

## Product photos and overview



### DMS—Adopt

1. Vehicle-specific FPGA platform
2. Deep learning algorithm
3. Extensive driving monitoring functions can be developed
4. Various functions such as fatigue warning, distraction detection, bad behavior detection, face recognition, etc. can be realized.
5. Can be integrated with ADAS (front vehicle collision avoidance, lane deviation system)

|                       |                      |                 |
|-----------------------|----------------------|-----------------|
| Hardware Parameters   | Processor            | xilinx zynq7020 |
|                       | DDR                  | 1G Byte DDR3    |
|                       | FLASH                | 256M Byte Nand  |
|                       | Network              | Ethernet        |
|                       | Speaker              | Support         |
|                       | TF Card              | Support         |
|                       | Rated Voltage        | 9~36V DC        |
|                       | Rated Power          | 5W              |
| Get Driving Status    | CAN Input            | Support         |
|                       | Signal line Input    | Support         |
| Data Output Interface | CAN                  | Support         |
|                       | Ethernet             | Support         |
|                       | Serial Communication | RS232 Optional  |

|                          |                         |                 |
|--------------------------|-------------------------|-----------------|
| Camera Module            | Resolution              | 480/720P        |
|                          | focal Length            | 0.5m~1.2m       |
|                          | Angle                   | H: 45° · V: 30° |
|                          | Frame Rate              | 30fps           |
|                          | Infrared LED Light      | 850/940nm       |
| Structural Parameters    | Dimension               | 152x94x32mm     |
|                          | Camera Adjustable Angle | -45°~+45°       |
|                          | Shell Material          | Aluminum Alloy  |
|                          | Camera Dimensions       | 115.8x82.5x40   |
|                          | Material                | Aluminum Alloy  |
| Environmental Parameters | Operating Temperature   | -40~85°C        |
|                          | Working Humidity        | 10~90%RH        |



## LED light safety

- The infrared filter can effectively filter the ambient light and can obtain clear images stably in a variety of complex environments. The infrared light source has passed the certification of the IEC 62471 standard and meets the requirements of biological safety standards.

## Strong connection interface

- FPGA platform can quickly match a variety of connection interfaces, and can quickly convert CAN, signal lines, serial communication and other interfaces, suitable for different models

## Simple installation and calibration

- Separate installation, suitable for a variety of vehicle structures, the controller can be hidden and installed, and the camera can be installed on the A-pillar, facing the driver

## Good performance and low false alarm rate in various environments

- A deep learning neural network with strong stability in face recognition, feature point detection and open eye detection

P.2



## Environment and lighting, large angle and large posture and partial occlusion

**Facial occlusion**



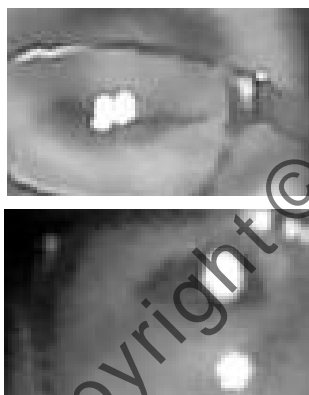
**Influence of light**



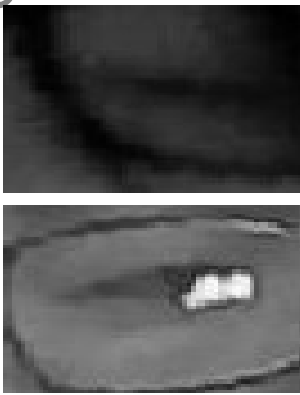
**Large angle of face**



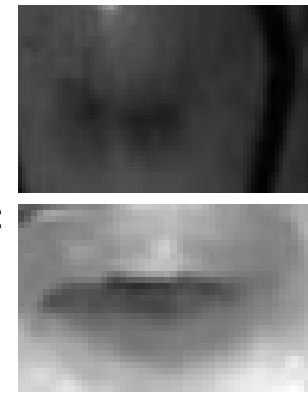
**Lens reflection**



**Dark frame**



**Low contrast**





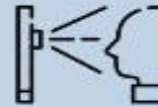
## Fatigue Driving

- Closed eyes detection
- Head posture detection
- Yawn detection



## Bad Behavior

- Smoking detection
- Call detection
- Detection of both hands leaving the steering wheel
- Person leaving detection
- Not wearing a seat belt detection



## Face Recognition Fleet Management

- Identification/Recording
- Identify login
- Driving identity verification
- Driving replacement reminder



## Eye Tracking

- Head tilt angle tracking
- Gaze tracking



## Detect Target

- People, cars, obstacles

## Road Marking

- Lane markings, zebra crossings, drivable areas

## LDW

- Lane deviation warning

## FCW

- Front vehicle collision warning

## PCW

- Pedestrian collision warning

## HMW

- Vehicle approaching warning

## Stop-Go

- Notification of departure delay