

Rollover Prediction and Alert for All-Terrain Vehicle

Tech ID: 33864 / UC Case 2022-536-0

ABSTRACT

Researchers at the University of California Davis have developed a system designed to predict and prevent ATV rollovers, enhancing rider safety.

FULL DESCRIPTION

This technology encompasses an advanced prediction system for all-terrain vehicles (ATVs) aimed at preventing rollovers. It integrates an inertial measurement unit (IMU), local processing units, and a neural network model to analyze vehicle dynamics in real-time and predict rollover risks, issuing alerts to riders and potentially saving lives by preventing accidents.

APPLICATIONS

- ▶ ATV manufacturing and safety enhancements.
- ▶ Emergency response systems for rural and off-road environments.
- ▶ Vehicle safety research and development.
- ▶ Insurance industry, for risk assessment and policy adjustments.
- ▶ Recreational and agricultural ATV use.

FEATURES/BENEFITS

- ▶ Real-time rollover risk prediction enhances rider safety.
- ▶ Onboard circuitry and mobile application integration for comprehensive vehicle monitoring.
- ▶ Neural network model optimized for ATVs, considering unique dynamics and rider behavior.
- ▶ Works in areas without cellular service, crucial for rural and off-road environments.
- ▶ Supports emergency response by aiding in the location and rescue of injured riders.
- ▶ Prevents high risk of rollovers due to ATVs' narrow wheelbase and high center of gravity.
- ▶ Reduces difficulty in crash detection and prevention specific to ATV dynamics.
- ▶ Provides effective emergency response mechanisms for off-road accidents.
- ▶ Reduces communication errors and limitations of conventional crash prediction models.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

all-terrain vehicle, ATV
safety, crash prediction,
emergency response,
inertial measurement
unit, neural network, off-
road safety, rollover
prevention, vehicle
dynamics, wireless alert
system

CATEGORIZED AS

- ▶ **Engineering**
 - ▶ Engineering
 - ▶ Robotics and Automation
- ▶ **Sensors & Instrumentation**

- ▶ Analytical
- ▶ Environmental
- Sensors
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- ▶ Other
- ▶ Personal

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2022-536-0

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