPS module. The system is built out of both hardware and software components. The hardware is in charge of collecting, scaling, converting and sending data from sensors. On the software side, there is the server, which consists of the Back-End and the MQTT (Message Queues Telemetry Transport) Broker, as well as the Front-End of the Web Application that displays and manages data as well as collaboration between cyclists and trainers. Finally, there is the Android Application that acts like a remote command for the hardware module on the bike, giving the rider control over how and when the ride is monitored.

III. METHODOLOGY

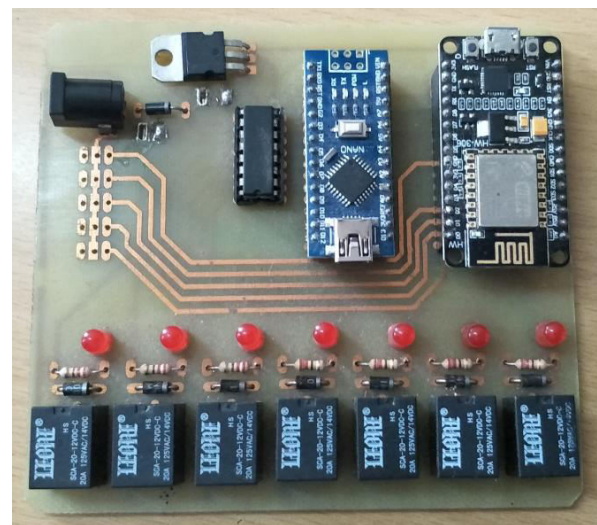
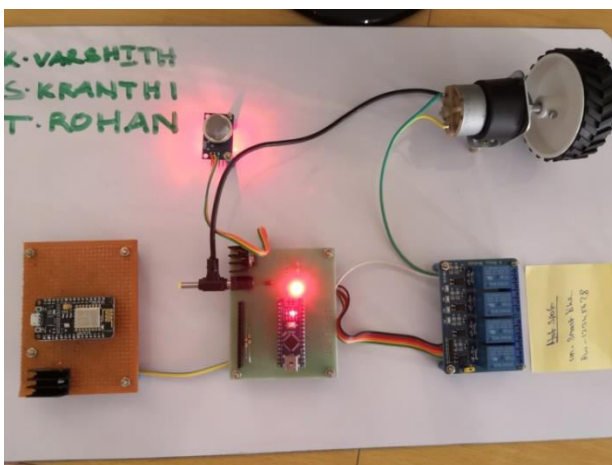
Block Diagram



This WI-FI module (Node MCU – ESP 8266) is connected to our device for the control of the bike. By Using 4 Channel Relay, the bike parameters will be controlled by using an Inverter. Gas Sensor is used to detect the alcohol automatically, which by means connected to Arduino Nano. Arduino receives an electric pulse from sensor and makes the bike ignition off. With the help of IoT Concept the kit is connected to Mobile through an app via Node MCU. By this the Bike will be controlled by the smart phone.

IV. EXPERIMENTAL RESULTS

Hardware Output



Screen Shots



V. CONCLUSION

The system designed provides safety and reduces the after effects of the accident. The system is used for anti theft because the vehicle will start only when the device of the radar is prepared to the vehicle, the alcohol detection will prevent drunk drive scenario and the effects of drunk and drive to public and the rider himself. Android application built for the system will ensure the smooth functioning of the system, users have to wear helmet to ride two wheeler vehicle and hence traffic rule will follow with this, the system is under control ie. Ride two wheeler vehicles having safety in hands and budget also. Easy functioning to operate this system. It provide better security to the biker.

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