Honda's Human Factor Research Toward Zero Traffic Accident Fatalities

State Estimation Technology Aimed at Reducing Accidents in North America

Aiming to estimate the alcohol-impaired state and the emotional state leading to aggressive behavior, then mitigate risk through intervention technology to reduce accident fatalities from risky driving.

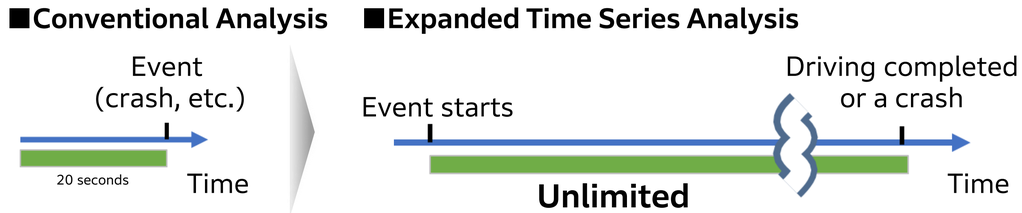
Technology Details

- The analysis interval for the naturalistic driving study(NDS) data set is expanded, and the time series features are identified in detail.
- Driver features such as facial expressions and body movements are detected by the driving monitoring camera.
- Estimation models are constructed that include features in the driving simulator, in addition to NDS.
- Techniques are developed to enable appropriate intervention based on the situation.

Technology Characteristics

- Unique analysis of the world's largest NDS (SHRP2)
- Models with a high estimation accuracy are developed based on driver features extracted in the real world.
- Appropriate intervention is created based on the situation.

NDS Unique Analysis



Provides a deeper understanding of real-world driving features through analysis of driver condition time-series changes, which conventional methods fail to capture.

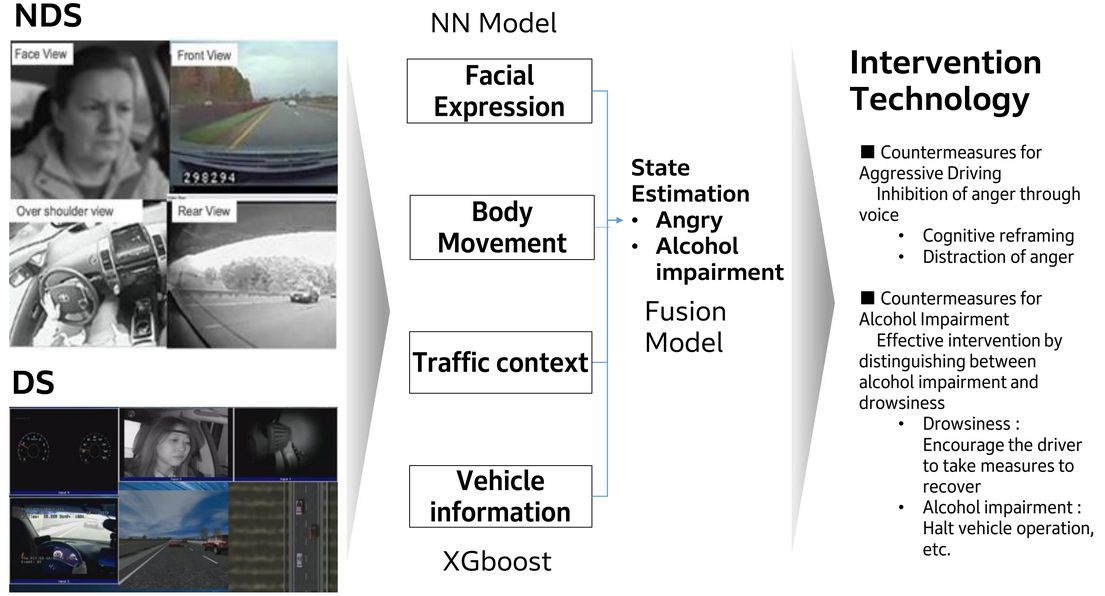
Facial Expressions/ Body Movements

Facial Expressions	Eyebrow movement Eye movement Blinking Mouth movement ・ ・
Body Movements	Hand position and movement Gestures when removing hands from the steering wheel Body movements ・ ・

Driving Behavior

Related to judgment errors	Driving by weaving through lanes Short distance between vehicles Illegal passing Speeding violation ・ ・
Related to operation errors	Sudden braking Overlooking signs Inappropriate turn ・ ・

Estimation/Intervention Technology



Addressing driver-caused risks will contribute to reducing accident fatalities due to risky driving in North America.

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