ABSTRACT:

With an improvement in Technology and raise of sensors, there have been attempts to utilize the new technology in various areas to improve the quality of human life. One main area of research that has seen an adoption of technology is the automotive sector. The main objective of the project was to monitoring and controlling of electric bike parameters. It comprised of three main parts. The part being, detection of vehicle parameters using sensors, second for generating IP address and the last part is providing the android app. This data enables the user to monitor a parameters like temperature, sensor in rpm, detection of obstacles within the range set and controlling the movement of the vehicle by using android app.

The internet of Things (IoT) concepts have been widely used to interconnect the automobiles and offer smart, reliable and effective controlling and monitoring of the vehicle. The proposed system collects the sensor data through NodeMCU microcontroller and then processes and analyses for viewing. Based on the analyses, vehicle parameters can be monitored and controlled using the android app.

INTRODUCTION:
There’s a lot of hype surrounding the Internet of Things (IoT), but even if IoT feels like an overused term, it offers real benefits for mechanical engineers. With IoT, there’s enormous potential for engineers to design better, smarter products. Robust insights into real product performance and new product capabilities made possible by IoT are revolutionizing how things are designed, made, and used. It uses low cost Internet connected devices and sensors that create new possibilities. Not long ago, the idea of IoT in the automotive sector was being seen as a futuristic theoretical concept and today we are already seeing possibilities of connected cars, driverless cars and application of IoT in the car ecosystem covering parking, environment, supply chain and transport governing bodies.

An IoT (Internet of Things) system designed to allow the monitoring and control of parameters of the users’ vehicles, anytime and anywhere in the world, through the Internet. The system prototype was developed and tested to the respective sensor systems. The main components of the proposed IoT system are: a Bluetooth Low Energy (BLE) intra-vehicular wireless sensor network (IVWSN); a mobile device that acts both as the vehicle’s gateway, connecting the IVWSN to the Internet, and as the vehicle’s human machine interface (HMI); a client, which can be either a mobile device or a personal computer; and a residential wireless sensor network (WSN). The use of a wireless network to collect sensor data inside of the vehicle introduces some advantages when compared with conventional wired networks, whereas the inclusion of a residential WSNs in the proposed IoT architecture allows the provision of additional features, such as controlling of vehicle movements, monitoring of vehicle parameters and obstacle detections.

**OBJECTIVES:**

1. Using onboard sensors and internet connectivity there will be communication between vehicles, communication of vehicles with other devices.
2. Providing navigation features while driving, managing audio/visual entertainment content, connectivity with smart phones for hands free experience with the help of voice commands.
3. By using the On-Board Diagnostics, information regarding battery and other crucial vehicle parameters can be displayed on the driver’s smart phones.
4. To get alerts related to the vehicle like, Lights ON, over speed et.al
5. Through geofencing and speed monitoring applications can be used to inform the vehicle predefined geographical area or is being driven faster than a present threshold speed.

6. Develop a Mobile App to control and monitor the vehicle and its parameters.

**METHODOLOGY:**

1. Sensors were mounted on the vehicle to measure the parameters like speed, temperature, Motion detection.
2. Sensors mounted on the vehicles devices and the microcontroller are connected through the wireless sensors’ network which is Wi-Fi.
3. Current supply given to the microcontroller through usb cable connected to the computer or by using battery.
4. The code was dumped to the microcontroller and then output can be obtained by compiling and running the code.
5. The sensor data collected from the vehicle was fetched by the microcontrollers which are accessed by the coding.
6. By entering IP address which is generated by running the code we can monitor and control the vehicle prototype.
7. Temperature and RPM will be displayed on the App and the vehicle prototype can control by giving movements from the Android application and the obstacle can be detected within the range set to get the danger alerts by blinking the LED.
RESULT AND CONCLUSION:

Fig 1: controlling and monitoring of vehicle using android app and serial monitor

IoT stands for Internet of Things, the technology that helps us to interact with things around us in various ways. The things can be systems, machines or static objects which are used for machine-to-machine communication for mere monitoring and control applications. IoT is a disruptive technology that has tremendous potential to change the world and is changing the way we live. It uses low cost Internet connected devices and sensors that create new possibilities.

Automotive industry is on course to a disruptive transformation using developments around smarter vehicles and related infrastructure. IoT is at the heart of this digital transformation in Auto sector. It connects people, machines, vehicles, auto parts, and services to streamline the flow of data, enable real-time
decisions, and improve automotive experiences. The evolution of road vehicles is being unstoppable. These advances depend of the ability of obtaining and processing information. This involves the development and implementation of new sensors on vehicles and the infrastructure.

**FUTURE WORK:**

1. GPS system can be corporate with project for the further improvements which made easy to track the vehicle.

2. Using database made use full to store the past data from the vehicle.

3. Battery charging and discharging can be monitor by implementing sensor to the prototype.

4. Getting alert messages about over speed, if any accidents happens and the parameters of the vehicle.