
HC-06 Bluetooth module

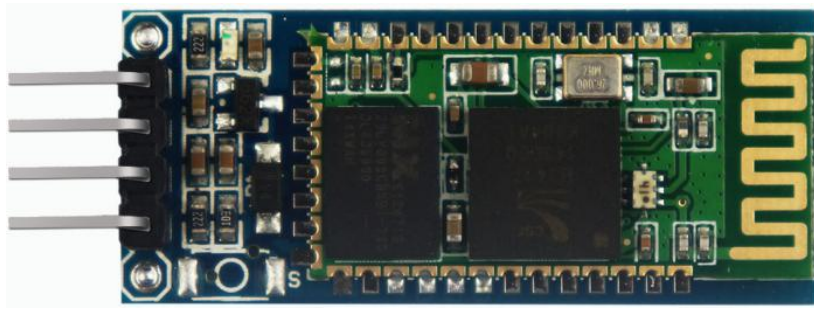
Need to prepare:

- ◆ A nano board
- ◆ A USB cable
- ◆ A nano shield
- ◆ A battery case with 18650 batteries
- ◆ A HC-06 slave Bluetooth module

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1、 Overview

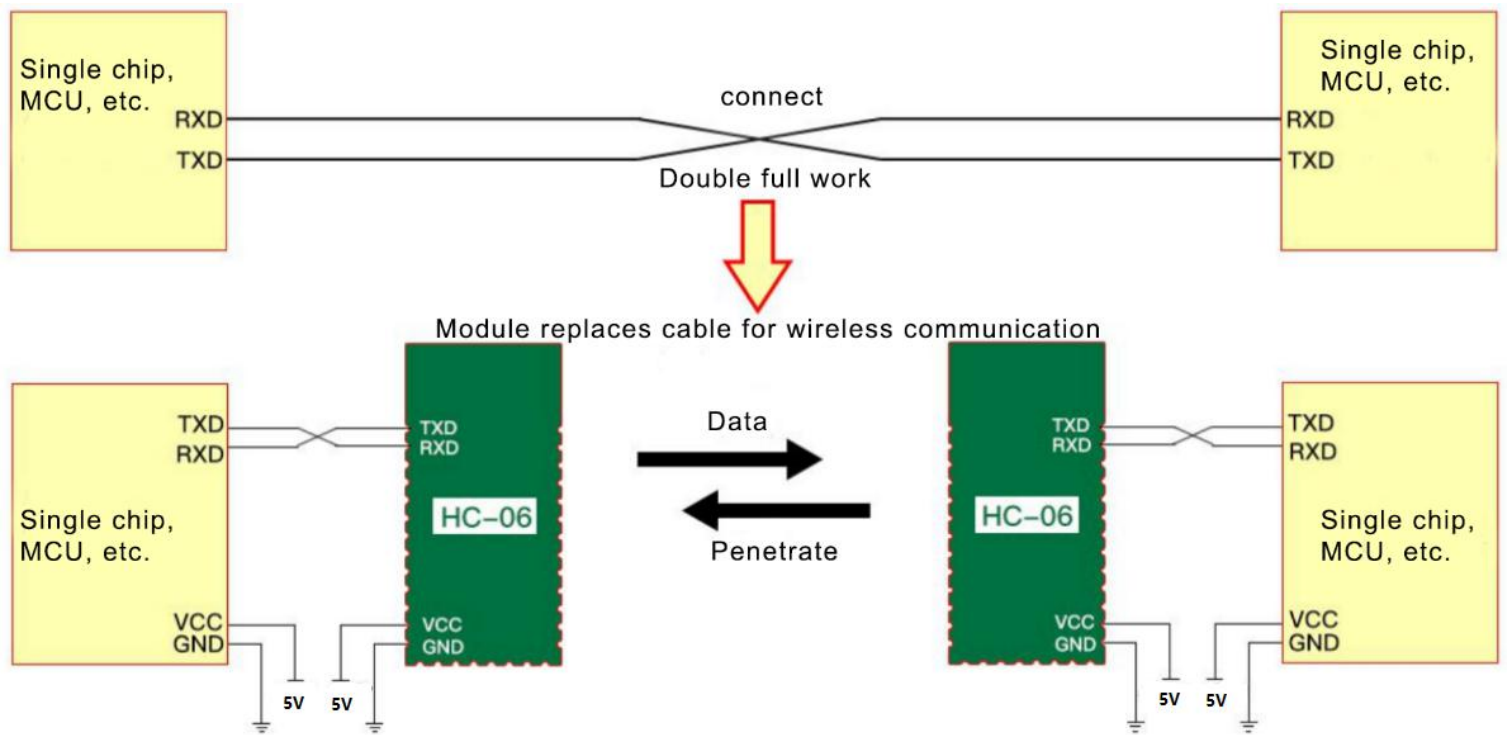


The COKOINO HC-06 slave Bluetooth module is compatible with the Arduino platform. It allows you to use the serial port device to get rid of the cable to achieve wireless serial communication within 10 meters. HC-06 Bluetooth module version 2.0, it can only communicate with Android phones, does not support Apple phones. At the same time, it can only be used as a slave. Before using it, we can set it by setting the AT command, such as setting the Bluetooth name and password.

2、 Specification

Parameter name	parameter values	Parameter name	parameter values
model	HC-06	processor	BC417（CSR）
Working frequency band	2.4G	Air rate	2Mbps
CI	UART 5VTTLelectrical level	Antenna interface	Built-in PCB antenna
working voltage	DC3.6--6V	communication current	40mA
RSSI support	nonsupport	receiving sensitivity	-85dBm@2Mbps
Communication level	3.3V	working temperature	10%~90%
transmitting power	4dBm(maximum)	Storage temperature	-40℃~+85℃
reference distance	10M	working temperature	-25℃~75℃

