Enhancing Road Safety Through Integrated Driver Drowsiness Detection and Pedestrian Road Crossing Assistance

Theme: Transportation and Logistics

ABSTRACT

This project focuses on the development of a comprehensive system for driver drowsiness detection and pedestrian road crossing assistance. The primary objective is to enhance road safety by implementing real-time monitoring of driver alertness and providing timely alerts to prevent accidents caused by drowsy driving. Additionally, the system aims to improve pedestrian safety by detecting individuals attempting to cross roads and alerting drivers to reduce the risk of collisions.

For drowsiness detection, the methodology involves the utilization of infrared (IR) sensors to monitor physiological signals such as eye closure, coupled with a buzzer alert system to alert the driver. In parallel, the system also addresses pedestrian safety by utilizing ultrasonic sensors and servo motors to detect individuals attempting to cross roads. Upon detection, the system provides alerts to drivers to reduce the risk of collisions with pedestrians. These technologies are integrated into a unified system designed to improve road safety and reduce accidents.

The applications of this project extend to automotive safety systems, urban planning, and transportation infrastructure development, contributing significantly to overall road safety.

Keywords: Comprehensive system, Driver drowsiness detection, Pedestrian Road crossing assistance, Road safety, Real-time monitoring, Drowsy driving, Pedestrian safety

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