

IoT Based Smart Road Sign Display and Alert System

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Abstract: Road safety is one of the most critical challenges in modern transportation systems. Many accidents occur due to the absence of proper road sign visibility, outdated information, or lack of real-time alerts for drivers. This paper presents a Smart Road Sign Display System that integrates IoT and web technologies to provide real-time display and management of road signs. The hardware module consists of an Arduino microcontroller connected to an LCD for sign display, a GPS module for location tracking, and a buzzer for alert notifications. Embedded C is used for hardware programming, while the web application is developed using HTML, CSS, Bootstrap, Java, and MySQL for database management. The system provides three levels of access: Admin, Road Department, and RTO for centralized monitoring and management of road sign information. The proposed system improves road safety and reduces accidents by ensuring timely display of road alerts.

Keywords: Smart Road Signs, Arduino, GPS, IoT, Road Safety, Embedded Systems, Web Application

