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Bus Stop Reminder

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ABSTRACT :

The complexity of public transport systems is increasing along with the size and population of our cities. The bus routes are expanding with new stops and routes. In addition, college students are finding it challenging to get to class on time because of this crowd. These conditions could be perplexing for kids, especially for newbies or teachers. There may be annoyance for students if they miss the bus because of congestion, unfamiliarity, or carelessness that prevents them from accurately identifying the bus stops. The college bus tracking system helps users to know the bus location so that students don't get delayed or don't arrive at the stop too early. This project aims to solve the problem of growing wait times and erratic arrivals.

Keyword: Bus Tracking, IoT, GPS, Public transport, Stop reminder.

INTRODUCTION:

The complexity of public transport systems is increasing along with the size and population of our cities.Furthermore, this multitude causes problems for college students by making it difficult for them to get to campus on time.Students can miss the correct bus stop and experience inconvenience if they are rushing, too distracted, or in an unfamiliar place to recognize it correctly. The college bus tracking system helps users to know the bus location to prevent users from arriving at the station too early or being delayed. We launched this endeavour to combat the resulting increased waiting and uncertainty.To help blind pupils identify the appropriate bus stops, verbal reminders for bus stops are advised. This project, which is primarily for use on college and school buses, was created by students.

PROBLAME STATEMENT

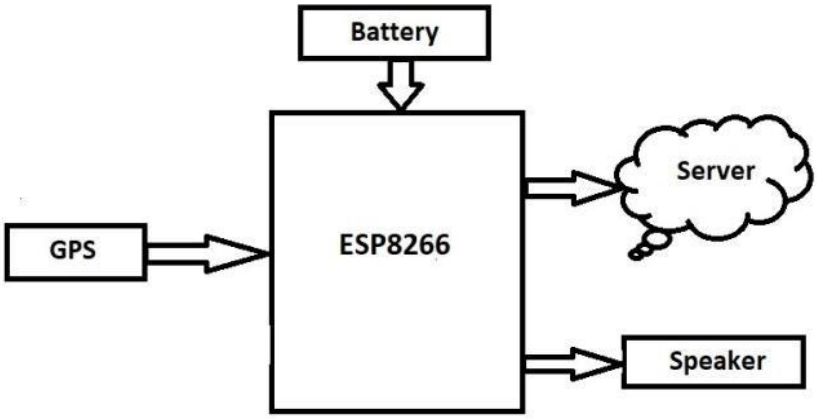
The challenge faced by persons who utilize public transportation—especially those who are disoriented or have visual or auditory impairments—is the matter at hand. Passengers often miss their intended bus stops, leading to inconvenience, delays, and potential safety concerns. There is a need for a reliable and accessible bus stop reminder system that can alert passengers in real time about upcoming stops, ensuring they disembark at the correct location. This system must be cost-effective, integrate seamlessly, and provide an inclusive solution that caters to the diverse needs of passengers while respecting their privacy and complying with relevant regulations."

OBJECTIVE

Bus tracking and monitoring system for the school/college bus provides safety for the students and enable the parents and school authorities to track the location of the bus.This project mainly focuses on providing the bus details to students and blind people to board the bus. Our theme is that every blind person can travel anywhere at any time individually. A "BUS STOP REMINDER" is set up to specify the bus details to every student who has signed up to use the bus service. It gives a voice announcement by the speaker at the bus stop. With this technology, college students can use the bus to track it and find out when it stops.This project developed a real-time college bus tracking and monitoring system using a GPS module. The developed system monitored the bus location, distance, and estimated arrival time.

BLOCK DIAGRAM

The block diagram of the speaking bus stop reminder project consists of multiple system blocks. The following is a description of these blocks: The power supply provides 5VDC stable power to the speaker, and ESP8266 board. Multiple GPS is installed on various buses. Each GPS tracks the location of the respective bus. The GPS is interfaced with the ESP8266 input. The ESP8266 receiver receives the bus stop data, which it stores in the latitude and longitude coordinates. The speaker and the webpage receive this info. The received information about the bus stop is processed and shown bythe website. Furthermore, a speaker announces the name of the bus stop



HARDWARE SPECIFICATION

ESP8266 Controller An inexpensive Wireless Fidelity microchip with a microcontroller and TCP/IP network application built-in is the ESP8266.This small module allows microcontrollers to connect to a Wi-Fi network and make simple TCP/IP connections using Hayes-style commands. However, at first, there was almost no English-language documentation on the chip and thecommands it accepted.

