

Intelligence Vehicle Using GPS

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Abstract— Nowadays, due to rapid growth in population many accidents are happening due to heavy traffic and also negligence of public in wearing helmets. In this paper, the main initiative is that until the user wears helmet, he cannot start the bike. Only by giving command to engine to start and after wearing helmet, the bike will be started. With the help of some projects related to this issue, an idea has been developed with the prototype which includes Arduino UNO, infrared sensor and motor. In this prototype, embedding of sensor with helmet is done for the easy identification to know whether the user worn helmet or not. GPS is attached for NODE MCU for finding the latitude and longitude for the purpose of tracking the vehicle by using google maps. Speed of the vehicle is also shown along with the GPS in Blynk Application. In this way, the damages can be prevented whenever the user met with an accident and the number of accidents can also be reduced.

1. INTRODUCTION

1.1 OBJECTIVE

To make some changes in the existing method this gives us more efficient and smart vehicle for preventing severe damages due to accidents. We have some proverbs like “Prevention is better than cure” easier to stop something happens. We can reduce the no of accidents and save our life.

1.2 SURVEY

According to the survey major numbers of road accidents related to death involving two wheeler riders are mostly due to not wearing helmet. On the other hand rider rescued their lives by wearing helmet causing less number of minor injuries. As on theft reports in the year of 2018 around 45000 cases of motor vehicle reported. In this only 19.6% cases are solved. From the above information we came with an innovative idea to reduce head injury accidents and vehicle thefts.

1.3 DOMAIN INTRODUCTION

Here we are developed a smart vehicle using Arduino and Node MCU. We are explaining how efficiently we can inbuilt the helmet in our vehicles without any disturbance and to avoid accidents. He introduced the blynk application which is an application, which provides us to display data; we can see the longitude, latitude and speed of the vehicle in blynk application. We connect GPS for tracking the live location so with the help of GPS we can easily identify the location. With the help of infrared sensor we can find the user is wearing helmet or not. If the helmet is present then we can tell voice command that “on the vehicle” it checks the helmet is present and bike is on.

1.4 SMART VEHICLE USING ARDUINO

We already have some projects which detect the alcohol and will not start the vehicle, but we are developing different thing from existing one. Where we can modify it and implement in any other projects. Here we are using ir sensor, Arduino board, motor, AMR speech app, GPS, etc. Firstly this project is composed of two parts and combined to form complete project. In the first part we are using IR sensor, Arduino using the IR sensor we are finding the helmet is present on the user bike if the helmet is present then we should tell the voice command as on the vehicle and it verifies the helmet and it power on the bike. We are connecting blue-tooth to the arduino board for voice controls. Now we are going to the second part that we can find the latitude and longitude with help of GPS and GPS is connected to the antenna so that we can easily identify location of the vehicle where ever it is.

II. LITERATURE SURVEY

[1] Here the author developed Anti-theft and tracking system for automobiles using GPS, GSM for finding the vehicles which have been stolen by someone. With the help of GPS we are able to receive or collect the data and it can't communicate with central unit, meanwhile GSM has capability to collect and send the data and has capacity to communicate with the central unit. Using arguing this project is developed and we have to insert sim card in the GSM after set up it acknowledges message and if we want the location then type location it take few seconds and sends a message to the registered phone number there we can track the location where the vehicle is so we can find it easily.

[2] The author explained how can we identify and send information for the nearby hospitals using GPS, GSM modules whenever the accidents happen. We know nowadays we are encountering many accidents and many of them are losing their life, this is because suppose if the accident is occurred in area like forest, hill, ghat road there will be no body there to intimate the details about accident and ask help for ambulance so author came up with an idea such that if such accident happens to send information to the nearby hospitals so that life's can be saved. Ensure that the GPS, GSM is connected and make sure it is in working condition so that we can easily identify the accidents happen and we can save their lifes.

[3] The author developed Intelligent Anti-theft system for automobiles. Here we are developing a system such that suppose if someone robbed our vehicle we can find our vehicle using GPS, GSM modules. Suppose if the car door is unlocked then message will be sent for the owner that car has be unlocked by someone else at the same time we are getting the longitude and lattitude positions the LCD display so that we can track the vehicle and we can find it with the help of GPS. This helps us to find out theft easily and find our vehicle.

