

Hardware Specifications

Module	Category	Specifications
Raspberry Pi 3B	Processor	Broadcom BCM2837 1.2GHz Cortex-A53 Quad-core
	Memory	1GB LPDDR2 SDRAM
	Storage	MicroSD 8GB
	USB 2.0	USB A Type 4 ports
	Power	Micro USB socket 5V, 2A
	Audio	3.5mm A/V Jack
	Video	HDMI 1.4 Video
	Ethernet	10/100 Base T
	Wireless	802.11n, Bluetooth 4.0
	Expansion I/O	40EA GPIO (2x20 2.54mm Pitch Header)
RSP Shield	Size	116x56mm
	Expansion I/O	40EA GPIO (2x20 2.54mm Pitch Header)
Sensor Modules	ADC	8ch 12bit Analog to Digital Converter
	PIR	Sensor : RE200B Sensing Range : 110 Degree Operating Voltage : 3.3V I/O Interface : 1pin Digital Out
	Sound Sensor	Sensor : Microphone Feature : ambient sound detection, sound level detection Operating Voltage : 5V I/O Interface : 1pin Analog Output
	Humidity Temperature Sensor	Sensor : DHT11 Feature : temperature and humidity sensor, ambient temperature and humidity detection Operating Voltage : 5V I/O Interface : 1pin Digital Output
	UltraSonic	Sensor : HC-SR04 Feature : 2~500cm distance measuring range, 40kHz Frequency Operating Voltage : 5V I/O Interface : 2pin Digital Output
	Light Sensor	Sensor : CdS Operating Voltage : 5V I/O Interface : 1pin Analog Output
	Variable Resistor	Sensor : 1kΩ Variable Resistor Feature : 0~5V DC Variable Voltage out I/O Interface : 1pin Analog Output
	Tilt Sensor	Contact Resistance : 50mΩ max Operating Voltage : 3.3V~5V I/O Interface : 1pin Digital Output Dimension : 15x19 (mm)
	Mercury Sensor	Operating Voltage : 3.3V~5V I/O Interface : 1pin Digital Output Dimension : 15x19 (mm)
	Reed Sensor	Operating Voltage : 3.3V~5V Switching Current : 0.5A Contact Rating : 10W/VA Dimension : 21x36 (mm) I/O Interface : 1pin Digital Output
	IR obstacle Sensor	Operating Voltage : 3.3V~5V Sensing Range : 2~40cm Dimension : 16x41 (mm) I/O Interface : 1pin Digital Output, 1pin Analog Output
	Flame Sensor	Operating Voltage : 3.3V~5V Sensing Range : 60 Degree Adjustable Sensitivity : Variable Resistor Dimension : 15x41 (mm) I/O Interface : 1pin Digital Output, 1pin Analog Output

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Sensor Modules	Touch Sensor	Sensor : TTP223 Operating Voltage : 3.3V~5V Dimension : 15x11(mm) I/O Interface : 1pin Digital Output	
	Photo Diode	Sensor : FC33 Operating Voltage : 3.3~5V I/O Interface : 1pin Digital Output	
	Hit Sensor	Sensor : SW-420 Operating Voltage : 5V I/O Interface : 1pin Digital Output	
	Dust Sensor	Sensor : GP2Y1014AU0F Operating Voltage : 5V I/O Interface : 1pin Digital Input, 1pin Analog Output	
	Gas Sensor	Sensor : MQ-2 Operating Voltage : 3.3V~5V I/O Interface : 1pin Analog Output	
	Soil Moisture	Operating Voltage : 3.3V~5V I/O Interface : 1pin Analog Output	
	IR Tracking	Operating Voltage : 3.3V~5V I/O Interface : 1pin Digital Output	
	Thermistor Temperature	Operating Voltage : 3.3V~5V I/O Interface : 1pin Analog Output	
	Temperature	Sensor : LM35 Operating Voltage : 3.3V~5V I/O Interface : 1pin Analog Output	
	Limit Switch	Operating Voltage : 3.3V~5V I/O Interface : 1pin Digital Output	
	Knock Sensor	Operating Voltage : 3.3V~5V I/O Interface : 1pin Digital Output	
	Relay	Feature : NC/NO Relay, 250VAC 10A / 30VDC 10A Operating Voltage : 3.3V~5V I/O Interface : 1pin Digital Input	
	Actuator Modules	LED Module	Feature : RED Operating Voltage : 3.3V~5V Current : 20mA Luminous Intensity : 6000~7000mcd at 20mA View Angle : 30 Degree I/O Interface : 1pin Digital Input
		DC Motor	Motor : Micro Type DC Motor Motor Driver : TB6552 Operating Voltage : 5V I/O Interface : 2pin Digital Input
Step Motor		Feature : 32 Step, 1/16 Gear Motor Motor Driver : ULN2003 Operating Voltage : 5V I/O Interface : 4pin Digital Input	
Switch Module		Feature : Tact Button I/O Interface : 1pin Digital Input	
Buzzer Module		Sound Output at 10cm : 60dB (Min) Operating Voltage : 3.3V~5V Current Consumption : 2mA Dimension : 15x19 (mm) I/O Interface : 1pin Digital Input	
Camera Module	Laser Module	Wavelength : 650nm Operating Voltage : 5V Dimension : 15x19 (mm) I/O Interface : 1pin Digital Input	
	RGB LED	Operating Voltage : 3.3V~5V I/O Interface : 3pin Digital Input	
		- HD 1080P USB camera module - Output image format : YUV2 (YUYV) / MJPEG - Minimum illumination : 0.01LUX - Working current : 140mA~220mA - Support free flooding protocol : USB Video Class (UVC)	

Software Specifications

Module	Category	Specifications
RaspberryPi 3B	Raspbian	4.9.2-10
	Kernal	4.4.11-v7+
	GCC	4.9.2
Server Software	lighttpd	1.4.35
	PHP	5.6.36-0+deb8u1
	Bluetoothctl	5.23

Module	Category	Specifications
Android Application	SDK	API 18(4.3 Jellybean) to API 28(9.0 Pie)
	JRE	1.8.0_152
Learning Engine	TensorFlow.JS	API 1.0.0