Arduino Automatic Watering System

---DIY Kit for Maker

Note: Please keep circuit away from water when self-watering device works

1. Description:

Indulged in their heavy work, travel and other activities, people often

forget to water their plants. As a result, plants are wilting for lack of water.

In order to tackle this tough problem, we launch an automatic watering system based on Arduino. It can water automatically your plants by detecting the ambient temperature and soil humidity. Therefore, no matter where you are, you will be free from the worry about watering your plant. That sounds amazing! Right? Let’ s get started.

2. Instruction:

Arduino automatic watering device, an open resource programming kit, makes teenagers acquire the practical knowledge of electronics, machinery, control logic and computer science easily. It is easy to build by slot connection, wooden boards, plus thirteen projects from simple to complex. Furthermore, the kids’ hands-on ability and way of thinking will be greatly enhanced after building up their own watering device.

3. Features:

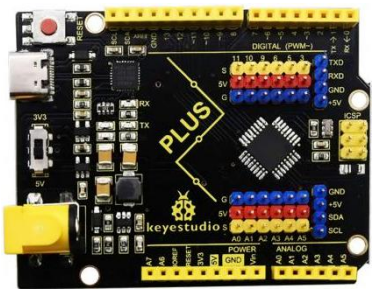
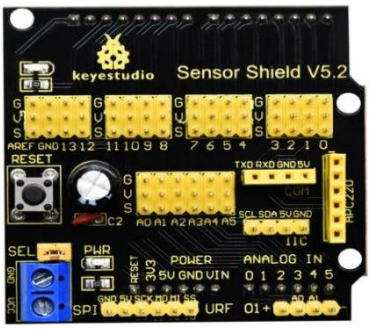
1. Multi-purpose: **timing watering mode and sensor detection mode**
2. **High waterproof: capacitive soil sensor is waterproof**
3. Easy to build: **slot connection,** without the need of soldering circuit.

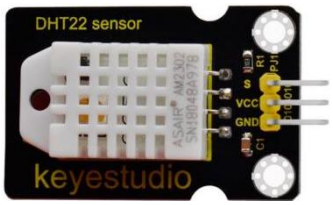
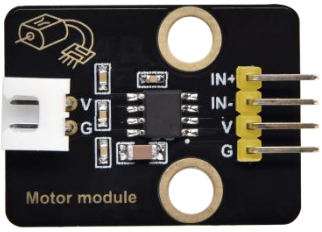
4. Novel structure： **spray kettle shape, real and stable**

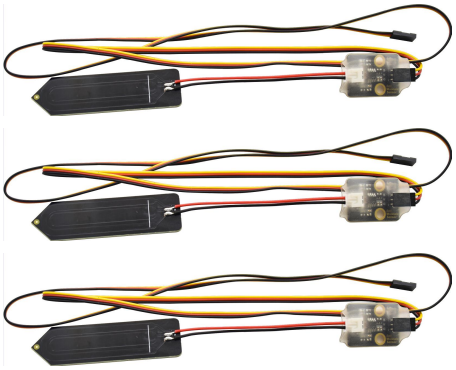
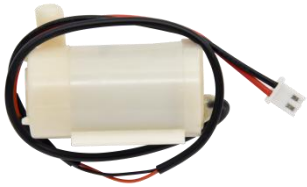
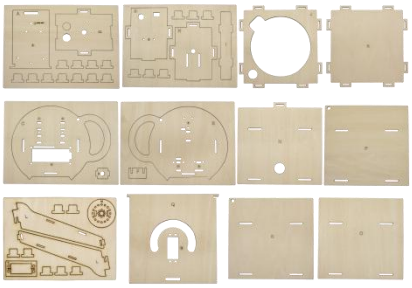
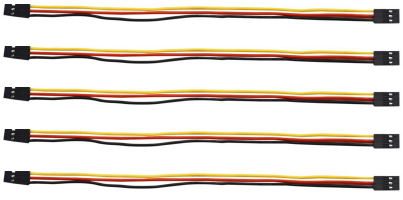
5. High extension: can expand sensor shield and other sensors and modules

