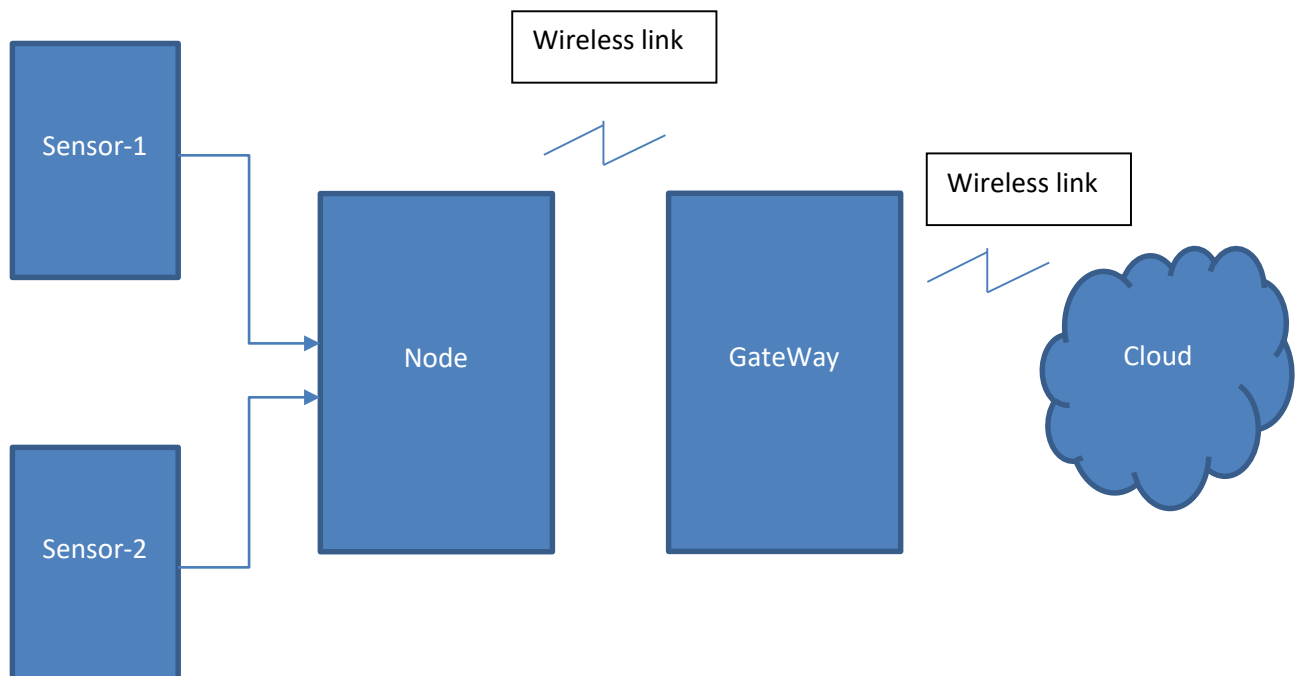




# Reve IoT Development Suite



**Blog Diagram :**Cloud Compatible Sensors & node



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## **INTRODUCTION:**

Reve sensor kit is designed to learn electronics & develop prototype ter. It supports user friendly GUI, Easy interfacing of sensors & output devices through relay. Anyone can learn the basics of sensor technology & its behavior in easy way.

## **FEATURES:**

- User friendly GUI.
- Plug & Play Interface of sensor.
- Easily understandable.
- Cost effective.
- For beginners/ learns of IoT & sensor technology.
- Research & Prototyping purpose.
- To develop protocols.
- To develop server apps and mobile apps.
- To analyze the sensors behavior.
- To test and prepare prototype of product.
- Dry relay connection at terminal block.

