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MINI PROJECT REPORT

OF

GPS Live: Real-Time Location Tracking System with GPS Module

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Under the Guidance

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Mini Project Guide

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CERTIFICATE

*Certified that the mini project work entitled **"GPS Live: Real-Time Location Tracking System with GPS Module"** is a bonafide work carried out by*

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in partial fulfilment for the award of **BACHELOR OF ENGINEERING** in **INFORMATION SCIENCE AND ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM** during the year 2022-2023 It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

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Project Guide

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ABSTRACT

This project's core objective revolves around creating a robust and cost-effective GPS tracking system. This is achieved through the integration of a GPS module with the Wemos D1 Mini, an ESP8266-based IoT board. The system's pivotal feature is its utilization of a web page or website as the central platform for real-time data transmission and visualization. This innovative approach responds to the escalating demand for precise and efficient location tracking across a myriad of applications, including fleet management, personal tracking, and asset monitoring. At the heart of this endeavor is the Wemos D1 Mini, a powerful microcontroller that serves as the central processing unit. It adeptly receives GPS data from the NEO-6M GPS module, ensuring the accuracy and dependability of location information. The choice of the ESP8266-based board is driven by its seamless compatibility with the GPS module, ensuring a smooth integration process.

Furthermore, the website's integration plays a pivotal role in bolstering the system's efficiency. The website functions as a sturdy platform for data storage, real-time visualization, and user interaction. This multifaceted role streamlines data management while providing users with seamless access to live location data, enabling effective monitoring and analysis. To maximize the practicality of the tracking devices, the project focuses on optimizing power consumption. Through the implementation of efficient power management techniques, the system aims to extend the battery life of tracking devices significantly. This enhanced energy efficiency ensures that the tracking system remains operational for extended periods without the inconvenience of frequent battery replacements.

In addition to real-time data transmission, the website's role in managing data is pivotal. It is meticulously designed to ensure minimal latency in real-time location updates, thereby guaranteeing that users receive accurate and up-to-date information. This real-time capability is particularly vital in applications like fleet management, where timely information empowers better decision-making and improves overall operational efficiency.

This project's endeavor to create a cost-effective GPS tracking system is driven by the integration of the Wemos D1 Mini and the NEO-6M GPS module with a dedicated website. This holistic approach combines hardware integration, efficient power management, and user-friendly interfaces to deliver an accessible and comprehensive GPS tracking solution. By addressing the rising demand for precise and efficient location tracking, this project offers practical and cost-effective solutions for a wide range of tracking applications, benefiting both industries and individuals.