SMART TRAFFIC LIGHT CONTROL SYSTEM USING YOLOv3

**Abstract:**

In busy cities, crossing the road safely can be a big problem, especially in places like India, where road accidents happen often. Traffic lights usually follow fixed timings, which means they don’t always match real-time traffic and pedestrian needs. Sometimes, people have to wait too long to cross, or cars get stuck unnecessarily, causing congestion. Our project solves this issue by creating a smart traffic light control systemthat automatically adjusts traffic lights based on the number of people waiting to cross. It uses sensors and an AI-powered detection model (YOLOv3) to count pedestrians in real time. A smart algorithm then decides how long the pedestrian signal should stay green, making crossings safer while keeping traffic moving smoothly. This system reduces waiting time, prevents accidents, and avoids unnecessary traffic stops. Unlike traditional traffic lights that work on a fixed schedule, our system adapts to real conditions, ensuring pedestrians don’t have to wait too long, and vehicles don’t stop when it’s not needed. By using modern technology to improve road safety and traffic flow, this project helps cities become smarter, safer, and more efficient. It’s a step toward making streets better for everyone whether walking or driving.

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