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Deep Learning - Based Approach to Real- Time Driver Depression Monitoring for Accident Prevention

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Abstract: *Driver distraction and drowsiness are significant contributors to road accidents, resulting in substantial loss of life, injuries, and economic costs. This project presents a robust and real-time driver monitoring system designed to detect distractions caused by cellphone usage and food consumption, as well as monitor drowsiness. The proposed system employs a multi-stage approach, integrating the Grassmann algorithm for accurate face detection and landmark identification with YOLO (You Only Look Once) for object detection. The Grassmann algorithm ensures precise localization and tracking of the driver's face and key facial features, while YOLO detects distractions and monitors eye states in real-time. The system generates timely visual, auditory, or haptic alerts to inform the driver of potential hazards, thereby enhancing overall driver safety. This innovative approach addresses the limitations of existing systems, offering enhanced accuracy, adaptability to diverse conditions, and real-time processing capabilities. The implementation of this system aims to reduce the risk of accidents and improve road safety.*

Keywords: Driver distraction

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