

IOT BASED BUS TRACKING SYSTEM

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ABSTRACT

The project "IOT BASED BUS TRACKING SYSTEM" is developed for a technology solution that utilizes the Internet of Things (IOT) to monitor and track buses in real-time. The system can be used to improve safety, reduce operating costs, and enhance the efficiency of college bus transportation. Today, most students are traveling to college by college buses or college vans. Parents think that their kids are safe when they travel by college bus. But are they really safe?

There are many common problems such as students getting kidnapped out of college, buses getting delayed in traffic, and your kid being the last one to get down by bus and being alone in the bus. So we can't exactly say that they are safe with the college bus and another problem with buses is that the buses are operated based on a specific time schedule. However, students often have to wait a long time for buses because the buses do not usually arrive on schedule.

In addition, the bus schedule is manually controlled by an officer, which takes time, and the data can easily be lost. Hence, the goal of this project is to develop a bus tracking and monitoring system for the College students. Arduino node microcontroller unit and global positioning system (GPS) sensors were used to send and receive GPS location information. The data retrieved from these sensors were displayed on an LCD display and sent to web address. For the experimental test, only one bus was used for collecting and analysing data.

Data were immediately presented on the user interface. The results indicate that the system was able to track and monitor the bus location. In conclusion, by using the proposed bus tracking and monitoring system, users can easily find the exact location of buses also it gives notification to the student about arrival of the bus so that student can reach the location on time and catch the bus so the waiting time of student and bus get reduced.

Keywords: IOT, Blynk, Bus Tracking, Nodemcu, Neo-6mgps.

I. INTRODUCTION

An IOT-based bus tracking system is a technology solution that utilizes the Internet of Things (IOT) to monitor and track buses in real-time. The system can be used to improve safety, reduce operating costs, and enhance the efficiency of college bus transportation. It typically consists of controller, GPS tracking devices, and communication infrastructure that are installed on the college buses and connected to a centralized management platform.

The system enables real-time tracking of the location and route of college buses, It also allows parents and college administrators to monitor the location and status of the college bus in real-time, and to receive notifications in case of any delays or emergencies.

The use of an IOT-based college bus monitoring system can provide numerous benefits, including improved safety and security for students, reduced fuel consumption and maintenance costs, and enhanced communication and coordination between parents, college administrators, and bus drivers. It can also help to improve the overall efficiency and effectiveness of college bus transportation, by enabling more accurate scheduling and routing, and by providing valuable data for decision-making and continuous improvement

II. METHODOLOGY

Method and analysis which is performed in your research work should be written in this section. A simple strategy to follow is to use keywords from your title in first few sentences.

Block Diagram

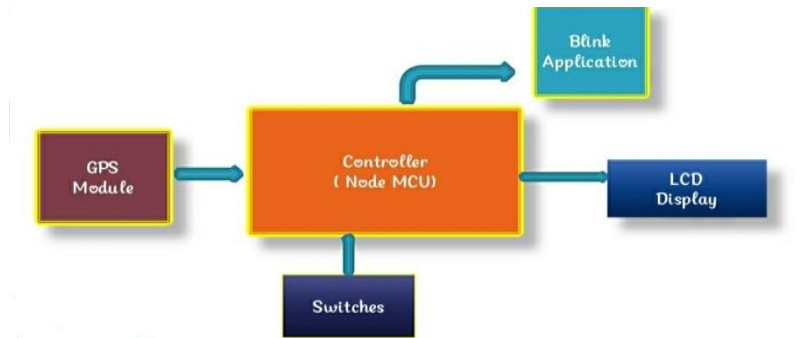


Fig 1: Block Diagram.

Working of Block Diagram

It is the IOT based bus tracking system. In this system the main part of the project is the controller which is the heart of the system .We can use the Node MCU ESP8266, and it is connected to GPS Module i.e. Neo 6M GPS Module. The main purpose of the GPS Module is when the driver is start the bus from the route then it will be track the real time location of bus. Then we can use the LCD Display for when the driver is press the switch then it will be display the name of the next bus stop. We can also use the push button type switch. The purpose of the push button switch is when the driver is press the push button switch it will be give automatically notification to the students Mobile phone through the blynk app. Blynk app is the open source software. When the data is send to the blynk app it will send the notification to the students mobile phone. Even blynk has its own dash board where we can see previous locations or the next locations. It will be dedicated to some special stops of route.

