A Review Paper on Traffic Surveillance – An Integrated Approach for Helmet and Number Plate Detection

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Abstract: *The integrated approach for helmet and number plate detection aims to enhance traffic surveillance systems by automating the identification of two key safety elements: helmet usage by motorcyclists and vehicle identification through number plates. This system leverages advanced computer vision, machine learning, and optical character recognition (OCR) techniques to detect helmet compliance and capture number plates in real-time, even in challenging conditions. By combining these functionalities into one cohesive platform, the system reduces the need for manual traffic monitoring, increases the accuracy of traffic law enforcement, and improves road safety. The approach is designed to be scalable and adaptable, supporting broader smart city infrastructure by providing real-time data for traffic management. Ultimately, this project contributes to more efficient traffic regulation, enhances compliance with safety laws, and promotes safer roads through automated surveillance.*

Keywords: Helmet detection, Vehicle number plate recognition, Machine learning, Real-time video analysis, Convolutional neural networks, Optical character recognition, Traffic law enforcement, Road safety, Smart city management;