CIPIA

DRIVER AND CABIN MONITORING POWERED BY COMPUTER VISION AI
FOR SAFER AND SMARTER CARS

Cipia is a leader in computer vision AI, focusing on in-cabin sensing solutions for the automotive industry. Our mission is to make all vehicles safer and smarter through better understanding of the driver and occupants.

In order to reach all vehicles, Cipia offers the best and most cost-effective solutions, from entry level driver monitoring for regulatory compliance, to advanced and comprehensive features optimized for lean hardware requirements.

Cipia's DMS is already in serial production by several OEMs, and is saving lives on roads around the world.
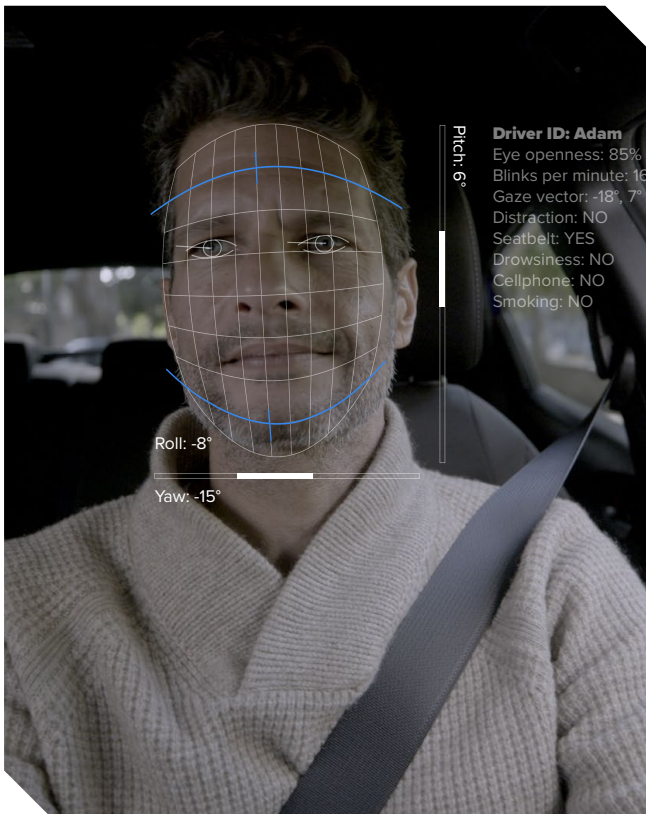
OUR SENSING SOLUTIONS

Cipia offers OEMs and Tier 1s two main in-cabin sensing solutions:
Driver Sense - driver monitoring system (DMS), and **Cabin Sense** – occupancy and interior monitoring system (OMS).

DRIVER SENSE

Driver ID: Adam
Eye openness: 85%
Blinks per minute: 16
Gaze vector: -18°, 7°
Distraction: NO
Seatbelt: YES
Drowsiness: NO
Cellphone: NO
Smoking: NO

Pitch: 6°
Roll: -8°
Yaw: -15°

Standalone DMS

Driver Sense is available on the OmniVision OAX8000 – a cost-effective DMS ASIC, which is small enough to fit within the camera enclosure.

The OAX8000 with Cipia's software is the ideal solution for a standalone vision-based DMS for mass market GSR compliance.

DMS + ADAS

DMS is not only a natural part of ADAS, but a critical component when it comes to intervention of the vehicle in case of impaired driving, as rewarded by Euro NCAP's upcoming protocol. Cipia partnered with the industry's ADAS leader Mobileye to offer Driver Sense pre-integrated on the ASIL B rated EyeQ family of SoCs.
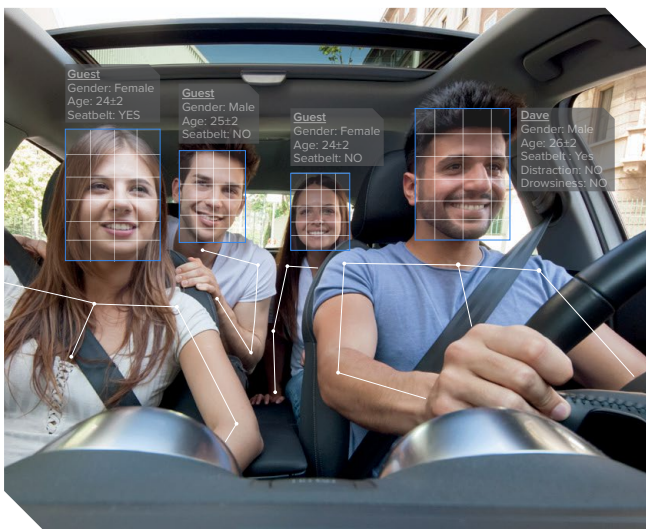
Flexible integration

Driver Sense lean hardware requirements facilitate flexible integration on a variety of platforms, such as Ambarella, NXP, TI, Renesas and others. In addition, Driver Sense supports IVI integration (e.g., Qualcomm) sharing resources and reducing overall system cost.