6. Basic programming：C language code of Arduino IDE.

4. Product Kit:

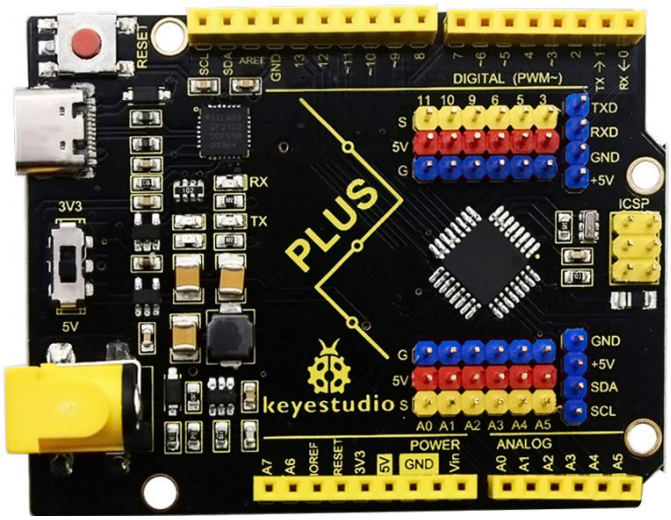
#	Name	QTY	Picture
1	Keyestudio PLUS Control Board (Compatible with Arduino UNO)	1	
2	Keyestudio Sensor Shield V5.2	1	
3	Keyestudio Push Button Module	2	
4	Button Cap	2	

5	Keyestudio IIC 1602 LCD Module	1	
6	Keyestudio MG996R Servo	1	
7	Keyestudio Power Amplifier Module	1	
8	Keyestudio DHT22 Temperature and Humidity Sensor	1	
9	Keyestudio DS3231 Clock Module	1	
10	Keyestudio Non-contact liquid level sensor (With adhesive tape)	1	
11	Keyestudio Motor Driver Module	1	

12	Keyestudio Capacitive Soil Humidity Sensor (waterproof)	3	
13	Water Pump	1	
14	Wooden Boards	1	
15	Flexible Bucket	1	
16	6-slot AA Battery Holder	1	
17	18650 2-slot Battery Holder	1	
18	White Pipe	1	
19	3pin F-F Dupont Line	5	