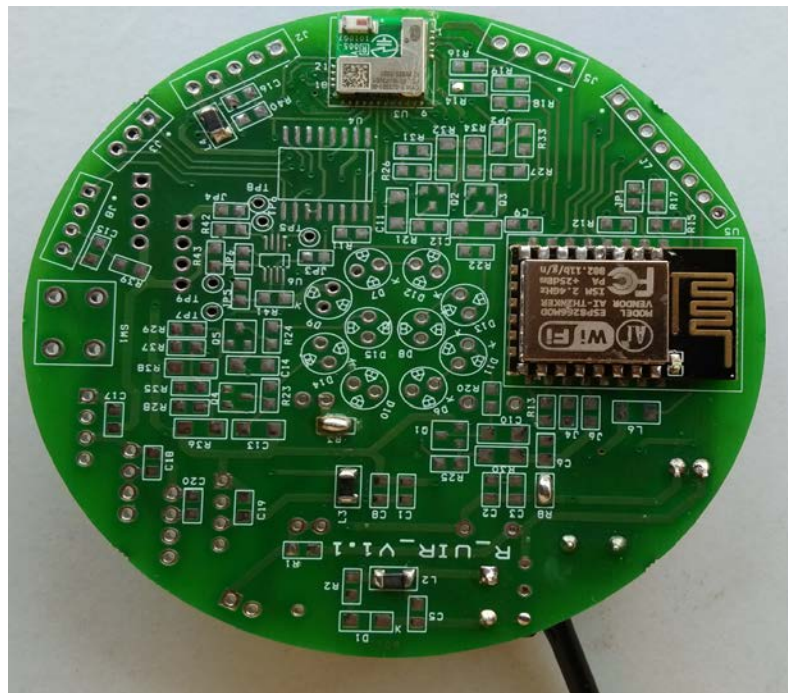


### REVE Bluetooth to Wi-Fi IoT Gateway:

The gateway connects Bluetooth® Smart devices to the Internet over Wi-Fi®. It allows Bluetooth Smart nodes to be used in home/building automation and retail environments.

#### Features:

- Connect Bluetooth Smart devices to the cloud
- USB powered, small form factor
- Low power Wi-Fi connection
- USB command interface for configuration



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Figure 1 REVE Bluetooth to Wi-Fi IoT Gateway