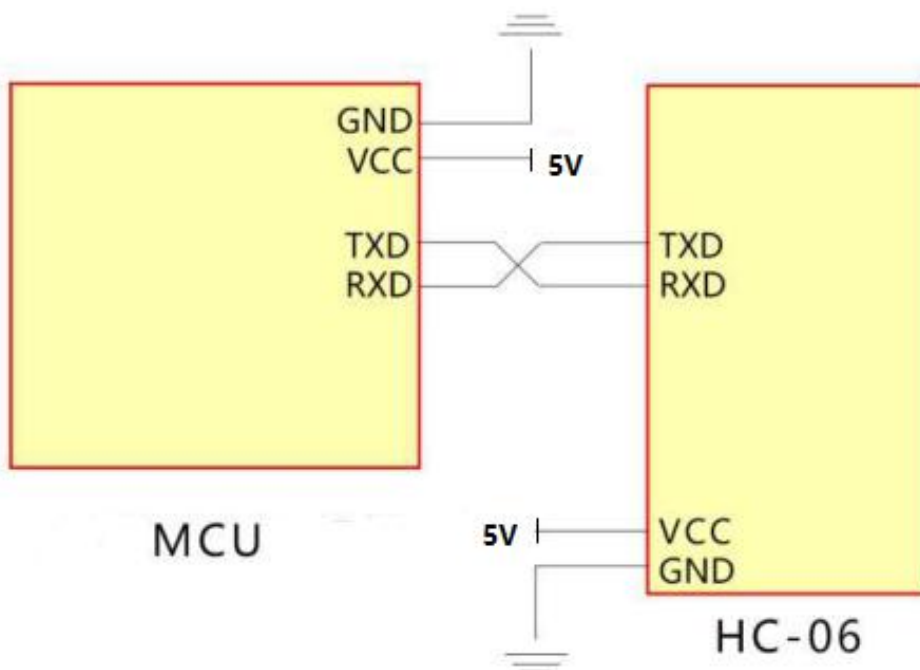
3、 working principle



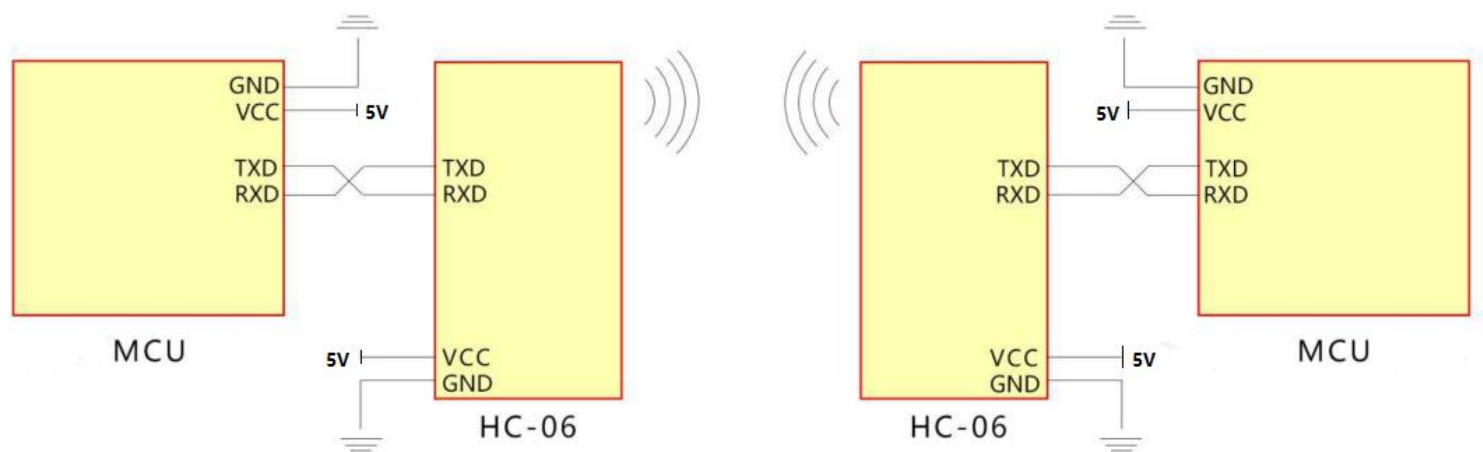
Note:

As shown in FIG, The HC-06 Bluetooth module is used to replace the physical connection when full-duplex communication. The device on the left sends the serial port data to the module. After receiving the serial port