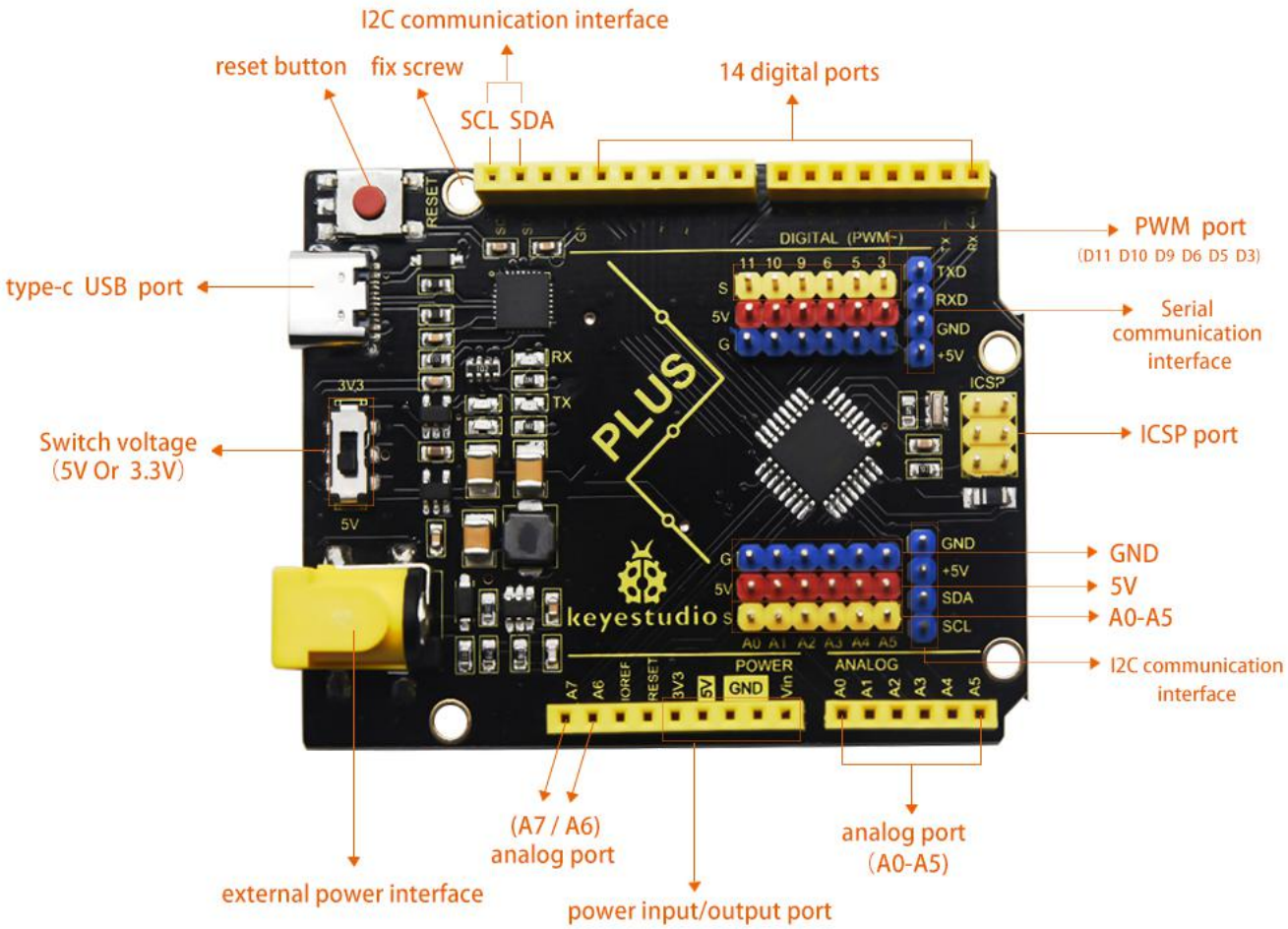
20	F-F Dupont Line	1	
21	M3*10MM Dual-pass Copper Pillar	4	
22	M3 Nuts	22	
23	M3*16MM Round Head Screws	6	
24	M3*8MM Round Head Screws	12	
25	M3*6MM Round Head Screws	10	
26	M3*10MM Flat Head Screws	4	
27	3*40MM Screwdriver	1	
28	USB Cable	1	
29	Battery **(not included)**		

5. Keyestudio PLUS Control Board:



After downloading software, let ' s get to know Keyestudio PLUS development board. It is the core of the following courses.

Keyestudio PLUS Control Board is fully compatible with Arduino UNO R3 board. Its functions is as same as Arduino UNO R3 board. Moreover, some improvements made highly strengthen its function. Alternatively, it is the best choice to learn how to build circuit and design code. Let' s get more details for Keyestudio PLUS Control Board, as shown below:



Parameters:

MCU:	ATMEGA328P-AU	USB to serial chip:	CP2102
Working Voltage:	5V or 3.3V(DIP switch)	External Power:	DC 6-15V (recommend 9V)
Digital I/O Port:	14 pcs (D0-D13)	PWM:	6 pcs (D3 D5 D6 D9 D10 D11)

Analog Input Path(ADC):	8 个(A0-A7)	Each I/O DC Output Capacity:	20 mA
Output capacity of 3.3V port:	50 mA	Flash memory:	32 KB(guidance program uses 0.5 KB)
Static Register	2 KB (ATMEGA328P-AU)	Read-Only Memory:	1 KB (ATMEGA328P-AU)
Clock Speed:	16MHz	On-board LED pin:	D13

Serial communication interface: D0 is RX, D1 is TX.

