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A Project Report

On

Automatic Detection Of Emergency Vehicle Stuck In Traffic Jam

Submitted under the Karnataka State Council for Science and Technology's Student Project Program

BACHELOR OF ENGINEERING PROJECT

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Abstract

A key issue facing localities in the country is the challenge that rapid growth in populated areas places on the fire/rescue and EMS community. Constrained by tight budgets, officials must make decisions on how to provide appropriate levels of service while at the same time coping with increasing demand for services and increasing congestion levels.

Emergency vehicles (EVs) operating in higher congestion levels are at higher risk for involvement in crashes and are subject to unpredictable delays in reaching the scene of a fire or crash. One means to offset the effects of congestion is the installation of emergency vehicle preemption (EVP) equipment at signalized intersections. This ITS technology provides a special green interval to the EV approach while providing a special red interval on conflicting approaches.

The concept of EVP and the potential benefit of preemption control to support emergency response are nearly as old as the traffic signal itself. In 1929, the American Engineering Council published Street Traffic Signs, Signals, and Markings, which included a subsection Emergency Control in the section on Street Traffic Signals: "In any coordinated system supplemental arrangements may be provided for breaking the system into small units for emergency operation, such as runs of fire apparatus."

Over the years, various concepts have been developed to provide the emergency control described in the 1929 document. Several systems were deployed that created a pre-programmed "green wave," providing a progressive green display for the EVs based on the station of dispatch, the response location, and the use of pre-determined emergency response routes.

Our prototype aims to provide the automatic detection of emergency vehicles and hence provide automatic prevention of the emergency vehicles as well.