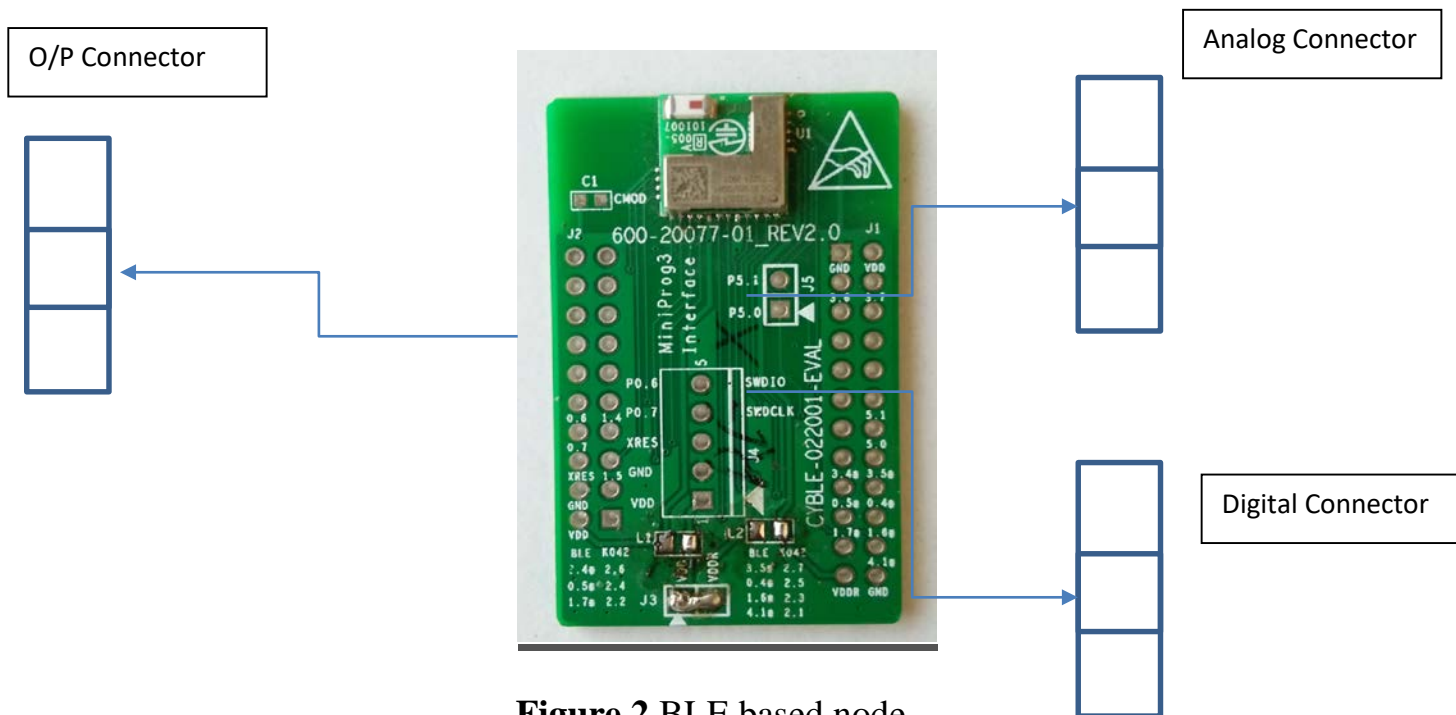


**BLE Based NODE:** BLE is Bluetooth Low Energy Device having Wireless Connectivity to connect gateway. It has Analog/ Digital Input and Digital Output Connector. The Easy Bluetooth Board is a low-cost solution that enables your device to easily implement wireless Bluetooth communication.

Board is equipped with low-power, highly economic RN41 module, compliant with Bluetooth® 2.1/2.0/1.2/1.1 specification that can operate up to 100m distance.

**FEATURES:**

- Bluetooth 4.0 low energy radio
- ARM Cortex M0 Microprocessor
- Programmed via Arduino IDE
- MCU includes ADC, I<sup>2</sup>C, SPI, UART and GPIO
- Dimensions 0.6" x 0.6" x 0.117"



