IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 16, May 2023

Vehicle Security Controlling and Surveillance

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Abstract: *Now days there are multiple tracking system which is used in bike but actually they are not tracking live and it have no functionality like to control the bike like on off on alert system emergency light there some tracker awesome have live tracking but that are using four wheelers and it is very expensive so this system is introduce this system can use to track bike scooty or a car or a heavy vehicle with Live GPS system on a Google Map this system can be control using a Android app or a web browser from anywhere of the world this app can track vehicle in the terms of longitude latitude speed direction as well as it can also shows on a Google Map with our mobile live location and vehicle live location for comparison purpose so need this and it also control bike are any vehicle this functions are like to control the main supply of engine so we can control bike at any situation in Manual or automation mode and we can also bypass the key switch to start the ignition as well as we can start the bike remotely the system have multiple advantages like easy to installation less expensive advance functions and this app can also user friendly and here is more secure system this system cannot be bypass if anyone can bypass this system then vehicle cannot be start so doesn't occur any theft action and also can monitor bike activity.*

Keywords: ESP8266, GPS, Vehicle tracking, Blynk, IoT

I. INTRODUCTION

There are multiple GPS tracking devices as well as to track the actual location but there are some some are very expensive and some cannot track live location it can send the past data where vehicle cannot be present currently and there are no any system to control the vehicle functions like power starter ignition horn r a parking light

This project is intended to provide a solution to the problem of tracking, theft control, and accident detection, all of which are issues that frequently arise in modern times. Through the use of this project, we are able to offer a clever answer to his predicament. If we apply some intelligence to the internet of things, we can eliminate all of these kinds of incidents. Using this initiative, we could really be able to find a solution to a very significant issue. Recent research that utilised data obtained from surveys provided an explanation for the rise in the frequency of accidents, which was mostly attributable to reckless driving and high traffic. When instances of this nature occur, it is common for the relatives of the victims to be unaware of what has transpired. As a result, in order to circumvent issues of this nature, we have developed our product in such a manner that, in the event of an accident, the driver will be notified of their present position through text message. This project also includes the implementation of a theft control system that uses an ignition control system and can be operated using the owner's mobile device. Within the scope of this project, we are developing a remedy for the problem of theft and accident situations.

On the basis of the research activities that have been carried out over the course of the past few years within DRIVE II, PROMETHEUS, and the EU 4th Framework Programme, the idea of a vehicle security system is currently undergoing development as a first Advanced Driver Assistance System and has been released onto the market.

Users have demonstrated a high level of interest in these kinds of systems, as well as acceptance of the products, according to all of the surveys and experimental assessments that have been carried out.

It is quite evident that this is only the first step in the progression toward functions that are more sophisticated. The term "Advanced Driver Assistance Systems," or ADAS, refers to potential future technologies that might assist drivers with increasingly difficult driving duties. When the driver gives the operation of the vehicle to the Driver Assistance System in certain types of traffic circumstances, they are able to assume some of the responsibilities associated with driving the vehicle.

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II. LITERATURE SURVEY

Das et al. [1] presented a system that would monitor vehicles for accidents as well as their whereabouts. This system provides a technique to lessen the likelihood of disasters occurring by monitoring the eye blinking of the driver, which signals sleepiness, the presence of barriers on the road, and the intoxication level of the driver. Accident as well as the position of the car is identified. The patient is given primary care as soon as the information about the accident is accessible thanks to this method. Anusha and colleagues[2] developed a system with the use of LPC2148; the system is equipped with capabilities such as saving information in a database. Modules for GPS and GSM are included in this work. In addition to detecting alcohol consumption and engine temperature, the framework displays all of the values that it finds on the respective web pages. hence, the passengers in the car will be protected from harm. An Android-based application was created by Imteaj et al. [3] that is capable of identifying a hazardous circumstance and sending an alarm message to the closest medical care facility as well as the police station. This application is set up with an external pressure sensor in order to determine the force that is exerted from the exterior of the car. As a result, the application is an essential component of post-accident services and has the potential to mitigate the negative consequences of a collision. Mayureshet al.[4] proposed a system that makes use of an open source platform and is designed to monitor and trace the position of a car. In addition to monitoring fuel usage, engine temperature, and vehicle speed, the framework utilises GPS/GPRS/GSM modules for communication. On the web server's database, all of the values are kept for future reference. A model that is based on Raspberry Pi and an android application for a smartphone has been built and put into operation by Prasanth and colleagues[5]. The primary components of the system are denoted by the acronyms GPS/GPRS/GSM SIM 900A. The complete rig is brought inside and installed in the car. The data is transmitted to the server through GPRS, while the alarm messages are delivered to the owner of the mobile device used in the car via GSM. An Android cellphone that has been constructed with GPS and GSM components in addition to a CPU that is installed in the car was the basis for the solution that Manali et al.[6] presented. GPRS allows for continuous monitoring of the car's position in the web server while the vehicle is in motion. This monitoring occurs when the vehicle is in motion. A framework that is built on Raspberry pi and is connected to a 3G/4G dongle that functions as a modem was proposed by Harum et al. [7]. The vehicle unit is attached to the vehicle, and the attached unit is set up to receive signals from a mobile tower and transfer the information to a web server so that the position may be represented on the map in real time. Vehicle tracking, vehicle monitoring and regulating, as well as vehicle status, were all created and put into operation by Navod et al. [8]. In this configuration, the automobile's door, parking lights, and side.

