Intelligent Movable Road Divider Systems for Optimizing Ambulance Pathways in Urban Traffic

Bhavar Appasaheb Ramesh, Chaudhari Alisha Bharat, Bhusal Gitanjali Sanjay
Mr. R. S. Satpute, Chattar Punam Abasaheb
Department of E&TC Engineering
Amrutvahini College of Engineering Sangamner, A.Nagar, India
appasahebbhavar99@gmail.com, alishachaudhari5@gmail.com, gitanjalibhusal@gmail.com
rahul.satpute@avcoe.org, chattarpunam3012@gmail.com

Abstract: *In urban environments, traffic congestion poses significant challenges to emergency vehicle movement, particularly for ambulances, where delays can result in critical outcomes. This paper reviews the development and application of a Smart Movable Road Divider system designed to dynamically allocate road space and prioritize ambulance paths in real time. Integrating IoT sensors, machine learning, and V2I communication, the system identifies emergency vehicles and autonomously reconfigures road layouts to ensure unhindered passage. Key components include a camera-based detection system, a central control unit powered by AI, and motorized movable dividers for lane adjustments. By enhancing response times and reducing congestion, this technology promises significant advancements in emergency management and urban traffic optimization while addressing challenges such as implementation costs and technical reliability.*

Keywords: Smart Road Dividers, Emergency Vehicle Prioritization, IoT Sensors, Traffic Management, Machine Learning