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Drivers Drowsiness and Pedestrian Crosswalk Detection

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Abstract: *Road safety is a major concern around the world, especially when it comes to accidents caused by tired drivers and people crossing the road. This project focuses on solving both problems by creating a real-time system that can detect when a driver is feeling drowsy and when pedestrians are near a crosswalk.The first part of the system watches the driver's face using a camera. It uses AI and computer vision tools like CNNs and OpenCV to track features like eye movement and yawning. If the system notices that the driver's eyes are closing for too long or they're yawning a lot—common signs of sleepiness—it will send out a sound or visual alert to wake them up or suggest taking a break.*
The second part of the system helps keep pedestrians safe. It uses a powerful detection model called YOLO to recognize crosswalks and people near the road in real time. This helps the driver stay aware of their surroundings, especially in busy city areas where people often cross the street. If someone is detected near a crosswalk, the system alerts the driver immediately to help avoid accidents.This system is built using Python and deep learning tools like TensorFlow, PyTorch, and Keras. The development process involved collecting and preparing data, training models, and fine-tuning them to work well in different situations.Overall, this project aims to make driving safer by reducing the risk of accidents caused by drowsy driving or pedestrian collisions

Keywords: Machine Learning, Deep Learning, Convolutional Neural Network, YOLO V8, PyTorch.

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