III. PROPOSED SYSTEM

Fig. 1 displays the suggested system's block diagram.

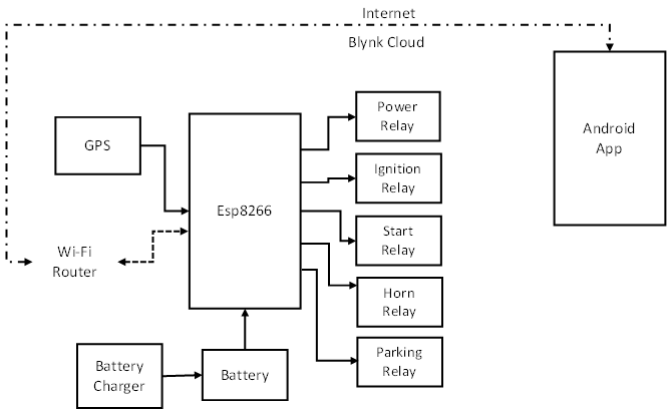

Fig.1. Block Diagram of the proposed system

In this block diagram we see node EMCU ESP8266 which is main block which can control this smart bike as well as to help the monitor the vehicle this ESP826 block is connected to GPS model this GPS block is take signal from GPS satellite that is longitude and latitude information and send to node MCU then this medium show block location

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information send blink server with the help of internet which is nothing but router block which can provide the Wi-Fi signal then this router block is connected to the internet via GSM then this network is directly connected to blink cloud which is connected blink app. this blink app is to provide graphic user interface to the user in Android phone.

In this system we require microcontroller and Wi-Fi model to connect the internet for take the input signal as well as to upload the data so we use ESP 8266 node MCU because it contain Wi-Fi as well as on chip microcontroller we also need relay to control the on of switch functions. So we use five volt relay and to drive this relay we use BC 547 transistor to drive the relay from node MCU here we can also use tiny GPS receiver to track the location from GPS satellite

This ESP 8266 note MCU is connected with tiny GPS to receive the instructions like longitude latitude speed satellite number and direction so here we use I2C protocol. So in the eye to see protocol we need RX and TX pin are connected connected to pin 20 and 19 respectively hence in ESP Virtually assign pin 20 as a TX and in 19 as RX so here RX pin connected to TX and TX pin connected to RX with the 9600 boad rate and this GPS data can send via Internet to the blink server and so we monitor the GPS position on Google Map. This ESP8266 is also connected to the relay through transistor this ESP 8266 which can take on of signal from blink app and to turn relay for performing the advance operation so to turn on the bike or scotty with the help of transistor because transistor can drive this Relay with amplification signal.Here we use five relay with a LED for monitor purpose

Here relay 1 is also used to turn off bike which is already start with the help of power button on blink app. Here signal can cloth through pin 17 to the LED and LED goes on and current flowing through transistor Q1 with the help of current limiting register R1 so LED glow and beta times current flowing through relay 1 coil and collector pin to emitter pin turn on relay. Here relay 2 is also used to turn on bike ignition that is bypass kew switch which is to start the bike supply for starter app. Here signal can use through pin 7 to the LED and LED goes on and current flowing through transistor Q2 with the help of current limiting register R2 so LED glow and beta times current flowing through relay 2 coil and collector pin to emitter pin turn on relay

