

Artificial Intelligence Based Traffic Light Control System for Emergency Vehicles

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Numerous nations on the planet are confronting the issue at traffic light convergence that causes mishaps between emergency vehicles and the other open vehicle. The quick reaction of the crisis administrations, for example, ambulances or fire administration vehicles has gotten a difficult circumstance nowadays. Some of the time the rescue vehicle stalls out in rush hour gridlock and those minutes can cost people life. There are existing systems to manage traffic light controls for emergency vehicles based on image processing, Radio Frequency, and IR technology. But the current framework gave an extraordinary opportunity to the emergency vehicles to release even non-emergency circumstance time. So, in this project, we proposed an “AI-based traffic light control system for emergency vehicles” that has allowed emergency vehicles to leave only in actual emergencies. which can get the maximum benefits and save many lives. The main objective of our research is identifying the emergency vehicles at intersections and doing the more accurate AI-based traffic light control system to release them when stuck in traffic jams to identify vehicles, we developed and trained object recognition models by using image processing techniques especially for the ambulance, fire truck, and VIP vehicles. The system identifies every object from the video, emergency vehicles were considered as specifications to differentiate emergency vehicles from other vehicles. we have designed the sound identification model to identify the siren sounds, here we have trained varies siren sounds, our system which gain sound as an input from a microphone and our system trained to filter noises to identify the emergency vehicle’s sirens sound and combine both Sound & Image identification process when both conditions are true, the system changes the red signal to green or extend the green signal duration by detect the siren sound and emergency vehicles, and release the emergency vehicles path/way in an emergency.

Keywords: Artificial intelligent, Emergency vehicle, Image processing, Machine learning, Neural networks, Siren sound, Sound analysis, Traffic lights