

# ESP32-S3 AI Camera Module

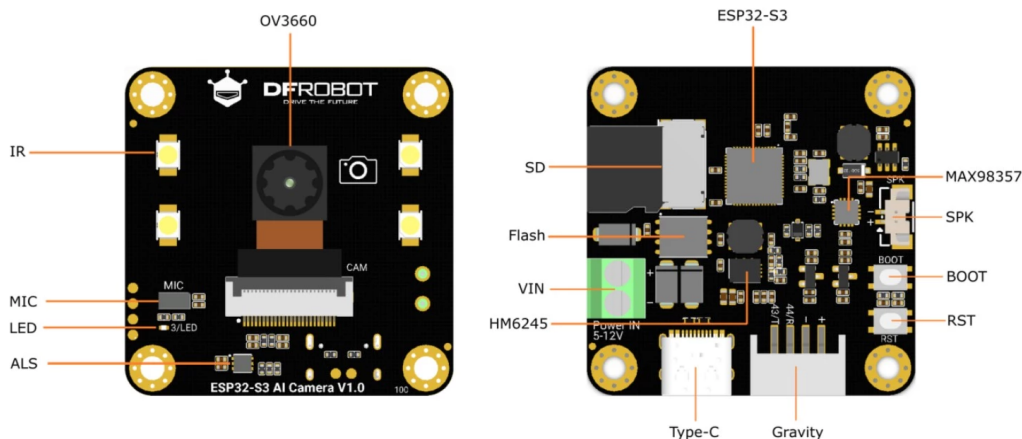


## Features:

The ESP32-S3 AI Camera Module is an intelligent vision and voice interaction platform based on the ESP32-S3 chip, supporting edge image recognition using Edge Impulse, YOLO, and OpenCV, as well as online AI interaction through ChatGPT. It integrates a 160 degree wide-angle infrared camera, infrared illumination, onboard microphone, speaker interface, ambient light sensor, and wireless connectivity via WiFi and BLE 5, making it suitable for electronic peepholes, baby monitoring, license plate recognition, AI robots, and smart wearable devices.

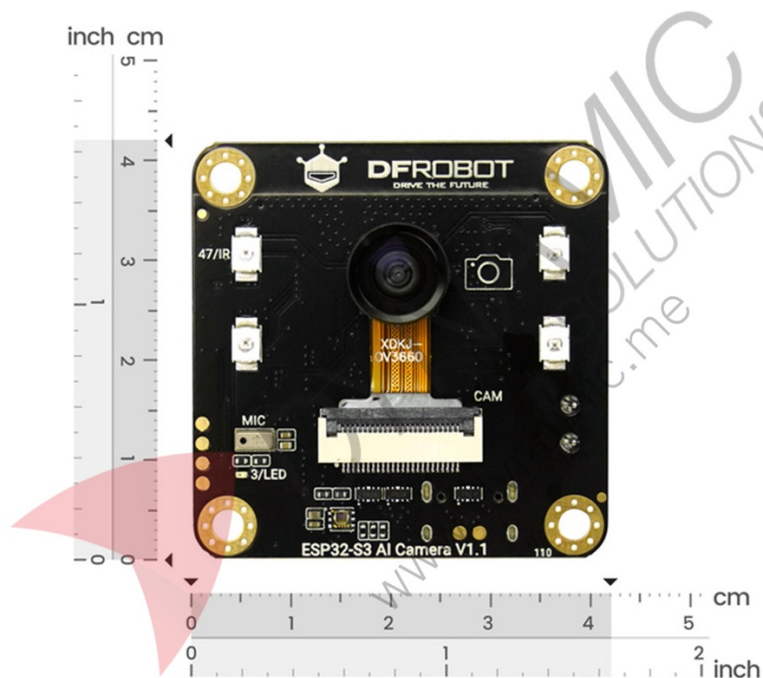
| Specifications        |  |
|-----------------------|--|
| MCU                   | ESP32-S3R8   |
| Operating Voltage     | 3.3V   |
| Type-C Input Voltage  | 5V DC  |
| VIN Input Voltage     | 3.7 to 15V DC  |
| Operating Temperature | -10 to 60 C  |
| Module Size           | 42 x 42 mm   |
| Wireless Connectivity | WiFi and BLE 5   |
| Camera Sensor         | OV3660   |
| Camera Resolution     | 2 Megapixels   |
| Field of View         | 160 degrees  |
| Infrared Support      | 940nm infrared   |
| Flash Memory          | 16MB   |
| SD Card Slot          | Supported  |
| Usage                 | Electronic peepholes, baby monitors, license plate recognition, AI robot toys, smart glasses |

## Pinouts:



| Pin Name          | Type      | Description                           |
|-------------------|-----------|---------------------------------------|
| <b>OV3660</b>     | Camera    | 160 degree wide-angle infrared camera |
| <b>IR</b>         | Output    | Infrared illumination IO47            |
| <b>MIC</b>        | Input     | I2S PDM microphone                    |
| <b>LED</b>        | Output    | Onboard LED IO3                       |
| <b>ALS</b>        | Sensor    | LTR-308 ambient light sensor          |
| <b>ESP32-S3</b>   | MCU       | ESP32-S3R8 main controller            |
| <b>SD</b>         | Storage   | SD card slot                          |
| <b>Flash</b>      | Memory    | 16MB flash memory                     |
| <b>VIN</b>        | Power     | 3.7 to 15V DC input                   |
| <b>HM6245</b>     | Power IC  | Power management chip                 |
| <b>Type-C</b>     | Interface | USB Type-C for power and code upload  |
| <b>Gravity +</b>  | Power     | 3.3V output                           |
| <b>Gravity -</b>  | Power     | GND                                   |
| <b>Gravity 44</b> | IO        | IO44 TX                               |
| <b>Gravity 43</b> | IO        | IO43 RX                               |
| <b>RST</b>        | Button    | Reset button                          |
| <b>BOOT</b>       | Button    | BOOT button IO0                       |
| <b>SPK</b>        | Output    | MX1.25-2P speaker interface           |
| <b>MAX98357</b>   | Audio     | I2S amplifier chip                    |

### Product Dimensions:



**Product Pictures:**

