

# REPORT

## START E-BIKE WITH THE HELP OF ANDROID APP

In this abstract, we have to develop an automated connection system for our E-bike that interfaces with Android mobile. The mobile device and system can communicate with each other from short-range via Wi-Fi. Command Start will be provided on our app to start E-bike and registered users can be easily start the E-bike from the mobile devices via a simple and comfortable GUI application, which is easy to use for any normal users. The services will be provided to Aligarh Muslim University students, Teachers and staff only.

### **How to take our services?**

#### **PROCEDURE:-**

- 1) The individual user need to register to our app which can be done only with the university's wifi. (This is so, to provide facilities to students, teachers, and staff only.)
- 2) Documents needed at the time of the registration are:-
  - a) Identity Card
  - b) Admission Card
  - c) Wi-fi Address( to identify that services taken by our user only)
  - d) Phone Number

After verification user is successfully registered to our app

- 3) Now the user need to log in and open his/her wifi, if the bike is in the range then it will automatically be connected if the user is registered and a message will be displayed on our app that "user is connected".

- 4) After connected, the user has to do payment which can be done by UPI and then we will take our user to a page in our app from where he/she can start the E-bike.

Simply a Start button will be provided to our page after Click on it, the circuit will complete in an E-bike.

- 5) After Starting the Bike this page will close automatically so that the user can take only one ride for one payment.

*This procedure depends upon the communication between hardware and Software so, **How to do it?***

## **Software:-**

### **Blynk**

We are using an IoT app called Blynk for this project. Blynk easily allows us to connect to single chipboard like the Raspberry Pi through their easy-to-use SDK. After downloading the app from the app store, we created a new project for a Raspberry Pi with "Connection Type" WiFi. We created two components in the interface. The first was a button, connected to virtual pin 0, that controls the state of the Battery. The second was a push notifications component to be alerted when the Battery state changes. (i.e Circuit is Close or Open )

Working:-

Software fetches the data from our database whether the user is registered or not. If the user is registered then it will fetch the Wi-Fi address from the data and check whether the Wi-fi address is the same or not, if it is the same then only it allows the user to connect.

In this App, we will provide all the information regarding each and every ride(i.e distanced traveled, Location: from where to where using a GPS system).

On clicking on the start button it will send signals to Raspberry Pi used in our E-bike.

## **HARDWARE:-**

### **Raspberry Pi as Controller**

A Raspberry Pi will be used to control our system in E-bike. We will be used a Raspberry Pi 3 since it has onboard WiFi capabilities. However, any Raspberry Pi with a WiFi dongle should work with our code. We plugged in the components to their respective pins to complete the circuits.



[Raspberry Pi 3 Model B](#)

### **Specification**

The Raspberry Pi 3 Model B is the earliest model of the third-generation Raspberry Pi. It replaced the Raspberry Pi 2 Model B in February 2016.

- Quad-Core 1.2GHz Broadcom BCM2837 64bit CPU
- 1GB RAM
- BCM43438 wireless LAN and Bluetooth Low Energy (BLE) on board
- 100 Base Ethernet
- 40-pin extended GPIO
- 4 USB 2 ports
- 4 Pole stereo output and composite video port
- Full-size HDMI
- CSI camera port for connecting a Raspberry Pi camera
- DSI display port for connecting a Raspberry Pi touchscreen display
- Micro SD port for loading your operating system and storing data
- Upgraded switched Micro USB power source up to 2.5A

When the signal is received by the Raspberry Pi the connected pin (as in our case pin0) will get activate and then the circuit will complete and user can enjoy the ride.