Circuit Diagram

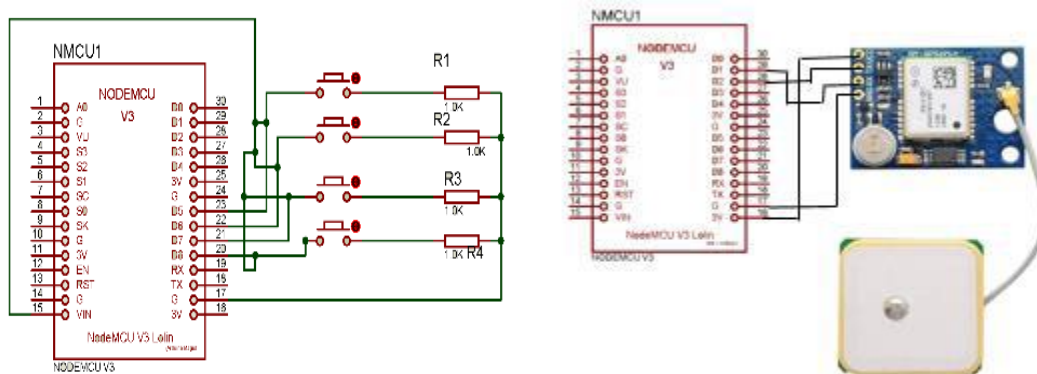


Fig 2: Circuit Diagram

III. MODELING AND ANALYSIS

Hardware & Components Used:

Table 1: Component List used

Sr.No.	Hardware Required	Components Used	Quantity
1.	Microcontroller	Node MCU ESP 8266	2
2.	GPS module	Neo 6M GPS Module	1
3.	Switches	Push button type switches	4
5.	Wires	Female-Female, Female-Male, Male-Male	As per requirement
6.	Resistors	1KΩ	4

IV. RESULTS AND DISCUSSION

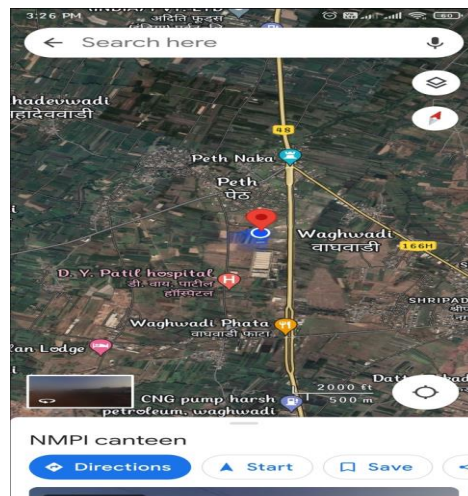


Fig 3: Real time location

V. CONCLUSION

In conclusion, the Live Bus Tracking system offers several advantages for both bus operators and students. The utilization of GPS module enables the identification and tracking of buses, ensuring accurate and reliable location updates. The Node MCU, acting as a microcontroller, facilitates the communication between the GPS module, and the central server. It allows for efficient data transfer and real-time monitoring of bus positions. The GPS technology plays a crucial role in providing precise location information for the buses. The application also allows for personalized notifications and alerts, enhancing the overall user experience. It has been observed that the proposed solution provides accurate and reliable bus tracking information. The system offers real-time updates, enabling students to plan their journeys more efficiently and reducing wait times at bus stops. The user feedback and satisfaction levels have been positive, highlighting the system's usability and effectiveness. In conclusion, the Live Bus Tracking

ACKNOWLEDGEMENTS

We take this opportunity to thank all those who have contributed in successful completion of this micro project work. We would like to express our sincere thanks to our guide Ms.P.S.Shaikh, who has encouraged us to work on this topic and valuable guidance wherever required. We wish to express our thanks to, Head of Dept. Ms.P.S.Shaikh & Prof.M.B.Joshi Principal N.M.P.I., for their support and the help extended. Finally, we are thankful to all those who extended their help directly or indirectly in preparation of this report.

VI. REFERENCES

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