

Sensor to Raspberry Pi Connection Guide

MPU6050 to Raspberry Pi (I2C)

MPU6050 Pin Connect to Raspberry Pi GPIO Pin

| | | |
|-----|----------------|-----------|
| VCC | 3.3V (Pin 1) | Power |
| GND | GND (Pin 6) | Ground |
| SDA | GPIO 2 (Pin 3) | I2C Data |
| SCL | GPIO 3 (Pin 5) | I2C Clock |

Ultrasonic Sensor (HC-SR04) to Raspberry Pi

HC-SR04 Pin Connect to Raspberry Pi GPIO Notes

| | | |
|------|------------------|----------------------------------|
| VCC | 5V (Pin 2 or 4) | Power |
| GND | GND (Pin 6) | Ground |
| TRIG | GPIO 23 (Pin 16) | Trigger Signal |
| ECHO | GPIO 24 (Pin 18) | Via Voltage Divider (5V -> 3.3V) |

2 Servo Motors to Raspberry Pi (PWM)

Servo Pin Connect to Notes

| | | |
|-------------------|-----------------------|---------------------|
| VCC (Red) | External 5V Power | Never power from Pi |
| GND (Black/Brown) | Common Ground with Pi | Shared GND |
| Signal Servo 1 | GPIO18 (Pin 12) | PWM control |
| Signal Servo 2 | GPIO19 (Pin 35) | PWM control |

Temperature Sensor (DS18B20) to Raspberry Pi

DS18B20 Pin Connect to Raspberry Pi Notes

| | | |
|---------------------------------------|---------------|---------------------------|
| VCC (Red) | 3.3V (Pin 1) | Power |
| GND (Black) | GND (Pin 6) | Ground |
| Data (Yellow) | GPIO4 (Pin 7) | 1-Wire Data |
| 4.7kOhm Resistor Between VCC and Data | | Required pull-up resistor |

Humidity Sensor (DHT11/DHT22) to Raspberry Pi

DHT Pin Connect to Raspberry Pi Notes

| | | |
|-------------|---------------|--------------|
| VCC (Pin 1) | 3.3V (Pin 17) | Power supply |
|-------------|---------------|--------------|

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| | | |
|--------------|-----------------|---------------------------------|
| DATA (Pin 2) | GPIO17 (Pin 11) | Changed to avoid GPIO4 conflict |
| N/C (Pin 3) | Not Connected | Leave unconnected |
| GND (Pin 4) | GND (Pin 9) | Ground |