GIZO SOFTWARE: HOW IT WORKS

Automated Driving Events Detection

The GIZO software features automated driving event detection and trip recording, utilizing a combination of activity detection and geo-fencing. These technologies work together to automatically recognize when a driving trip begins and ends, ensuring accurate and seamless trip logging without the need for manual input.

Trip Validation

For recorded trips to be considered valid, appear in the Trip List, and be processed for driving risk assessment and collision reporting, they must meet the following three criteria:

- The trip duration must **exceed 2 minutes.**
- The trip distance must be **greater than 300 meters.**
- The maximum speed must **surpass 25 km/h.**

Driving Risk Assessment

The GIZO software assesses and quantifies driving risk on a scale of 0 to 100, with the following risk levels:

- **Above 90:** Excellent
- **80 – 89:** Good
- **71 – 79:** Risky
- **Below 70:** High Risk

The driving risk is assessed based on three key factors:

- **Driving Behavior: 69**% of the total score, evaluating elements including speeding, harsh braking, aggressive acceleration and harsh cornering.
- **Focus:** 16% of the total score, specifically evaluating phone usage while driving to determine how much attention is diverted from the road.

- **Vehicle Usage:** 15% of the total score, considering factors such as trip duration and nighttime driving.

Risk Factors

Speeding

This factor measures the percentage of the trip during which the driving speed exceeds the legal speed limit. The risk is evaluated based on the road type (urban or highway), the percentage of the total trip distance that involves speeding, and the severity of the speeding.

Harsh Brake

This factor measures harsh braking events during the trip, defined as any instance where the vehicle's linear deceleration exceeds 3 m/s^2, indicating sudden and aggressive braking. The driving risk is assessed based on the frequency of these events, with a higher number of harsh brake incidents contributing to a lower driving score.

Harsh Acceleration

This factor measures harsh acceleration events during the trip, defined as any instance where the vehicle's linear deceleration exceeds 3 m/s^2, indicating rapid and forceful acceleration. The driving risk is assessed based on the frequency of these events, with a higher number of harsh acceleration incidents contributing to a lower driving score.

Harsh Cornering/Maneuver

This factor measures harsh cornering events during the trip, defined as any instance where the vehicle's angular acceleration exceeds 3.6 m/s^2, indicating sharp or aggressive turns. The driving risk is assessed based on the frequency of these events, with a higher number of harsh cornering incidents contributing to a lower driving score.

Phone Usage

This factor monitors phone interactions while driving, such as texting and handheld calling. Phone interactions are detected using a machine-learning-based hand motion classifier in combination with the phone's lock status. The risk is evaluated based on the frequency of these phone interaction events during the trip, with a higher number of phone usage incidents contributing to a lower driving score

Nighttime Driving

This factor measures the trip duration that occurs between midnight and 6 AM the following day. The risk is evaluated based on trips that exceed 30 minutes during this time frame. Longer trips within this period contribute to a lower driving score.

Rush-hour Driving

This factor measures trips that occur during rush hours, specifically between 7–9 AM and 5–7 PM. The risk is evaluated based on the total duration of trips exceeding 30 minutes during these peak times. A higher frequency of trips within these periods contributes to a lower driving score.

Weekend Driving

This factor measures trips that occur during weekends. The risk is evaluated based on the total duration of trips that exceed 30 minutes on weekends. A higher frequency of longer trips during this period contributes to a lower driving score.

Trip Distance

This factor measures the non-stop trip distance, which can indicate the driver's fatigue level. The risk is evaluated based on the trip that exceeds 200 kilometers in distance. Longer trips contribute to lower driving scores.

The GIZO software includes automated vehicle crash detection and reporting. The app detects crash incidents by analyzing changes in measured speed, acceleration, and angular velocity at the moment of impact. The severity of the crash is categorized

based on the magnitude of the impact of force: a force of less than 10 G indicates a minor crash, while a force greater than 10 G signifies a severe crash.

Note: This feature is activated only when the vehicle speed is above 30 km/h prior to the crash