

Pothole Detection With Red Light Violation using Deep Learning

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Abstract: *Pothole detection with red light violation using deep learning is a project aimed at developing a system that can automatically detect potholes and red light violations using deep learning techniques. Potholes and red-light violations are major causes of accidents and fatalities on roads, and early detection and prevention of these can significantly reduce the number of accidents. The proposed system uses deep learning techniques to detect potholes and red-light violations from video footage captured by CCTV cameras installed at traffic junctions. The system first employs object detection algorithms to identify vehicles in the video footage. The system then uses semantic segmentation algorithms to identify the road surface and the presence of potholes. The system can also detect the color of the traffic light and identify instances where vehicles violate the red light. The deep learning model is trained on a large dataset of video footage containing instances of potholes and red-light violations. The system can learn to accurately detect these instances by comparing the captured video footage with the training dataset. The proposed system has the potential to revolutionize road safety by providing real-time detection and prevention of potholes and red-light violations. The system can be integrated with existing traffic management systems to provide early alerts to the authorities about potential safety hazards on roads. The system can also be used to monitor the performance of road maintenance and repair activities..*

Keywords: Machine learning, Deep learning, Neural Network, RCNN, FRCNN, YOLOV8

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