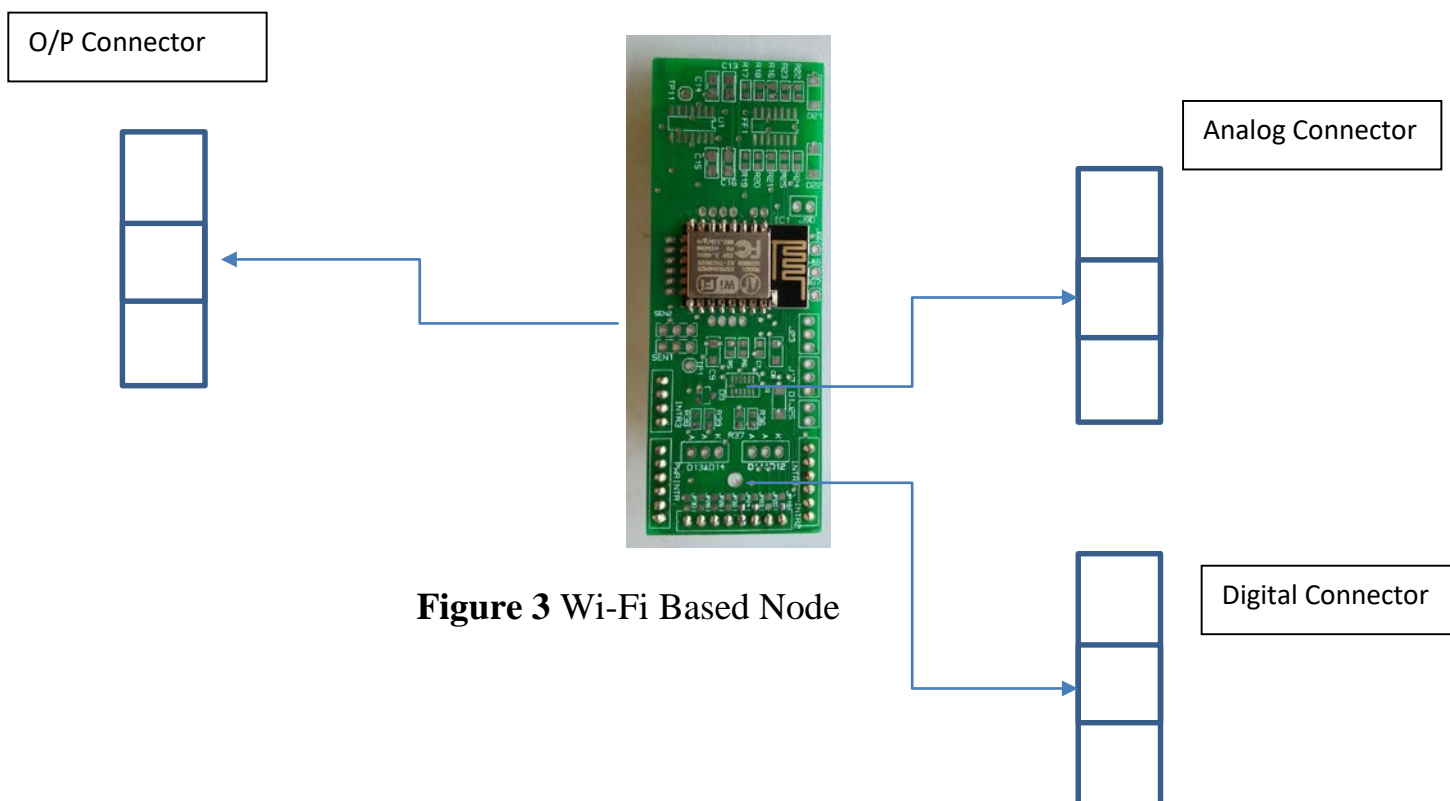
**Figure 2** BLE based node



**Wi Fi Based NODE:** It is a ESP8266 based universal low-cost IoT WiFi development board. It has a USB cable to connect to PC, have the driver installed, users can start to develop and design IoT device right away. The core processor of this board is ESP8266.

**FEATURES:**

- 802.11 b/g/n
- WIFI @2.4 GHz support WPA/WPA2 safe mode
- Built-in 10 bit high accuracy ADC
- Built-in TCP/IP protocol stack
- Built-in switch, balun, LNA, power amplifier and matching network
- Built-in PLL, voltage stabilizer and power management components
- 802.11b mode + 20 dBm output power
- Built-in 32-bit lower power CUP
- SDIO 2.0, SPI, UART
- STBC, 1x1 MIMO, 2x1 MIMO
- Temp range:-40 ~ 80°C