Advanced DMS

Beyond regulatory and safety standard compliance, Cipia offers additional capabilities such as driver recognition, detection of dangerous actions and gaze-based advanced HMI, allowing our customers to offer added value and differentiation.

CABIN SENSE

Guest
Gender: Female
Age: 24±2
Seatbelt: YES

Guest
Gender: Male
Age: 25±2
Seatbelt: NO

Guest
Gender: Female
Age: 24±2
Seatbelt: NO

Dave
Gender: Male
Age: 26±2
Seatbelt : Yes
Distraction: NO
Drowsiness: NO

Safety

From seat occupancy and posture, through seatbelt detection to child reminder alert, Cabin Sense facilitates passenger safety throughout the cabin.

Experience

Cabin Sense enables a new level of personalization, translating occupancy and face recognition to climate, volume and other individual preferences.

ADVANCED ALGORITHMS TRANSLATE VISION TO MEANING

Cipia's advanced computer vision AI feeds human factors algorithms, translating visual cues such as head pose, eye gaze and eye openness into physiological measures as distraction and drowsiness. The system relies on infrared video in order to work under all lighting conditions.

Computer Vision	Human Factors	Use Cases
Face tracking	**DISTRACTION** A proprietary distraction algorithm analyzes the areas of interest the driver is looking at, and their applicability to the driving task.	**Safety Standards and Regulations**
Head position		
Head pose	**DROWSINESS** Detection of drowsiness, micro sleep and sleep enables both warning and intervention through passive and active safety systems.	
Eye gaze		
Eyelids	**SYSTEM SELF-MONITORING** Camera movement is compensated through real time auto-calibration, while video quality is constantly monitored for potential hardware malfunctions.	
Mouth openness		
Camera movement	**AREAS OF INTEREST** The area of interest the driver is visually focused on is a powerful indicator for the driver's intent, enabling advanced interactions and interfaces.	**Personalization and Advanced Interaction**
Video quality		
Face recognition	**IDENTITY** In addition to the safety features, user identification facilitates advanced personalization options for convenience and comfort.	
Seatbelt		
Smoking	**ACTIONS** Intended for distraction detection and compliance management, the system detects actions such as smoking, using a phone and wearing a seatbelt.	**Regulatory and Policy Compliance**
Phone		
Occupancy	**OCCUPANCY MONITORING** Seat occupancy and posture, coupled with seatbelt detection, serve for seat belt reminder, and are accompanied by child presence detection.	**Safety Standards and Regulation**
Child reminder		

OUR BENEFITS

Lean edge processing - The embedded nature of Cipia's computer vision AI entails optimization for lean processing requirements, as well as the flexibility to integrate the solution in various environments from basic ARM CPU based systems to advanced NPUs. The result is overall lower total system cost.

In production globally – Having reached start of production in both Western and Asian markets - Cipia delivers mature and robust driver safety monitoring capabilities across audiences and ethnicities.

Partner and customer focused – Through a host of professional services, we accompany our customers throughout the process, with hardware design and integration, camera location analysis, porting to a variety of hardware platforms and accelerators and in-vehicle validation. Our mission is to ensure you have the best solution for your needs.

Ecosystem and experience – Over a decade of research and development stand behind Cipia's market-leading computer vision AI technology. Our customers and partners include leading Tier 1 providers, OEMs, TSPs, chipset companies and automotive camera makers. We have developed a strong ecosystem to support various in-cabin sensing market needs.

User privacy – Cipia's embedded sensing solutions are fully private and secure. Driver Sense and Cabin Sense analyze the video stream in real-time, without the need to store any video.

ABOUT CIPIA

Cipia is a leading provider of intelligent sensing solutions that use edge-based computer vision and AI for safer and better mobility experiences. The company's product lineup includes: Driver Sense - driver monitoring system, Cabin Sense - occupancy monitoring systems and Cipia-FS10, a video telematics and a driver monitoring solutions for telematics service providers and fleets. Over a decade of research and development stand behind the company's proprietary market-leading computer vision technology which has been selected by OEMs globally and serves vehicles on the roads today. Cipia is constantly pushing the boundaries of what intelligent sensing solutions can see and accomplish, for better and safer mobility.

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