

# Leveraging Blockchain to Enhance the Efficiency and Data Integrity of Systems Monitoring Drivers' Sobriety

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Driving under the influence (DUI) is one of the main factors that contribute to accidents and fatalities, when it comes to road safety. This paper addresses the limitations of traditional road monitoring techniques and presents a real-time, non-invasive monitoring system, designed to prevent DUI incidents. The system integrates advanced sensor technology with a modular sensor battery and data collection platform to collect and analyze data, including geolocation and blood alcohol concentration levels. The main focus is on ensuring that data within the system cannot be tampered with, which is achieved by leveraging blockchain technology, specifically through the use of smart contracts. A multi-level notification system is proposed to accelerate incident reporting, along with an API for third-party access to sobriety records. To demonstrate the potential of the system, a large scale implementation is discussed, the case study being public transportation monitoring in Iasi, Romania. Current implementation stages and potential improvements are explored to optimize the system for widespread deployment.

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