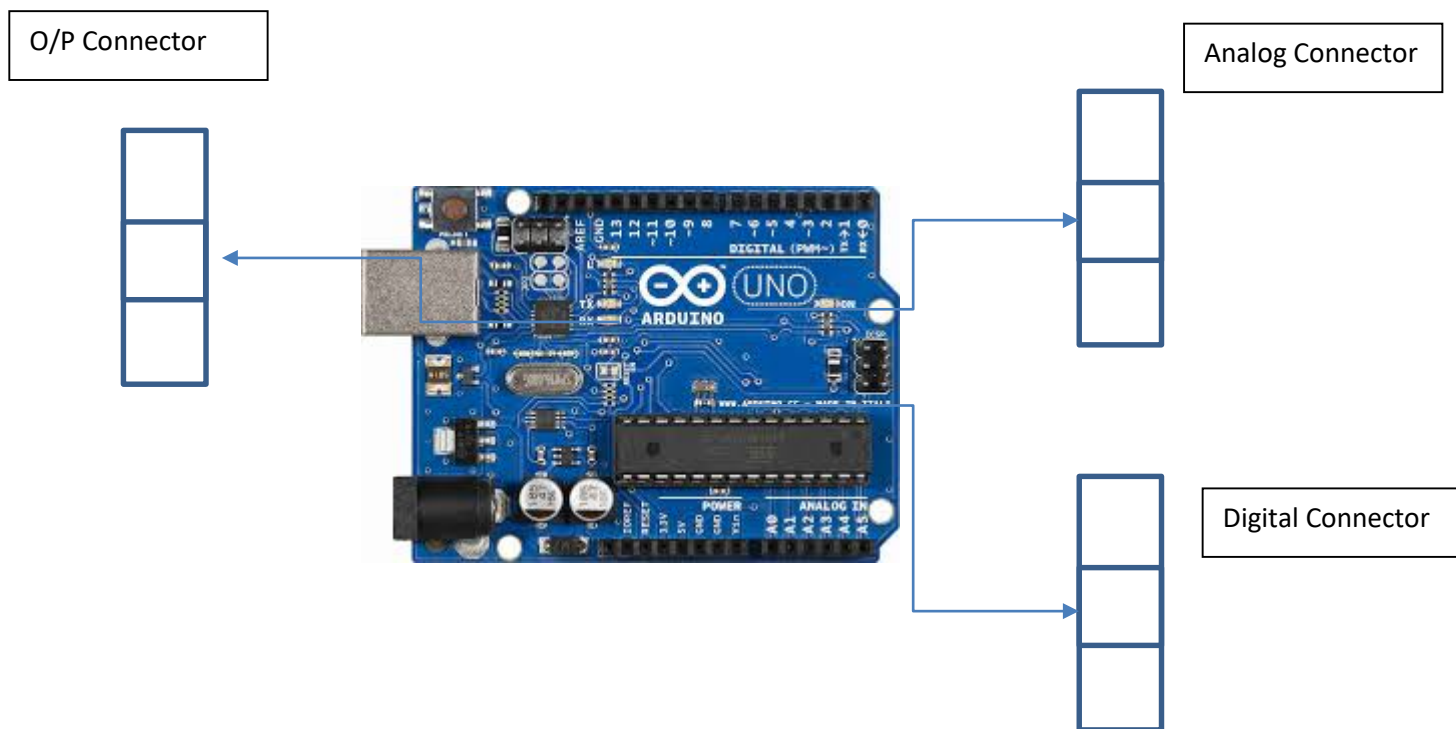
**Figure 3** Wi-Fi Based Node



**Arduino Based NODE:** Arduino is an open-source electronics platform based on easy-to-use hardware and software. It's intended for anyone making interactive projects.

**FEATURES:**

- Inexpensive
- **Cross-platform**
- Simple, clear programming environment
- Open source and extensible software/Hardware