data, the RXD port of the module automatically sends the data to the air by radio waves. The module on the right can be automatically received and the serial port data sent by the original left device is restored from TXD.

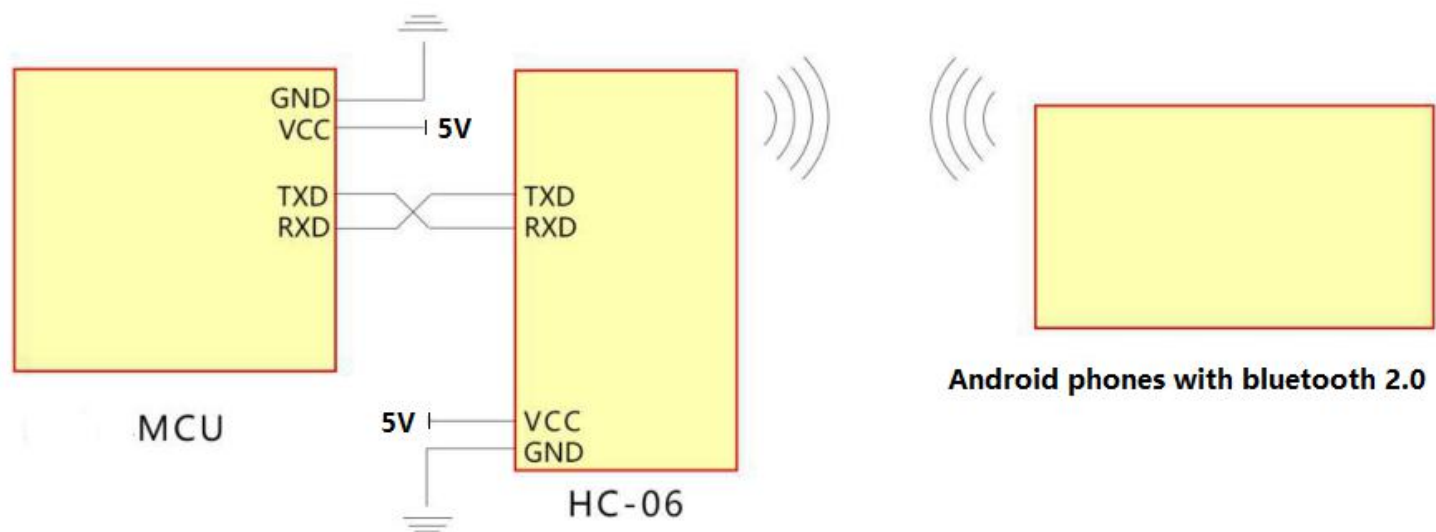
3.1、 Connection between Bluetooth module and MCU and other devices