Here relay 3 is also used to to start bike as like starter button blink app. Here signal can cloth through pin 6 to the LED and LED goes on and current flowing through transistor Q3 with the help of current limiting register R3 so LED glow and beta times current flowing through relay coil and collector pin to emitter pin. Here relay 4 is used to turn on the siren when bike in crowd parking for finding purpose on blink app. Here signal can cloth through pin 5 to the LED and LED goes on and current flowing through transistor Q4 with the help of current limiting register R4 so LED glow and beta times current flowing through relay 4 coil and collector pin to emitter pin turn on relay

Here relay 5 is used to turn on bike both side indicator to parking mode Here signal can cloth through pin 4 to the LED and LED goes on and current flowing through transistor Q5 with the help of current limiting register R5 so LED glow and beta times current flowing through relay 5 coil and collector pin to emitter pinto turn on the relay. Here we also required reset function to start the program from initial value if any kind of error so shopping one is connected to3.3 volt with 5.6 kohm resistor if we press the reset switch then reset pin goes lower potential and ESP Gate reset and start program from initial condition. Here node MCU 826 6 which take power from battery block and power supply block that is in terms of 5 volt .

This circuit diagram is divided into two parts power supply circuit and another main circuit board.

In this circuit node MCU ESP 8266 is the heart of this system node EMCU 8 2 6 6 is the combination of Wi-Fi and microcontroller which is control over internet with the help of Wi-Fi. This node MCU ESP 8266 is connected to NEO 6m GPS which takes signal from to GPS satellite in the term of longitude and latitude with speed and direction then this signal node EMCU 8266 it share to blink cloud to display the location on Google Map VIA internet. This ESP8266 is also connected to the relay through transistor this ESP 8266 which can take on of signal from blink app and to turn relay 1 for to turn on the bike or scotty with the help of transistor because transistor can drive this Relay with amplification signal. Here relay 1 is also used to turn off bike which is already start with the help of power button on blink app. same as relay2 is is used to start the bike with their self-starter if user sent the start signal. Relay 3 is used to turn on Horn when user can press or hold the horn button. Relay4 it's used to turn on hazard light that is left and right indicator.

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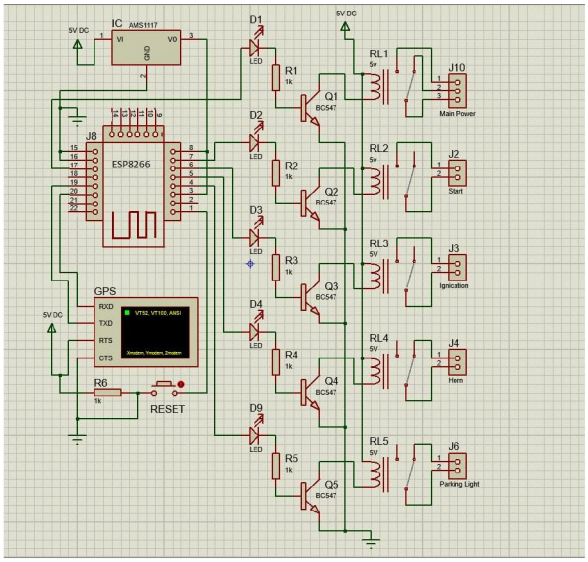


Fig.2. Circuit diagram

IV. RESULTS

In this section, the result of the proposed system is presented. After implementation get easy to access vehicle ,this system get more benefits like Live tracking with the help of google map with our mobile gps reference. This system can reduce anonymous and thief activityand reduce human effort.

