

ABSTRACT

This final project is titled Safe Distance Monitoring System for Vehicles, developed using the ESP32-CAM module. The system utilizes a single ESP32-CAM unit to capture images of objects in front of the vehicle and estimates the distance based on the object's width in pixel units within the image. The distance estimation is performed in real-time by processing the image data to determine the object's relative size based on its pixel width. The estimated distance is then transmitted via Bluetooth to a mobile application, allowing users to monitor the distance directly from their smartphones. This approach offers a compact, cost-effective, and reasonably accurate solution for implementation in modern vehicle safety systems.

Keywords: ESP32-CAM, Distance Estimation, Bluetooth Low Energy (BLE)