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Smart Traffic Management using Deep Learning

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Abstract: *In many major cities throughout the world, traffic congestion is a serious issue that has turned commuting into a nightmare. The traditional traffic signal system is built around a set time concept that is assigned to either side of the junction and cannot be changed to account for changes in traffic density. The designated junction times are set. When compared to the regular allocated time, extended green times are occasionally necessary due to higher traffic density on one side of the intersection. The algorithms and techniques that we are using in the system are OpenCV, Keras, Video Processing, Image Processing and CNN. To determine the number of vehicles present in the region, a contour has been produced based on the object detection in the traffic signal that has been analysed and translated into a simulator. After determining the number of vehicles, we can determine which side has a high density and according to density we will assign signal priority. Our system represents a significant step towards smarter and more effective traffic management.*

Keywords: Deep Learning, Image Processing, Feature Extraction, Segmentation, Convolutional Neural Network (CNN)

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