

TREK-152

Intelligent Driver Behavior Recognition Module



Features

- Mask-wearing detection
- Fatigue detection - drowsiness, yawning
- Distraction detection - smoking, food consumption, cellphone usage, attention tracking (head turns more than 30° left or right)
- Infrared LED complies with the IEC 62471 standard for eye safety in low-light environments
- Drivers wearing coated glasses and ambient light reflection does not impact performance

Introduction

TREK-152 is an intelligent driver behavior recognition camera module that can be integrated with in-vehicle computers for video recording, streaming, and analysis. Built with AI technologies and deep learning algorithms for precise recognition, TREK-152 is designed for driver behavior monitoring - specifically drowsiness, distraction, and mask-wearing detection. To ensure flexible deployment in a wide variety of vehicles, the camera supports an effective detection range of 60 ~ 120 cm/23.6 ~ 47.2 inch. When undesirable behavior is detected, the module issues an alarm notification via an RS-232 event. By providing real-time behavior detection and driver warning alerts, TREK-152 enables intelligent driver behavior management for increased road safety.

Specifications

Intelligent Video Analysis*	Mask Wearing Detection	Whether the driver is wearing a face mask
	Driver Fatigue Detection	Alerts for <ul style="list-style-type: none"> ▪ Drowsiness (eyes closed longer than threshold time) ▪ Yawning Mask wearing does not impact detection performance.
	Distraction Detection	Alerts for <ul style="list-style-type: none"> ▪ Lack of attention (gaze moves/head turns more than 30° left or right) ▪ Cellphone use ▪ Eating/smoking ▪ Driver absence
	Detection Conditions	<ul style="list-style-type: none"> ▪ Distance between driver's face and camera lens: 60 ~ 120 cm/23.6 ~ 47.2 inch ▪ Anti-glare IR LED ▪ Suitable for low-light environments, reflected ambient light, and drivers wearing coated glasses
Electrical Interface	Camera Sensor	CMOS type, monochrome, global shutter, active pixel array 1280H x 800V, 1.0 MP, 45° FoV (horizontal)
	I/O	1 x 2-wire RS-232, 1 x video out (RCA, male), 1 x VCC/ACC/GND
	Power Input	12/24 V vehicle power (10 ~ 36 VDC and ISO-7637-II compliant)
Environmental	Power Consumption	8.4 W (typical), including with camera module and ECU box
	Operating Temperature	-30 ~ 85 °C/-22 ~ 185 °F
	Storage Temperature	-40 ~ 85 °C/-40 ~ 185 °F
	Shock/Vibration	EN60721 (5M3)
Certification	EMC	CE, FCC, Emark, VSCC, BSMI (The last three are in certification process and will be determined in August)
Mechanical	Dimensions (W x H x D)	ECU box: 200.5 x 31 x 86.5 mm/7.89 x 1.22 x 3.4 in Camera module (w/o mount): 102 x 22 x 38 mm/4 x 0.86 x 1.49 in Camera bracket: 110 mm/4.33 in (H), 80 x 60 mount holes
	Weight	ECU box: 440 g/0.97 lb Camera module (with mount): 294 g/0.64 lb

* Detection accuracy may be affected by certain factors (e.g., lens obstruction) and/or environmental conditions.



Camera module



ECU box

Ordering Information

Part Number	Description
TREK-152-D001A0E	AI driver behavior recognition module with NTSC video output and RS-232 event logging

Disclaimer

1. Environmental conditions or obstructions of the camera lens may block event triggers.
2. The presence of dirt or moisture on the camera lens can affect recognition accuracy.
3. TREK-152 only monitors driver behavior and emits alarm notifications if any preconfigured behaviors are detected. It does not replace any functions drivers would ordinarily perform when driving, nor does it eliminate the need to remain vigilant and alert at all times, to conform to safe driving practices, and to obey traffic regulations.