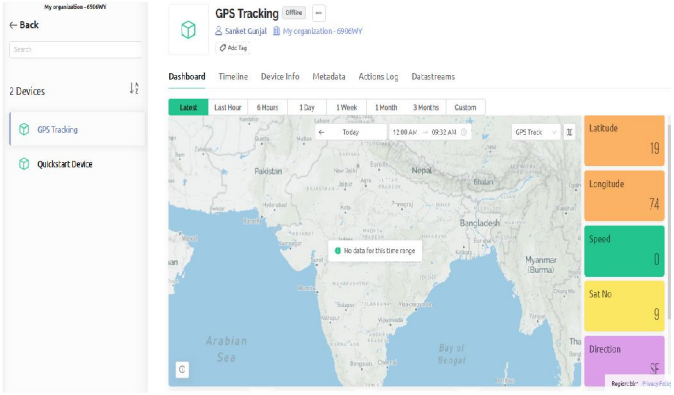
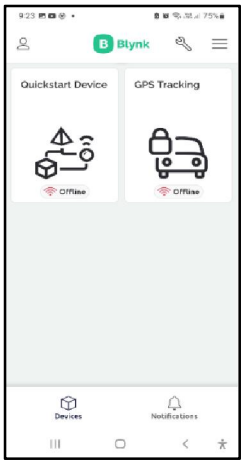
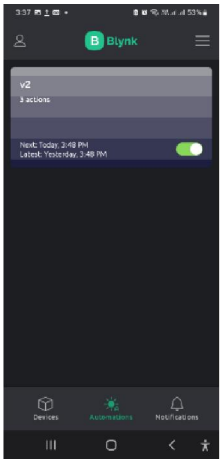


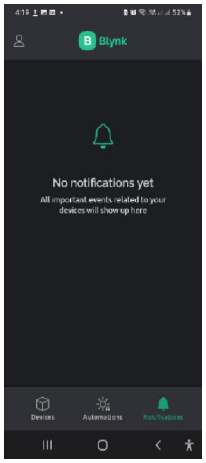
Fig. 3. Web Interface



(a)



(b)



(c)

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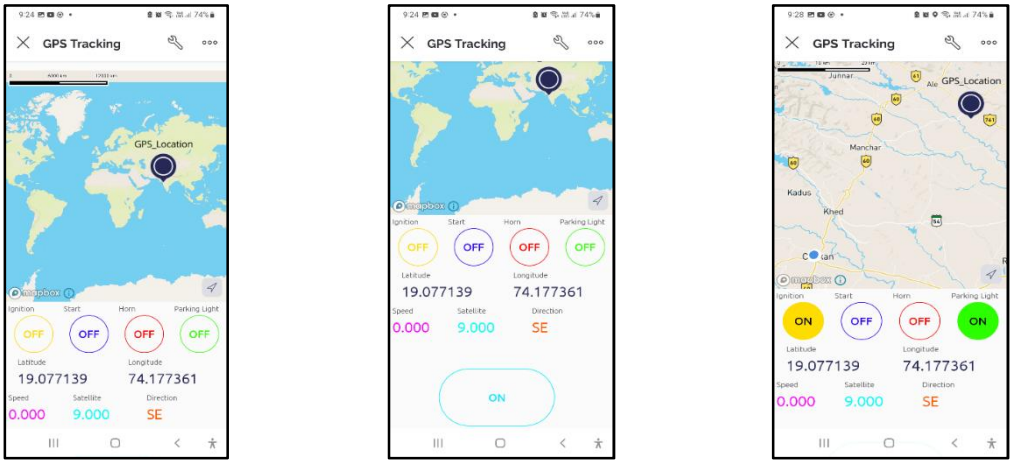

(d) (e) (f)

Fig. 4 Results of the system (a) blynk app (b) Automation tab (c) Device status after power failure (d) (e)(f) GPS tracking

Here we result that in Fig 4(a) web interface we can control Relay and GPS value manually in a Device tab. In this Device tab we can check device is offline or online. Here Fig. 4(b) show automation tab here we can add automation that is predefined schedule time with week wise. Here in Fig.4(c) we check important notification like device offline due to power failure, etc.Here we result that in Fig 4 (d) shows all valves are in off condition and Fig f show all valve in on condition but here we can also control each valve independently which is shown in Fig 4(e).

V. CONCLUSION

The Main power On/Off Relay and the Key Bypass Relay are utilised in the process of putting the Vehicle Monitoring and Tracking system into action. Starter Relay, Horn Relay, Parking Light Relay, and a GPS Module for Tracking the Vehicle and Keeping the Bike from Being Stolen are all essential components. Through the use of this system, continuous tracking of the bike and its position are both shown and tracked. Additionally, the system displays the location of the bike. The mobile application controls the ON and OFF states of the bicycle's operations. The system is both dynamic and efficient, as well as cost effective. The future applications of GPS tracking systems will be rather extensive, and in order to see improvements in their performance, enterprises will need to transition to using GPS technology. To successfully complete the task, you will constantly want the assistance of mobile app development businesses. At Distinguished.io, we have compiled a list of some of the very finest in the industry, and it will be of useful.

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