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(57) Abstract :
Driving under the influence of alcohol poses significant risks to public safety, necessitating innovative solutions to mitigate this issue. This paper presents "Detect DUI," an intelligent in-car detection system designed to identify signs of impaired driving and measure Blood Alcohol Content (BAC) levels in real-time. The system integrates advanced sensors, machine learning algorithms, and user-friendly interfaces to assess driver behavior and physiological indicators of intoxication. Through continuous monitoring, the system analyzes driving patterns, including acceleration, braking, and steering control, while simultaneously employing non-invasive biometrics to estimate BAC levels. In the event of detected impairment, the system alerts the driver, disables the vehicle's ignition, and can communicate with emergency services if necessary. Preliminary tests indicate a high accuracy in detecting impairment, significantly enhancing road safety by preventing potentially hazardous situations. The implications of such a system extend beyond individual safety, potentially reducing the incidence of traffic accidents and promoting responsible alcohol consumption.

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