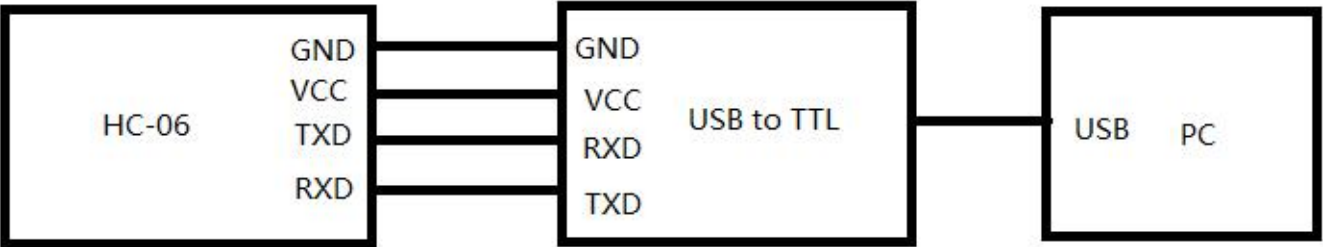
3.2、Communication between two Bluetooth modules



3.3、Communication between the Bluetooth module and the phone



4.AT command setting for module and PC communication



4.1 How to enter the AT command

Power on the Bluetooth module. In the unconnected state, it is the AT mode. Please control the time interval between the two commands to 1S or above.

4.2 Default factory parameters

The baud rate is 9600N81, the Bluetooth name is HC-06, and the pairing password is 1234.

4.3 AT Command Collection

4.31 Test Communication

Instruction	Respond	Description
AT	OK	Test

4.32 Change the Bluetooth serial port communication baud rate

Instruction	Respond	Description
AT+BAUD1	OK1200	After the baud rate is set to more than 115200, it cannot be programmed by the computer. It must be programmed by the microcontroller.

After setting the baud rate with the AT command, it will save this setting and does not need to be set again.
example:

Send: AT+BAUD2

Return: OK2400

The baud rate code is as follows:

1----- 1200

2----- 2400

3----- 4800

4----- 9600(default)

5----- 19200

6----- 38400

7----- 57600

8----- 115200

9----- 230400

A----- 460800

B----- 921600

C----- 1382400

4.33 Change Bluetooth pairing name

Instruction	Respond	Description
AT+NAMEname	OKsetname	Parameter name: 20 characters or less

eg:

Send: AT+NAMEbill_gates

Returns: OKsetname

At this time, the Bluetooth name is changed to bill_gates.

The parameters can be saved after power-off and only need to be modified once. The PDA side refresh service can see the changed Bluetooth name, and the name cannot exceed 20 characters.

Note: When HC-06 is a host, changing the name of Bluetooth is not supported.

4.34 Change Bluetooth pairing password

Instruction	Respond	Description
AT+PINxxxx	OKsetPIN	The module's default pairing password is 1234. Parameters can be saved after power down.

