**Analysis of Smart helmets and Designing an IoT based**

**Smart helmet: A cost effective solution for Riders**

**Alternative title:**

**Design and Implementation of an Intelligent Motorcycle Helmet for Large Vehicle Approach Intimation**

**Aim:**

 Aim of this project is IoT based Interactive Road Safety System for Young Bikers

 With help of GPS and IoT sharing information to the mobile app.

**Introduction:**

 Enhancement of technology makes the human daily life easier with the help of newly developed smart systems. Road accidents create a big problem for mankind to over this problem we are using the Interactive Road Safety System for Young Bikers. In this paper we are using the arduino and measure the temperature and humidity and water level sensor to measure the fuel level for the bikers. When the fuel level decreased with the help of nodemcu wifi module use to send the data to the cloud and user can see the fuel level and petrol bunk location through mobile app so that immediately we can refill the petrol .Then ultrasonic sensor used to detect the obstacle before the bike while in user travelling in the road. Acceleromete**r** is an electromechanical device used to measurement of the change in velocity, speed or vibration when the biker went an accident the accelerometer switched on send a alert to the nodemcu then the nodemcu share the location to the nearby hospital with the help of GSM/GPS and send a hospital address to the biker relative through login mail id of mobile app so that immediately we can rescue a accident patient.

**Existing system:**

In the existing system is IoT based monitoring system and monitoring temperature and humidity level of biker nearby climate and send the data to the cloud through nodemcu only. There is no safety measure in this papers it is a major drawback.

**Proposed system:**

In this proposed system we are overcome all this problems. This paper safeguards the biker and makes them comfort while they are in travel. In this proposed paper we are using the accelerometer sensor ,temperature and humidity sensor ,ultrasonic sensor, nodemcu wifi module ,and mobile app all these sensors and app makes the user journey safer than a existing paper.

**Block Diagram:**

NODE MCU

IoT Modem

M

C

P3008

Humidity

Temperature

Accelerometer

Ultrasonic

Cloud

Mobile phone

Level sensor

Motor

Speed controller

**Block Diagram Description:**

Above the diagram is containing environmental monitoring sensors, ultrasonic sensor, accelerometer sensor, ESP8266 and GSM modem. Environmental and accelerometer sensor is connected to mcp3008. Mcp3008 is nothing but analog to digital convertor. Mcp3008 is getting sensor value and given to ESP8266 via SPI communication protocol. GSM modem is connected to UART port of ESP8266. GSM modem is used to get current location of vehicle. If emergency case location will be send to cloud. Accelerometer is used to find accident.

**Hardware:**

* Node MCU
* Ultrasonic sensor
* Accelerometer
* Mobile
* Temperature and humidity sensor
* Level sensor
* IoT modem
* DC motor
* Motor Speed controller

**Software:**

* Arduino IDE
* Embedded C

**Conclusion:**

In this paper a cost effective smart helmet gives a solution and GSM modem is used to get current location of vehicle. If emergency case location will be send to cloud. Accelerometer is used to find accident. This paper safeguards the biker and makes them more comfort while they are in travel.