IntelliGaze: A Wearable AI Camera System

Circuit Diagram and Pinout Connections

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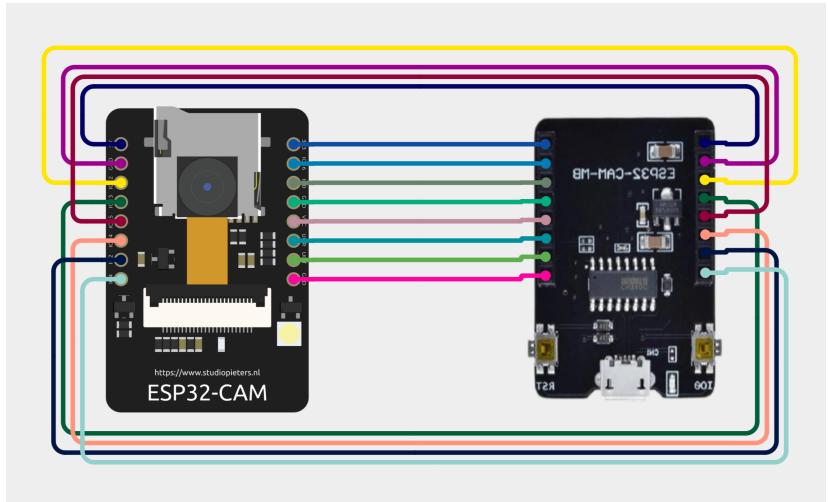# ESP32-CAM to ESP32-CAM-MB Wiring Diagram

Figure: ESP32-CAM Pinout Diagram (Image Credit: RandomNerdTutorials.com).

ESP32-CAM to ESP32-CAM-MB Pinout (1/2)

Wire Color	Voltage	ESP32-CAM Pin	ESP32-CAM-MB Pin
5V	5V	5 V	5V
GND	0 V	GND	GND
GPIO 12	3.3V	GPIO 12	GPIO 12
GPIO 13	3.3V	GPIO 13	GPIO 13
GPIO 15	3.3V	GPIO 15	GPIO 15
GPIO 14	3.3V	GPIO 14	GPIO 14
GPIO 2	3.3V	GPIO 2	GPIO 2
GPIO 4	3.3V	GPIO 4	GPIO 4

Wire Color	Voltage	ESP32-CAM Pin	ESP32-CAM-MB Pin
3.3V	3.3V	3.3V	3.3V
GPIO 16	3.3V	GPIO 16	GPIO 16
GPIO 0	3.3V	GPIO 0	GPIO 0
GND	0V	GND	GND
VCC	3.3V / 5V	VCC	VCC
UOR	3.3V	UOR (GPIO3)	UOR (GPIO3)
UOT	3.3V	UOT (GPIO1)	UOT (GPIO1)
GND	0V	GND	GND

Camera Data Pins (Y2-Y9)
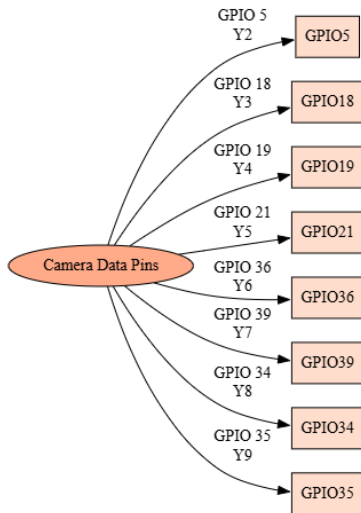

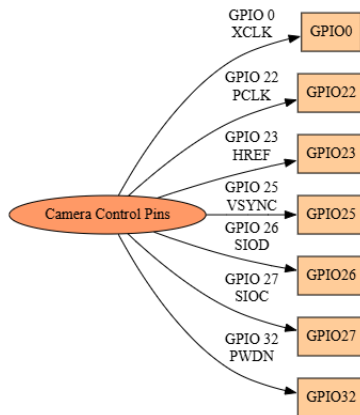Figure: GPIO pins used for camera data signals (Y2-Y9).

Figure: GPIO pins used for camera control (clock, sync, I2C, power-down).
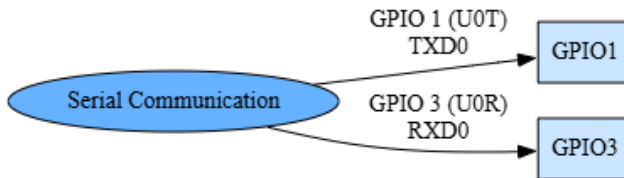
Serial Communication Pins

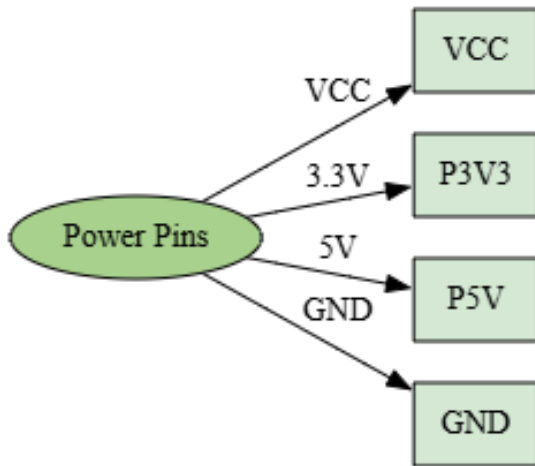Figure: GPIO pins used for UART serial communication.

Power Pins

Figure: Power supply pins used (5V, 3.3V, VCC, GND).

Unused GPIO Pins Available for Custom Use

- **GPIO 2**
- **GPIO 4** (On-board flash LED on AI_THINKER)
- **GPIO 12**
- **GPIO 13**
- **GPIO 14**
- **GPIO 15**
- **GPIO 16**