PWM interface (pulse width modulation): D3 D5 D6 D9 D10 D11.

External interrupt interface: D2 (interrupt 0) and D3 (interrupt 1).

SPI communication interface: D10 is SS, D11 is MOSI, D12 is MISO, D13 is SCK.

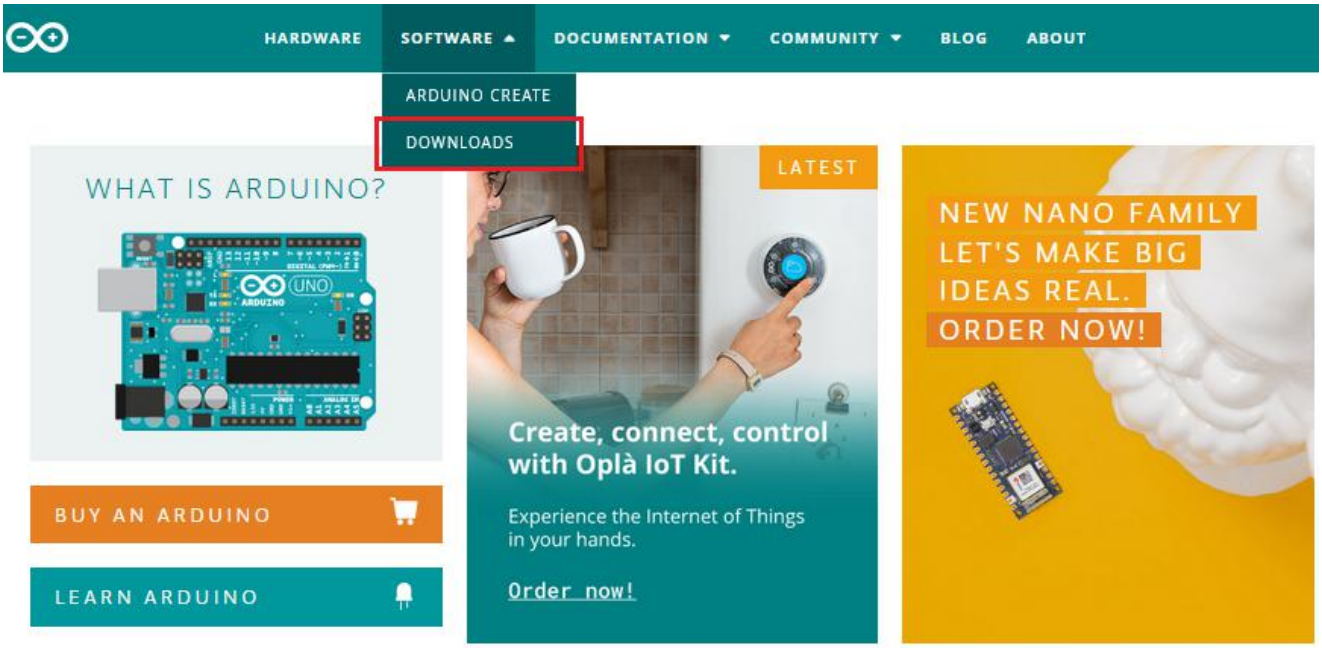
IIC communication port: A4 is SDA, A5 is SCL.

6. Install Arduino IDE on Windows System

6.1 Download Arduino:

When we get control board, we need to download Arduino IDE and driver firstly.

You could download Arduino IDE from the official website: https://www.arduino.cc/, click the **SOFTWARE** on the browse bar, and click "DOWNLOADS" to enter download page, as shown below:



You will view various versions of Arduino like Windows, Mac, Linux and so on.