GPS Based Tracking System for Government Buses

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ABSTRACT

This paper presents the design and implementation of an advanced GPS based tracking system tailored for government buses to improve public transportation management. The system integrates GPS technology to provide real time location tracking, enabling both authorities and passengers to monitor bus movements accurately. Wireless communication protocols ensure seamless data transmission, facilitating timely updates on bus locations and estimated arrival times. To enhance passenger convenience, the system delivers detailed route information along side the current number of available seats, which are monitored using IR sensor technology. Safety is prioritized by incorporating a gyro meter sensor to detect incidents like accidents in real time. Additionally, the system employs alcohol detection mechanisms to determine if the driver has consumed alcohol, thereby promoting safer driving practices. All collected information is transmitted to a central control unit and made accessible to users via a user-friendly Blink app interface, enhancing transparency and operational oversight. The integration of multiple sensor technologies with real-time data communication marks a significant advancement in intelligent transportation systems. Future enhancements could include predictive analytics and expanded sensor capabilities to further improve service quality and passenger experience.

Keywords: GPS based tracking system, Realtime monitoring, Wireless Communication protocol, gyro meter , Blink app interface, IR sensor, Alcohol sensor, Intelligent Transportation System.