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IOT based Tracker System for Bus

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Abstract - **Internet of Things(IOT)** is an advanced technology used to manage the work automatically with a less manual power. It also enhance the good work quality and the work automization with the help of some sensors, actuators,GPS, control unit, transmitter and receiver.
This paper is about tracking the live location of the bus. Here, the live location of the bus is tracked and the location of the bus is shown on the mobile application.
The GPS and the application is integrated to show the location of the bus.The live location is shown on the application.

Index Terms: IOT, Node MCU, C

1.INTRODUCTION

In modern days, the people are busy with their schedule and they are not ready to spend their time in waiting for the bus or any other mode of transport to travel.If the location of the transport is shared with the passenger, then the passenger can easily keep track of the transport and can be available at the right time. So, the passenger need not wait for transport or miss the transport due to their schedule. They plan accordingly and be available for the transport.

IOT plays an important role in tracking the location and sharing the location to the passenger. The location of the bus is tracked with the help of some components like GPS module and Node MCU.The system will be fitted into the bus. So, when the bus gets started then the circuit gets power supply and starts processing. With the help of the internet connection, the location will be transmitted and the user can see the location.
IOT places the major role that provides the all details of the buses through the application on the smart phones to the students/staffs for easy transport system. This
android application will be helpful to students and staffs for convenient transport system.

2. Body of Paper

Model Explanation

1.Rectifier will convert the incoming AC to the DC for the components like GPS, LCD display and Node MCU.
2.Then, the Node MCU will connect to the internet source for the transmission.
3.Now, the GPS module will detect the location and share it to the Node MCU.
4.Then, the Node MCU will transmit the data to the application where the exact location is shown on the map.
5.The LCD display will display the result as “LIVE BUS TRACKING” if it is a successful transmission otherwise it will not show anything.

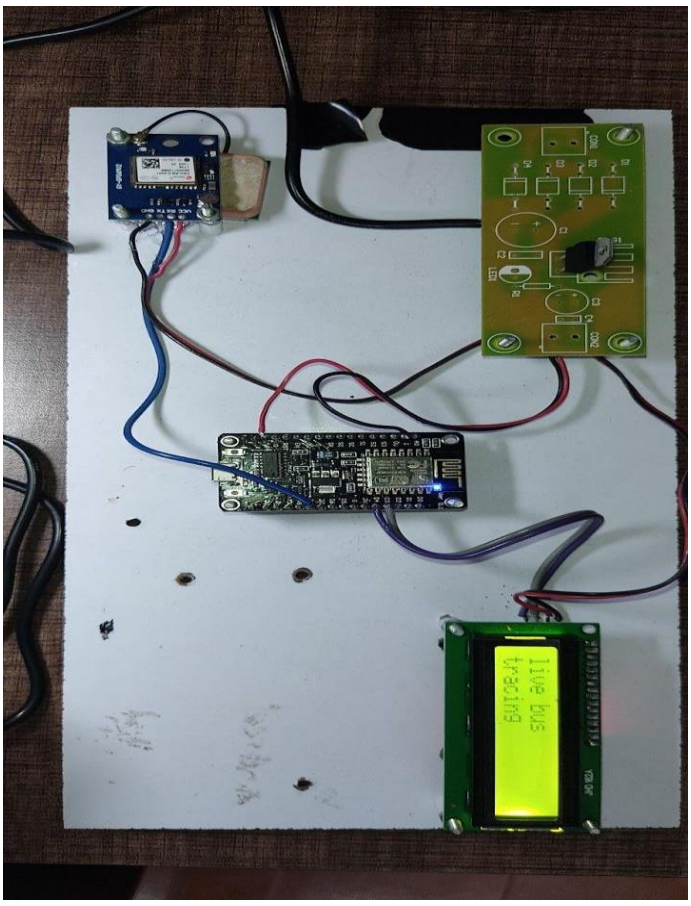

Fig-1:Circuit designing

Application Functionality:

1.The application will show the location of the bus in the map with the pointer describing the location of the bus.
2.Here, we are providing a separate username and password for a particular bus.So, that everyone can use the same one for this bus.

Proposed Work:

GPS Neo 6m
NEO-6M global positioning system (GPS) module, a very popular, cost-effective, high-performance GPS module with a ceramic patch antenna and an on-board memory chip. This is more efficient than the other GPS since the it consumes less power and provides a exact output.

Fig-2: GPS Neo 6m

Node MCU
NodeMCU is an open-source development board specially designed for IoT based Applications. It runs on the ESP8266 Wi-Fi SoC and the hardware which is based on the ESP-12 module.It has a 12KB of RAM and flash memory of 4MB with a clock speed of 80MHz. Since it is smaller in size it can be used in any type of the IOT application. It has the 2.4GHz of antenna for transferring data. It can be operated at the voltage of 3.3V with input voltage of 7-12V.

