**Public Transport Optimization**

**Using IOT**

**TEAM MEMBERS**

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ABSTRACT

This project explores innovative GPS-based solutions to optimize public transport, improving routes, schedules, and passenger services.

• It emphasizes the transformative impact of GPS technology on urban mobility, making transport more efficient, reliable, and sustainable, with valuable insights for policymakers and transit agencies this research highlights the transformative impact on public transport systems, making them more reliable, accessible, and sustainable.

• The findings presented in this project offer valuable insights for policymakers, transit agencies, and technology providers seeking to advance the state of public transport and drive urban development towards smarter, more efficient cities

AIM OF THIS PROJECT

• The primary aim of this project is to revolutionize and improve public transportation systems by harnessing the potential of IoT (Internet of Things) technologies.

• First and foremost, it seeks to significantly enhance the overall efficiency of public transportation through the real-time collection and analysis of data, resulting in optimized routes, schedules, and passenger services.

• In addition, a crucial objective is to promote sustainability by implementing ecofriendly practices, reducing energy consumption, emissions, and the environmental footprint of transportation services. • Finally, the project prioritizes safety and security by utilizing IoT technology to bolster passenger and infrastructure safety, thus creating a comprehensive, forward-looking solution to address the multifaceted challenges of modern urban transportation.

COMPONENTS REQUIRED

• GPS Module

• Blynk server

• ESP32 microcontroller

• Mobile application

• Control and display unit

• Antenna

WORKING

• The proposed system method is working procedure first; the user must determine his location by activating the location feature in a smartphone.

• To get the information entered the application will provide the details about buses, bus location, bus speed, bus arrival time, nearest bus from a user by offering the distance between user location and bus.

• This information will assist the passenger to select their suitable bus.

• A GPS module connected to an ESP32 Microcontroller with a built-in Wi-Fi module is placed inside each bus.

• When the power supply is on, the GPS module communicates continuously with the satellite to get coordinates

• The GPS module will initialize itself, then the module will get the coordinates, but if the coordinates are not received, then the module will initialize again.

• Once the GPS obtains the coordinates, it sends the data, including latitude and longitude, and speed to the IoT Blynk server through the ESP32.

• At the Blynk server, the latitude and longitude are extracted and used on the visual map in the Blynk application. The live location of the bus can be seen on the Google map.

• Continuous data digital updates such as speed, distance, and the arrival time of the bus are displayed on the mobile application.

CONCLUSION

This paper introduces a prototype of a smart public transport system designed and implemented using IoT technology, GPS, and ESP32. This system shows that it can use GPS-Data only to get real-time information about buses, such as the current location of the bus, speed, arrival time, and distance. This system offers solutions for users of public transport who take a bus to reach their destinations. This system will help them to reduce the waiting time at the bus station because it provides passengers with necessary information about buses, like the current location of buses, the speed of the bus, arrival time, and the distance

THANK YOU