[4] The author explained parking the vehicles in smart way which we can reduce for time for searching the space for parking area for vehicles. He developed with the help the help of servo motor, infrared sensor, and RFID tag. RFID tags are like our credit cards where while entering into the parking area with the help of RFID tags we spice our cards near the entrance gate the amount for parking area is automatically debited from the card and the gate opens for parking vehicle. Once the vehicle is parked in the particular slot the LCD display will be displaying that particular slot as filled and vacant parking slot will be displaying as free slots available for parking.

[5] The author shared his tactics to prove how the smart vehicle is used for detecting the driver whether he is wearing helmet or not. Here we are using Alcohol gas sensor for detecting the alcohol. Whenever the bike rider is starting the bike, first he should blow air to the sensor and it detects whether he is drunk or not drunk. If he is not drunk he has the permission to start the bike, suppose he is drunk then he can't start the bike. By this method the author did initiative for creating like this things and it is really helpful for the society.

III.METHODOLOGY-1

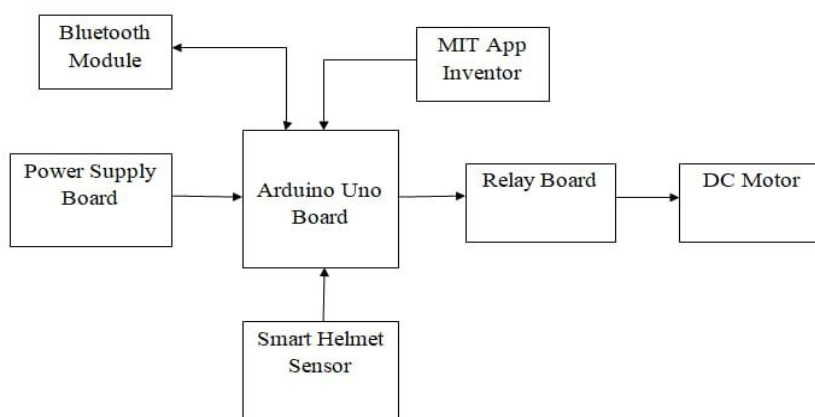


Fig.1 Block diagram

This is the block diagram for our project and this will be implementing in the form of prototype also so if we plan something definitely we should know what should be connected and where it should be connected so with the help of this our work process will be completed according to this. We will be providing the power supply to the micro controller and the board comes in to active stage to work and provide power supply to other components in the connected series. Infrared sensor is used for identifying whether the user is wearing helmet or not.

1. Power Supply

In this project we use power supply input regarding the components we prefer or use in this project. Everyone knows that we will be having different power supply for every particular component so we will be using +5v for the powering Arduino or other components in the project we use. We know that power supply plays major role and it is the source of the project. We should not exceed the power supply input for project which is not needed if the power supply is more than we require then it we cause a blast to circuit connect, so we will be using some alternative for limiting the power supply for the project.

2. ARDUINO



Arduino is a open source microcontroller where we build many projects using this board and easy to write code and erasable. We mostly use Arduino for electrical projects from easy to advanced level. Using this microcontroller and Arduino software for programming code in this. Arduino is combined of hardware and software platform where we can easily build projects. We can run this in Linux, Mac Os, and Windows etc.

3. Relay



Relay is nothing but a switch. The operation is same as switch, but in relay we use electrical signals for turning on and off the power supply.

4. IR Sensor



INFRARED sensor is electronic device which has a capable of sensing the heat of the objects and movement of the objects. It has transmitter and receiver for sending and receiving signals, here signals are nothing but they are infrared which cannot be visible to our eyes and only the IR sensor can sense these type of signals. Every vehicles produce some kind of radiation which is not visible for our eyes and it can be caught by the IR sensor for movement of object and heat of the object. The transmitter send the IR waves so when anything is near to it is reflects the IR waves back and transmitter can sense them and find the distance of the waves, by using this waves we can identify the distance of the objects and we can do whatever the process we have given to the sensor.

5. NODE MCU MICROCONTROLLER



Node MCU ESP8266 is open source plat form for the IOT platform, it is available in affordable cost and also we can interface sensors and other components with this. This chip embedded with a Wi-Fi module in it this is one type of advantage those who are working with Wi-Fi modules. When some are looking to the micro controller and wanted Wi-Fi module individually then this the best option for them to work with this and implement it. We can code it in c, C++, So it will be again easy for the medium level programmers who does not know high level programming.

6. NEO-6M GPS Module



It is used for finding the latitude and longitude. We have buy the patch antenna and attach it for NEO-6M GPS. If we find the latitude and longitude value then copy the value and paste it in google then search you will get the exact location.