4.35 Change module master/slave mode

Instruction	Respond	Description
AT+ROLE=S /AT+ROLE=M	OK+ROLE:S / OK+ROLE:M	S: Set the module to slave module Slave, (The module defaults to slave) M: Set the module as the master module Master

4.36 No parity setting instruction

Instruction	Description
AT+PN	(The module defaults to no parity)

4.37 Even parity setting instruction

Instruction	Description
AT+PE	Module is even parity

4.38 Odd parity setting instruction

Instruction	Description
AT+PO	Module is even parity

4.39 Get the AT command version command

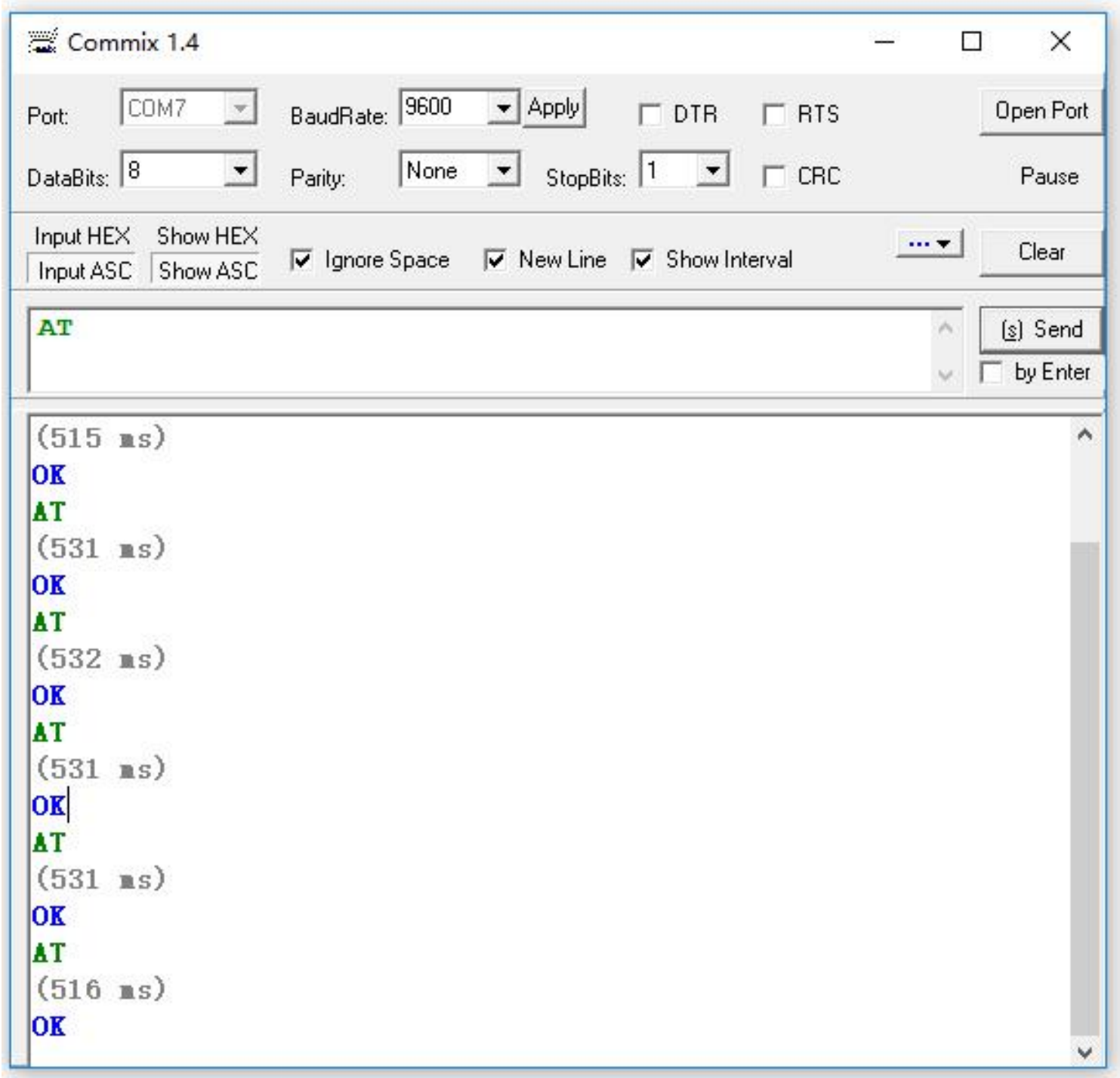
Instruction	Description
AT+VERSION	hc01.comV2.0

4.40 Switch light command

Instruction	Respond	Description
AT+LED0 /AT+LED1	LED OFF / LED ON	AT+LED0 LED OFF /AT+LED1 LED ON