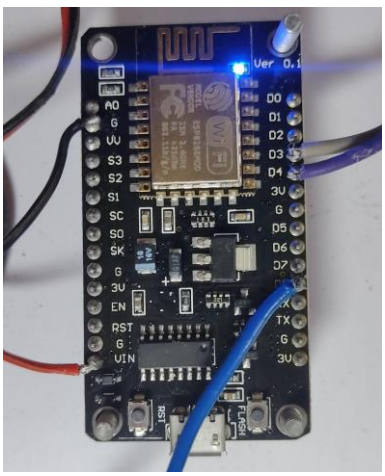

Fig-3 : Node MCU

Rectifier
Rectifier is used to convert the AC supply into DC supply. This board contains the four diode and the current flows through them and produces a output source as DC.

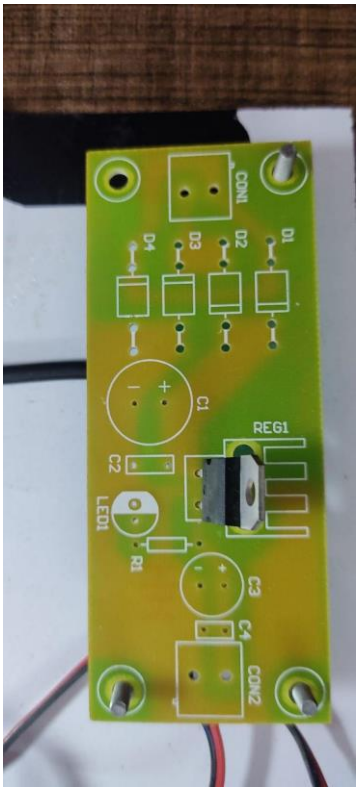

Fig-3: Power Supplier

LCD display
JHD 162A LCD display module is used with the yellow backlight. The size of the display is 20X4 which means 16 characters per row with 2 rows.It is operated at 5V. It is built in the system standard HD44780 which is equivalent to LCD controller.

Fig-5:JHD 162A LCD Display
The below diagram shows how the execution of the component takes place and how the signal are transmitted.

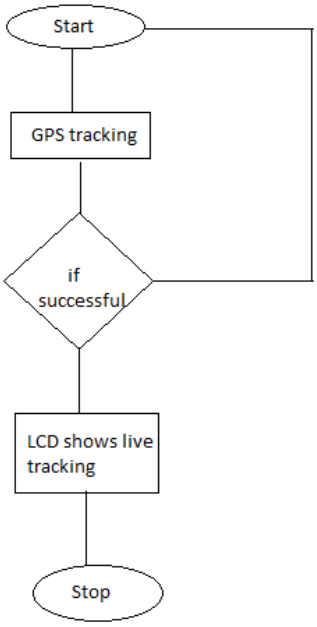

Fig-6: Flow diagram of the circuit

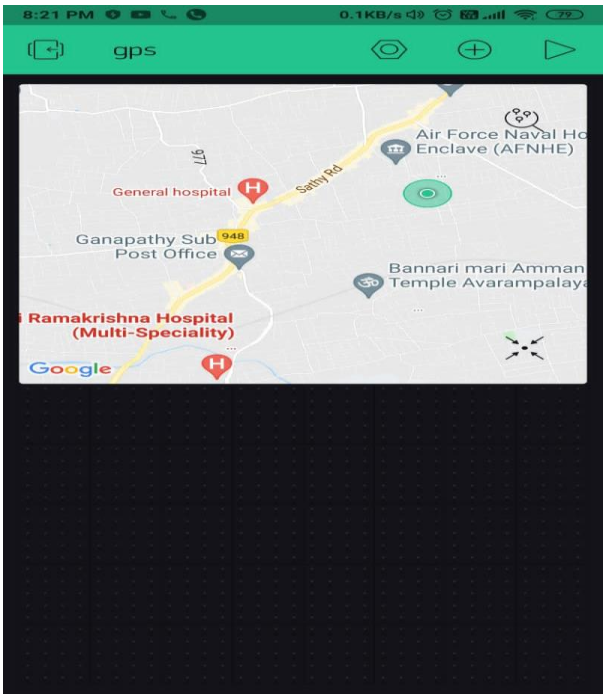

Fig-7: Application output

In this application, we have configured the GPS module and tracked the live location of the bus and transmitted to the user and they can see that in their mobile application.

Futuristic Work:
We are planning to implement this project to track the live location of the bus and shows the location of the bus to the user.
It helps the user avoid the avoid wasting their time for waiting for the bus. And we are planning to add messaging for the user so the need not always look at the application.He can easily keep track of the bus without seeing the application.

3. CONCLUSIONS

In this paper we have reviewed a various existing techniques of college bus racking. By implementing this idea, we can improve the transportation safety and the quality of services to the college buses. The system will have latest technology and optimized algorithms with moderate cost. The system may focus on accurate arrival time and position of the bus.

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