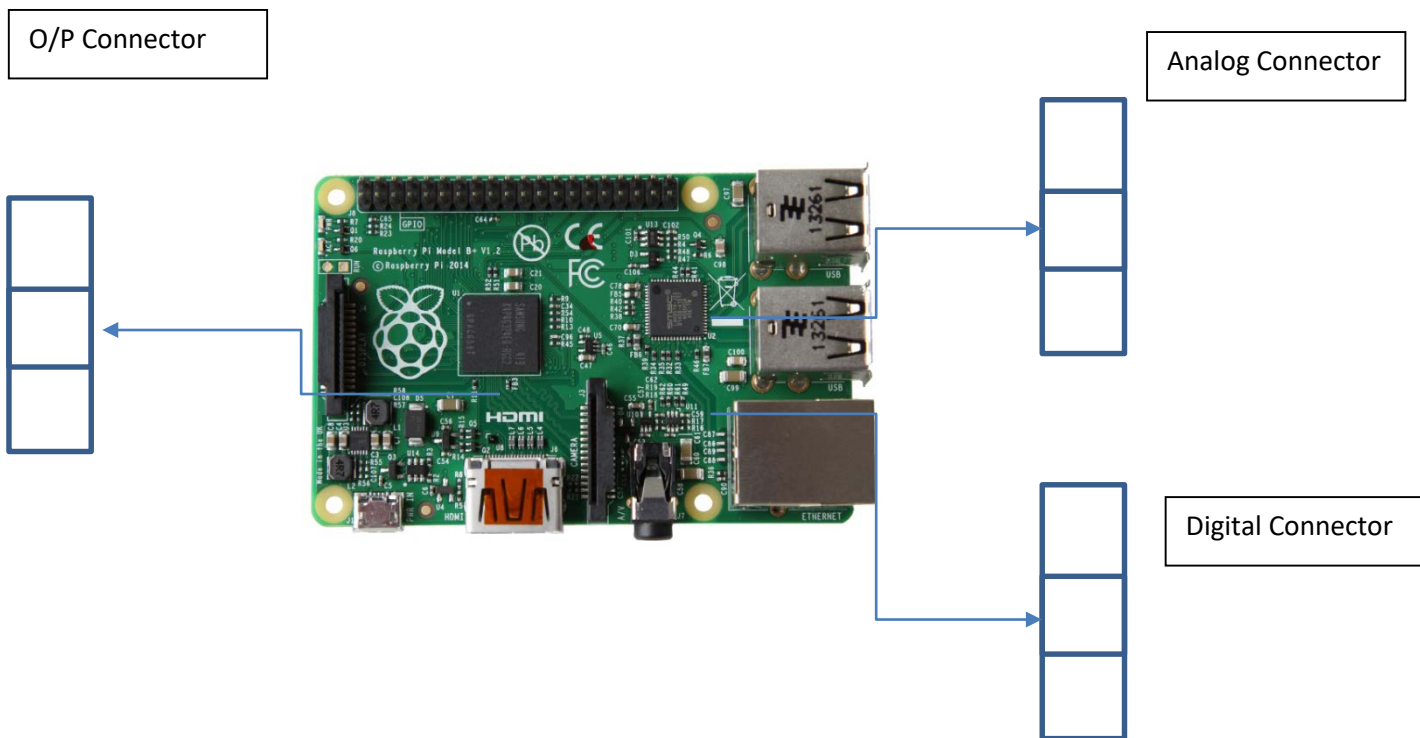
**Figure 4** Arduino Based NODE



**Raspberry Pi Based NODE:** The **Raspberry Pi (3)** is a series of small single-board computers .

**FEATURES:**

- CPU: Quad-core 64-bit ARM Cortex A53 clocked at 1.2 GHz.
- GPU: 400MHz Video Core IV multimedia.
- Memory: 1GB LPDDR2-900 SDRAM (i.e. 900MHz)
- USB ports: 4.
- Video outputs: HDMI, composite video (PAL and NTSC) via 3.5 mm jack.
- Network: 10/100Mbps Ethernet and 802.11n Wireless LAN.



**Figure 5** Raspberry Pi Based NODE





## Sensor/ Interface Module

Sr. No.	Sensor/ Interface Name	Description
1	Relay	The company produces relay module can be connected to 240V AC or 28V DC power into a variety of other electrical parts. The relay can be used in anti-theft alarm, toys, etc. Relay is an electrically controlled device. It has a control system (also known as the input circuit) and the control system (Also known as the output circuit). Commonly used in automation control circuit, it is actually a small Current to control a large current operation "automatic switch." Therefore, the circuit automatically adjusts the play, safety protection, transfer Conversion circuit and so on. Particularly suitable for single-chip control strong electric devices. In the control and use is also very convenient, just give input corresponding output relay different levels, you can Achieved by controlling the relay control purposes other devices, in addition, in the multi-channel relay PCB layout on the use of two lines Layout, user-lead connections. While in the circuit of a DC diode added greatly improved relay
2	Tracking Sensor	Analog magnetic sensor module and a digital interface, built-in pin to LED build a simple circuit to produce a magnetic flash Makers. Pinto comes with digital interfaces of the LED, the analog magnetic sensor connected to the power board analog 5 ARDUINO Interfaces, when analog magnetic sensor to a signal, LED lights, otherwise the lights out.
3	Buzzer	You can do a lot of interactive work, the most commonly used is for sound and light shows. LED lights are used in this experiments, we let the



