ABSTRACT

In the modern era, vehicles have become an integral part of daily life, used by many people for various activities. As the population grows, the number of vehicles also increases, leading to new challenges in fleet maintenance and management. Vehicle owners, whether individuals or companies, often struggle to ensure that their vehicles remain in optimal condition and receive timely maintenance. When vehicles do not receive proper upkeep, the risk of breakdowns and decreased efficiency rises, potentially leading to higher repair costs and shortening the vehicle's lifespan.

To address these challenges, GPS technology, which has long been used for navigation, is now being leveraged in the context of vehicle maintenance. Although GPS is commonly utilized for navigation purposes, its potential for monitoring vehicle maintenance has not been fully explored. This project involves the design and implementation of a web-based application that allows vehicle owners to monitor the real-time location of their vehicles while also tracking maintenance status. The application is developed using the Laravel framework, with MySQL as the database. Data transmitted by the GPS GT06 tracking device will be stored and analyzed in real-time to determine the optimal timing for vehicle maintenance.

The application is deployed on Google Cloud Platform, ensuring high scalability and availability, allowing users to access their vehicle maintenance information anytime and anywhere. With this application, vehicle owners can easily monitor the condition of their vehicles and receive notifications when maintenance is needed, helping to prevent breakdowns and extend the vehicle's lifespan. This project aims to provide an effective solution for enhancing efficiency in vehicle maintenance management, whether for personal or commercial use, by strategically leveraging GPS technology.

Keywords : *Internet of Things*, *Tracking,* Laravel, MySQL, *Google Cloud Platform,* GPS.