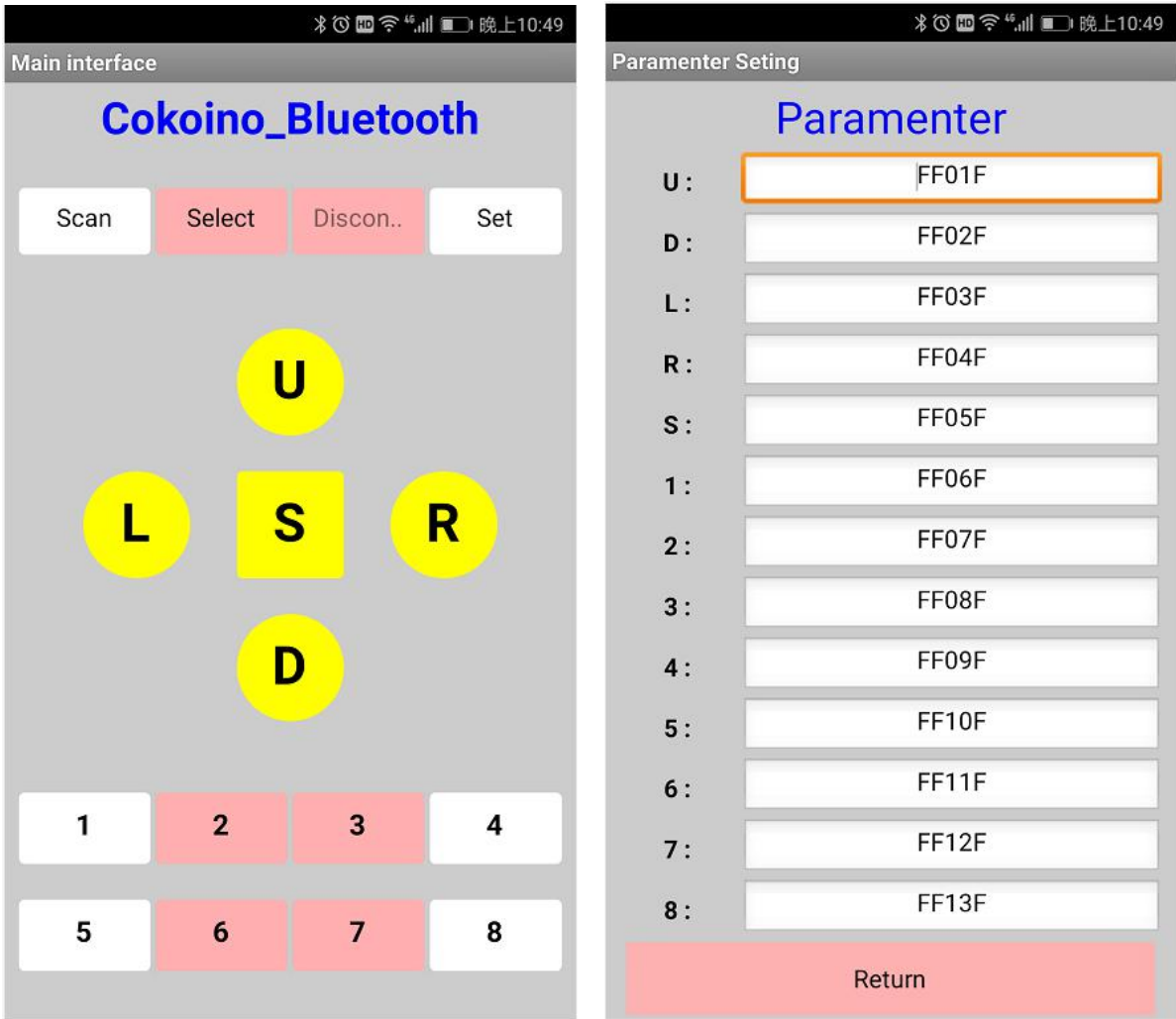
4.5 Example

Install the serial port debugging software on the PC, connect the Bluetooth module and the computer with the USB to serial port module, and send the AT command to the Bluetooth module through the serial port debugging software, as shown below:



5. Install the Cokoino Bluetooth APP to your Android phone:

Download the android mobile APP: <https://github.com/Cokoino/Android-bluetooth-APP.git>
Cokoino Bluetooth APP is a mobile app that we developed for HC-06 communication. Copy the APP installation package we provide to your Android phone, install it and run, its interface is as shown below:



Button explanation:

- Scan**: Search for Bluetooth and pair Bluetooth
- Select**: Select and connect the Paired Bluetooth
- Discon..**: Disconnect Bluetooth
- Set**: Parameter setting button, click this button to enter the parameter setting page.