7. DC-Motor



Motors are used for movement of the vehicle forward and backward direction .We control the direction and speed of the Motors using Motor driver module. According to our requirements we use no of DC-Motors.

8. HC-05 Blue tooth



It is bluetooth module. It have input power supply from 3.3v to 6v. We can see antenna in front side of the module and backside we can see the pin configuration. We use only Tx ,Rx,Vcc in this pin configuration. We will connect it with Arduino board.

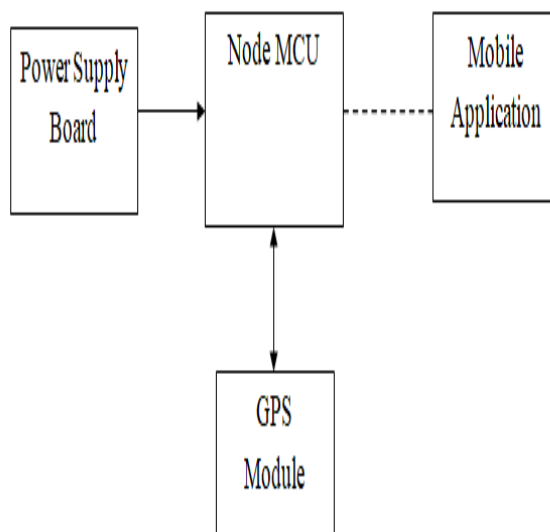
9. MIT APP Inventor

This website where we can build the Apps by our own. If we open the it we can create project and I will be naming it as AMR voice recognition. We have designer view and block view at right side and at left side we have user interface for designing purpose.

The proposed work so understands in this project which made everything simple for our understanding purpose. Here we are using IR sensor, Arduino board, motor, AMR speech app, GPS, etc. Firstly this project is composed of two parts and combined to form complete project. In the first part we are using IR sensor, Arduino using the IR sensor we are finding the helmet is present on the user bike if the helmet is present then we should tell the voice command as on the vehicle and it verifies the helmet and it power on the bike. We are connecting blue-tooth to the arduino board for voice controls. Now we are going to the second part that we can find the latitude and longitude with help of GPS and GPS is connected to the antenna, so that we can easily identify location of the vehicle where ever it is. If we combine the both parts we can form the complete project for finding tracking the vehicle location and for finding whether any user is not wearing helmet. If we don't wear helmet then the vehicle will not be turning on for riding purpose.

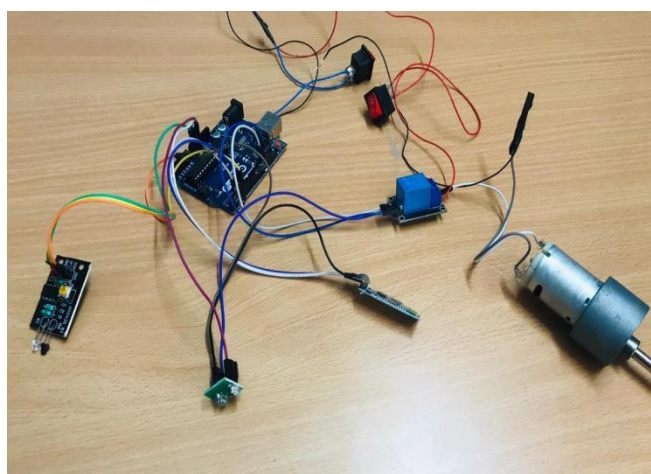
METHODOLOGY – II

This is a circuit diagram of the second part of project. Here we are connecting the Node MCU with GPS and Blynk application. With the help of NEO-GPS we are able to find the latitude and longitude of the vehicle so that it is easily possible to detect the vehicle where it is and we can track it with the help of blynk application we can see the speed and latitude in this blynk, we want connect this to our mobile.



IV. RESULT

We implemented the process successfully. So by this we can easily identify whether everyone is wearing helmet or not. Not every accident who wear helmet will be saved but maximum we can save our life from risky. We developed a prototype for this project if this give's good result then we will be implementing in real time project.



V.CONCLUSION

We are expecting every work should be done in smart and efficient way. So we have come up with an idea such that it will save our time and money. We developed a prototype for this project if this give's good result then we will be implementing in real time project. We can modify our project as automatic gate entrance and exit system for parking vehicles with some additional equipment's. We are trying to add some more features to our project and give as best as we can give.

VI.REFERENCES

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