GPS Module The global positioning system, or GPS, is a radio-navigation system that uses satellite systems to deliver location, navigation, and time data to users by employing impulses that an earth-based receiver receives. The global positioning system was initially known as NAVSTAR and is a constellation of satellites owned by the United States. Originally intended primarily for military use, it is currently under the command of the US Space Force. However, it is currently open for business and private use. The global positioning system operates based on satellites orbiting the Earth. It consists of 31 well-placed satellites that allow users with sensors and receivers to pinpoint the exact location when they are within the visual field of at least three of those orbiting satellites.

Lithium Battery A lithium-ion or Li-ion battery is a type of rechargeable battery that uses the reversible reduction of lithium ions to store energy. The negative electrode of a conventional lithium-ion cell is typically graphite, a form of carbon. Because it functions as an anode during discharge, The term "anode" also applies to this negative electrode. The positive electrode is typically a metal oxide that functions as a cathode during discharge, so the term "cathode" is used infrequently to refer to it.

Jumper wires Jumper wires typically come in three versions: male-to-male, male-to-female, and female-to- female. The difference between each is in the endpoint of the wire. Male ends have a pin protruding and can plug into things, while female ends do not and are used to plug things into. It is possible to short-circuit and short-cut (jump) the circuit to the electrical circuit by attaching a jumper wire. It is possible to regulate the power, halt the circuit's activity, and run a non-functional circuit with standard wiring by connecting the jumper wire to the circuit.

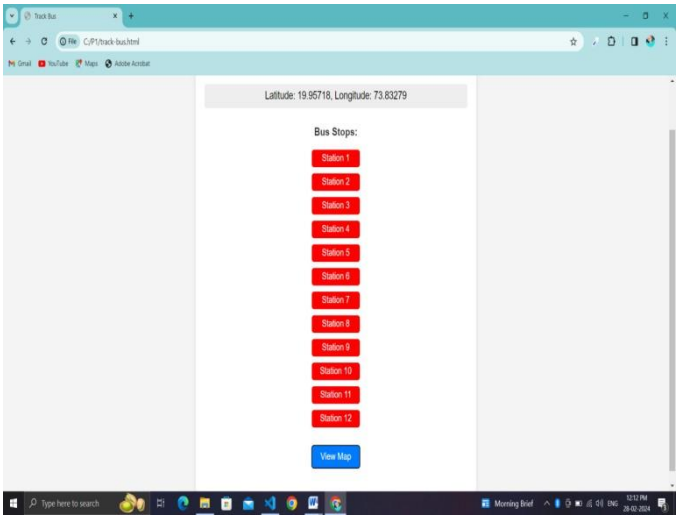
SOFTWARE SPECIFICATION

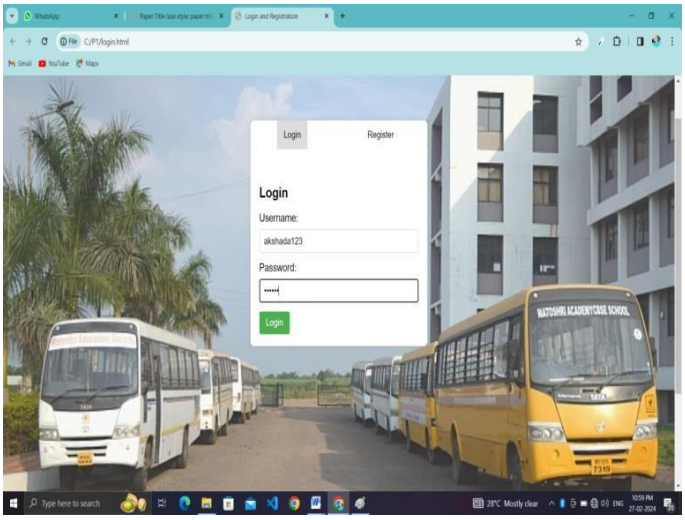
Arduino IDE : Arduino 1.8.8. The Arduino Integrated Development Environment (IDE) is a cross- platform application for Windows, macOS, and Linux) It is employed for writing and uploading programs to boards that are compatible with Arduino, as well as other vendor development boards using outside cores.The GNU General Public Licence, version 2. governs the publication of the IDE's source code. The Arduino IDE supports languages C and C++ using special rules of code structuring. The Arduino IDE supplies a software library from the Wiring project, which provides many typical input and output procedures. User-written code only requires two essential activities. For starting the sketch and the primary program loop, which is compiled and linked with a program stub *main()* into an executable cyclic executive program with the GNU toolchain, also included with the IDE distribution. The Arduino IDE employs the program *Avrdude* to convert the executable code into a text file in hexadecimal encoding loaded into the Arduino board by a loader program in the board's firmware.

