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(57) Abstract :

The invention discloses a computer-based tool (101) for predictive traffic accident prevention that integrates a data acquisition unit (102), a machine learning engine (103), an alert generation module (104), a communication interface (105), an adaptive response system (106), and a cloud-supported analytics platform (107). By collecting multi-source traffic and environmental data, the system predicts accident likelihood in real time and initiates preventive actions through driver alerts, adaptive traffic control, and emergency notifications. This integrated solution enhances roadway safety and reduces accident risks across urban and highway environments.

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