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(57) Abstract :

The system (102) in the present disclosure is designed to detect abnormal signals exhibited by vehicles (118) in real-time using artificial intelligence (AI) techniques. The proposed system (102) leverages a combination of data from sensors, such as cameras, radar, lidar, GPS, and vehicle (118) diagnostics, to accurately analyse and classify vehicle (118) signals. The system's mechanism starts with data collection, where diverse sensors gather information about vehicle (118) dynamics, speed, position, and other relevant parameters. The raw data undergoes preprocessing, including filtering and data fusion, to ensure its accuracy and suitability for subsequent analysis. Feature extraction techniques are then applied to represent the vehicles' (118) behavior efficiently, capturing patterns such as acceleration, braking patterns, and steering angles. To facilitate the detection process, a supervised machine learning model is trained on a carefully labeled dataset, differentiating between normal and abnormal vehicle (118) signals. Leveraging this trained model, the real-time analysis component constantly monitors incoming data, instantly identifying any deviations from expected behavior. Whenever an anomaly is detected, the system (102) generates alerts or notifications, prompting appropriate actions by traffic management centers, law enforcement, or vehicle (118) owners.

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