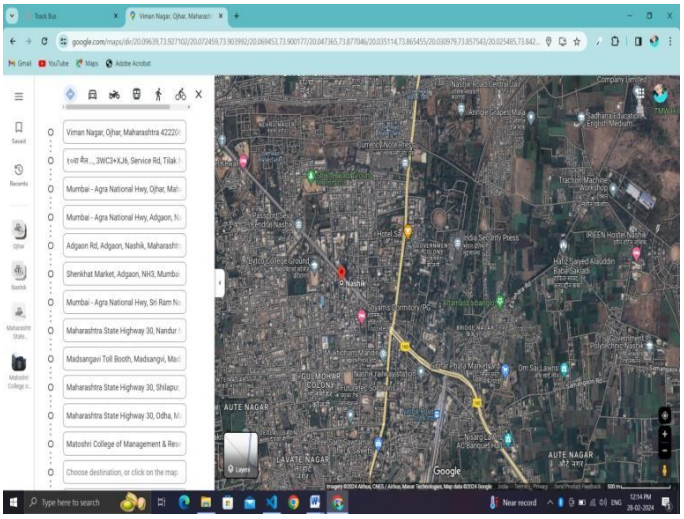
PROJECT WORKING

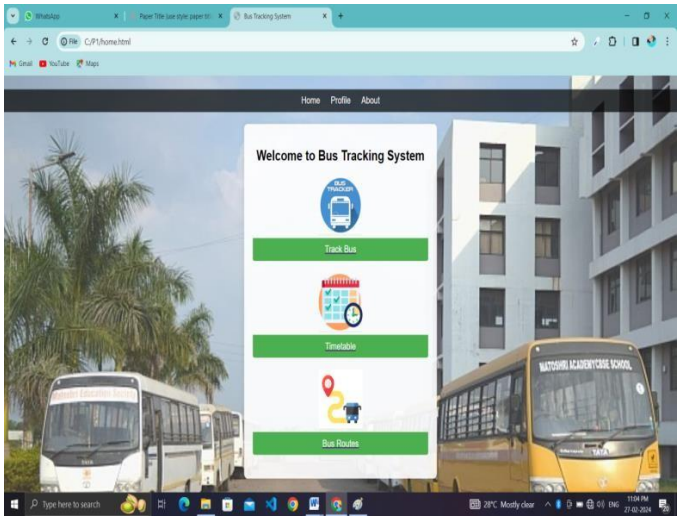
The GPS tracking device monitors the real-time location of the bus from anywhere. Every bus has a GPS module transmitter installed. The website will provide the bus's starting and finishing locations besides previous sites. The controller processes this data and announces the bus stop name through the sound speaker. They interfaced with GPS with NodeMCU ESP and displayed the location coordinates on a webpage. Here in this Bus stop reminder System, we will also display a link on the webpage which will take the user to a map showing the bus location. This project helps commuters find the right bus stop, and students do the same.