		experiment circuit sound. Component is the buzzer and speaker, and comparison of the two buzzer easier and ease the present study, we buzzer.
4	Laser Emit	Laser transmitter module, 650 nm (red), gives a small intense beam. Take care of your eyes, do not look direct into the beam.
5	Analog Hall	Linear Hall magnetic module and a digital interface, built-in 13 LED build a simple circuit to produce a magnetic field warning lamp 13 comes with digital interfaces of the LED, the linear Hall sensor magnetometer access number 3 interface, when linear Hall magnetometer Sensor senses a key signal, LED lights, otherwise off.
6	Switch Module	When the key is pressed the building LED on pin 13 will be turned off.
7	Tilt Switch	Tilt switch module and a digital interface, built-in LED build a simple circuit to produce tilt warning lamp comes with digital interfaces of the LED, the tilt switch sensor interface to access digital 3, when the tilt open Off sensor senses a key signal, LED lights, otherwise off.
8	Photo Resistor	Photo resistors, also known as light dependent resistors (LDR), are light sensitive devices most often used to indicate the presence or absence of light, or to measure the light intensity. In the dark, their resistance is very high, sometimes up to $1M\Omega$ , but when the LDR sensor is exposed to light, the resistance drops dramatically, even down to a few ohms, depending on the light intensity. LDRs have a sensitivity that varies with the wavelength of the light applied and are nonlinear devices. They are used in many applications but are sometimes made obsolete by other devices such as photodiodes and phototransistors. Some countries have banned LDRs made of lead or cadmium over environmental safety concerns.
9	Temperature Humidity	DHT11 digital temperature and humidity sensor is a calibrated digital signal output temperature and



		humidity combined sensor, which Application-specific modules capture technology and digital temperature and humidity sensor technology to ensure that products with high reliability and excellent Long-term stability. The product has excellent quality, fast response, anti-interference ability, high cost and other advantages. Single Wire serial interface that allows quick and easy system integration. Ultra-small size, low power consumption, signal transmission distance Up to 20 meters, making it to the class of applications and even the most demanding applications is the best choice. Products for the 4-pin single row Pin package, easy connection.
10	IR Emission	This time we want to introduce infrared transmitter and receiver modules, in fact, they are now in our daily life. They play an important role in lots of household appliances and are used in devices such as air conditioning, TV, DVD, etc., It is based on wireless sensing, but also can be a remote control, very easy to use.
11	IR Receiver	This is a new ultra-thin 38K universal infrared remote control, using the NEC encoding format, mainly for cars Containing MP3, foot bath, lighting design equipped, digital photo frame, microcontroller development board learning board and other occasions. Because it is based on non-Line remote control, so people seem easy to use, effective, and now more and more wide application field, then for This product of our company that we will make the following introduction.
12	Mini Read Switch	A reed module is a magnetic sensor that is normally open and get closed when exposed to a magnetic field.
13	Analog Temperature	First, the module introduces The module is based on the thermistor (resistance increases with the ambient temperature changes) works, a sense of real-time To know the temperature of the surrounding environment changes, we send the data to the Arduino analog IO,



		then come down as long as we go through Jane Single programming will be able to convert the sensor output data Celsius temperature values and displayed, it is still easy to use, It effectively, thereby widely used in gardening, home alarm systems and other devices
14	Hall Magnetic	Magnetic switch. If no magnetic field is present, the signal line of the sensor is HIGH (3.5 V). If a magnetic field is presented to the sensor, the signal line goes LOW, at the same time the LED on the sensor lights up. The polarity of the magnetic field is of influence to the switching action. The front side of the sensor needs the opposite polarity as the back of the sensor to switch on.
15	7 Color Flash LED	RGB LED module consists of a plug-in full color LED made by R, G, and B three pin PWM voltage input can be adjusted Section three primary colors (red / blue / green) strength in order to achieve full color mixing effect.

**Table 1** Sensor/ Interface Module