**TRAFFIC CONTROL SYSTEM BY COUNTING VEHICLES**

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**abstract:**

*A smart city's traffic management system is regarded as one of its primary components. Traffic jams are a common sight on the roadways in metropolitan areas due to the rapid increase in population and urban mobility. In order to address road traffic management issues and assist authorities with appropriate planning, an intelligent traffic management system utilizing the Yolo algorithm and Open CV approach is proposed in this project. A workable model for counting automobiles in traffic was developed using image processing as the basis. image processing methods classified and tallied moving vehicles in traffic scene video streams captured by stationary cameras. The following is the detection and tracking methodology. The adaptive background subtraction technique is initially used to separate the moving vehicles from the traffic scene. Using videos to isolated picture blobs are recognized as individual vehicles once the background is subtracted. Following blob identification, vehicles in a certain area are counted and classified. A count of vehicles was observed with an accuracy of ideal camera calibration. To support the goal, data is gathered from video footage of vehicles traveling toward and away from the camera in order to count and use signal switching. The created system's results demonstrate that, with more enhancements, it applicable to count and categorize vehicles in real-time. After that, an optimization framework makes use of these predictions to dynamically modify signal timings in response to shifting traffic conditions. The optimization method seeks to increase overall traffic flow efficiency, decrease delays, and shorten travel times. To sum up, utilizing real-time traffic data to optimize signal control presents a viable approach to improving urban traffic management. This method makes use yolo techniques to facilitate the creation of flexible and effective traffic control, which in turn helps to create more sustainable and seamless urban transportation networks.*

KEYWORDS: Image classification, Video tracking, Information analysis.