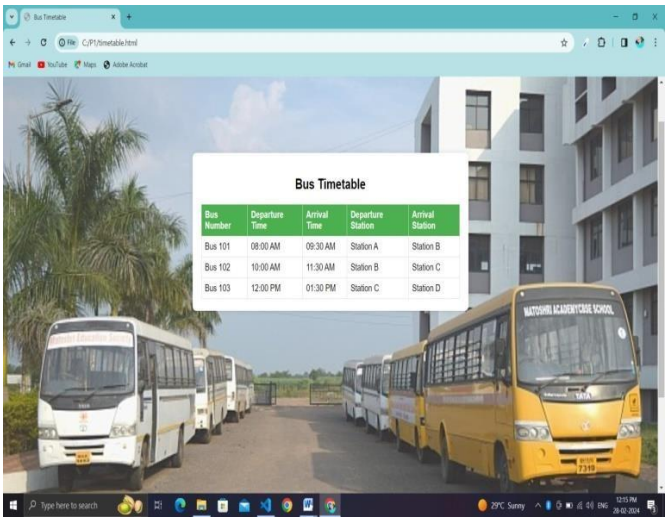
RESULT

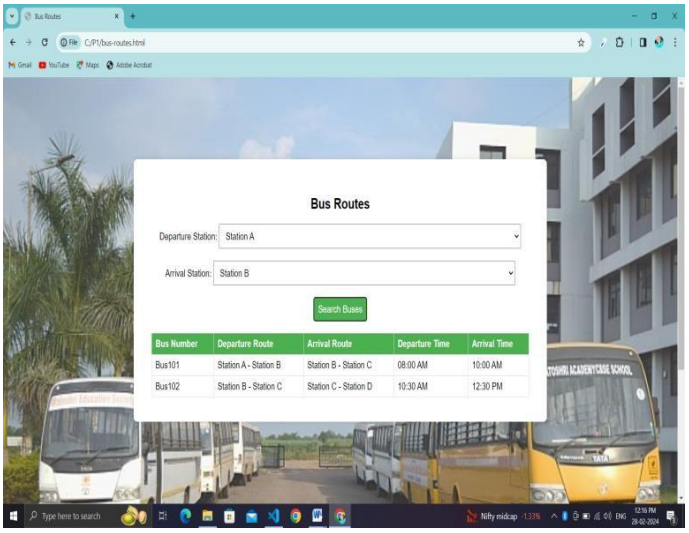

Latitude: 19.95718, Longitude: 73.83279
Bus Stops:
Station 1
Station 2
Station 3
Station 4
Station 5
Station 6
Station 7
Station 8
Station 9
Station 10
Station 11
Station 12
View Map


Login
Register
Login
Username:
akshada123
Password:
Login




Home
Profile
About
Welcome to Bus Tracking System
Track Bus
Timetable
Bus Routes


Bus Timetable
Bus Number
Departure Time
Arrival Time
Departure Station
Arrival Station
Bus 101
08:00 AM
09:30 AM
Station A
Station B
Bus 102
10:00 AM
11:30 AM
Station B
Station C
Bus 103
12:00 PM
01:30 PM
Station C
Station D



CONCLUSION

This project mainly focuses on providing the bus details to students and blind people to board the bus. Through the internet, the college bus tracking and monitoring system gives us the distance traveled by bus location and anticipated arrival time at the station. Our theme was that every blind person can travel anywhere at any time individually. A "BUS STOP REMINDER" is set up to specify the bus details to blind people. It gives a voice announcement by the speaker at the bus stop. Using this system in college can help Students follow the bus and awareness of the bus station schedule. The development and implementation of an IOT bus tracking and monitoring system that uses a website to provide information on the bus's location, distance traveled, and anticipated arrival time at the station.To enhance the system moving ahead, we suggested that the bus operators create their database management system.

ADVANTAGES

- The bus stop reminder project is a reasonably priced and affordable solution for public transportation systems.
- The bus stop reminder project is a versatile solution because it applies to any number of bus stops.
- It is also simple to modify the bus stop names and associated information.
- By connecting the bus stop reminder project with an IOT platform, It is bolsterable in terms of power, effectiveness, and resilience.
- The IOT communication will enable remote monitoring of bus stops and arrange backup plans in an emergency.

DISADVATAGES

- To use the online webpage, the network should bethere.
- There is no fuse protection on the microcontroller.Therefore, you risk damaging the board if you make the wrong pin connections.

APPLICATIONS

- Affordable transportation solution for the publicsystem.
- Remote monitoring of bus stops and arrangingfor backup plans in case of emergency.

FUTURE SCOPE

- This system is an ingenious method of alerting people to bus stops, which is also an effective means of informing passengers of the stops and helping them save time if the bus is running late.
- For future work, To make the system better, werecommended that the bus operators develop their database management system.

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