Driver fatigue and drowsiness detecting steering wheel cover for carriers 自動車運送業者向け疲労・眠気検知 ステアリングカバー

Aim The steering wheel cover, for carriers and smart roll call system distributors, detects a professional driver's fatigue state to help reduce the number of car accidents caused by overdriving.*

*Tokai Rika is planning to obtain approval for this detection device from the Ministry of Land, Infrastructure, Transport and Tourism.

Outline While being held by both hands, the electrode-embedded steering wheel cover detects the driver's electrocardiogram signals and heart rate and calculates the fatigue and drowsiness levels. If the fatigue or drowsiness is high, the system informs the driver and the administrator.



Technology

- AI denoising technology removes vibration of a running car and enables the measurement of an electrocardiogram.
- Fatigue and drowsiness levels are judged by machine learning based on a heart rate variability index extracted from the electrocardiogram.

Fatigue and drowsiness levels are determined



Product configuration

Steering wheel cover



• ECU Module



Diameter of applicable wheel	φ450mm
Material	PU leather/genuine leather
Electrode	Silver plating Nylon
Wireless communication standards	Bluetooth 5.0
Battery	nickel-metal hydride
Battery duration	45 hours* (For5days, 9hours each day)
Operating temperature range	-30℃~80℃
ECU dimensions	L 90×W 40×H 20mm
Deference: Standard for improving work hours and other conditions of occupational drivers (Ministry of Health, Labour and V	

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• App



Electrocardiographic waveform measured	
Heart rate	
Fatigue level	
Drowsiness level	
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An alert is sent to an administrator through SNS when a fatigue or drowsiness level is high or at the beginning and end of work.

For ECG machine suppliers:

A fatigue and drowsiness detecting algorithm (smart watches, portable ECG machines)

- For businesses considering the use of ECG data for watch-over systems in vehicles for the elderly
- For businesses collecting drivers' ECG data while