Other buttons: U corresponds to the parameter FF01F. If you click the “U” button, the parameter “FF01F” will be sent to the connected Bluetooth. The parameters corresponding to U can be changed.

The parameters corresponding to U to 8 can be changed. Click Return to save the parameters and return to the main interface.

5.1 Connecting HC-06

When you open the app, if your phone does not have Bluetooth enabled, the software will automatically prompt you to turn on Bluetooth.

After Bluetooth is turned on, please click the [Scan](#) button to jump to the Bluetooth pairing interface of the mobile phone, select the Bluetooth you need to pair, take HC-06 as an example, the pairing password is 0000 or 1234, then return to the main interface, click the [Select](#) button to select and connect the Bluetooth you need, it will automatically return to the main interface. The [Disconnect](#) tab of the page will become Connect, and the light on the HC-06 module will be always on (when not connected, the light on the module will flash), then the phone can Communicate with HC-06 Bluetooth.

5.2 Disconnect Bluetooth

If you want to disconnect Bluetooth, click the Connect tab. If you want to connect to Bluetooth, click the Select button again to select and connect.

6 .Work COKOINO HC-06 Bluetooth Module with Arduino

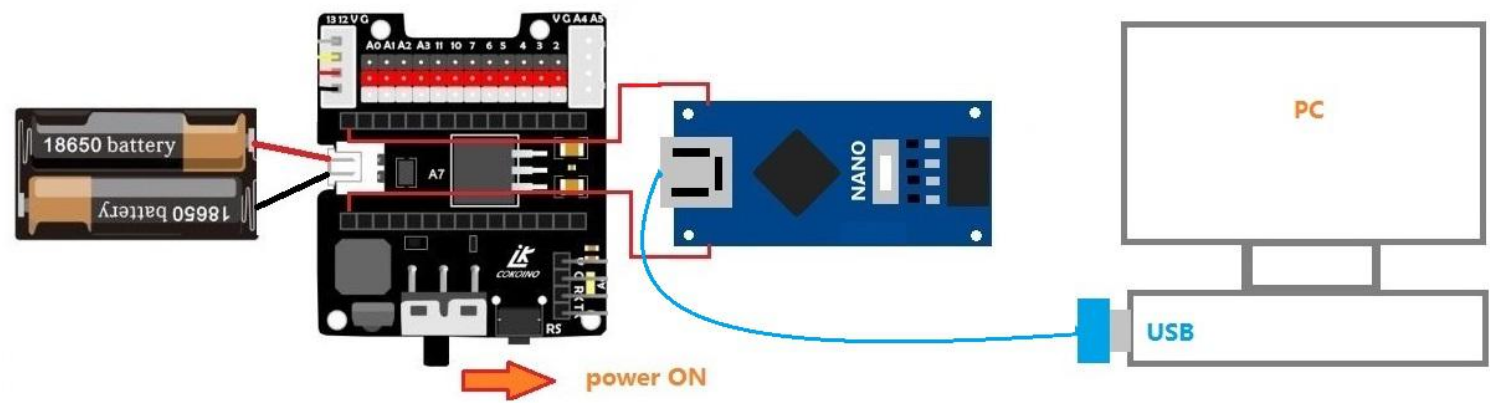
You need to prepare:

- A Nano board
- A Nano shield
- A COKOINO HC-06 Bluetooth Module
- A battery case with two 18650 batteries

Wiring table

nano	HC-06 Bluetooth
GND	GND
5V	VCC
0(RX)	TXD
1(TX)	RXD

6.1 Connect PC and nano motherboard with USB cable

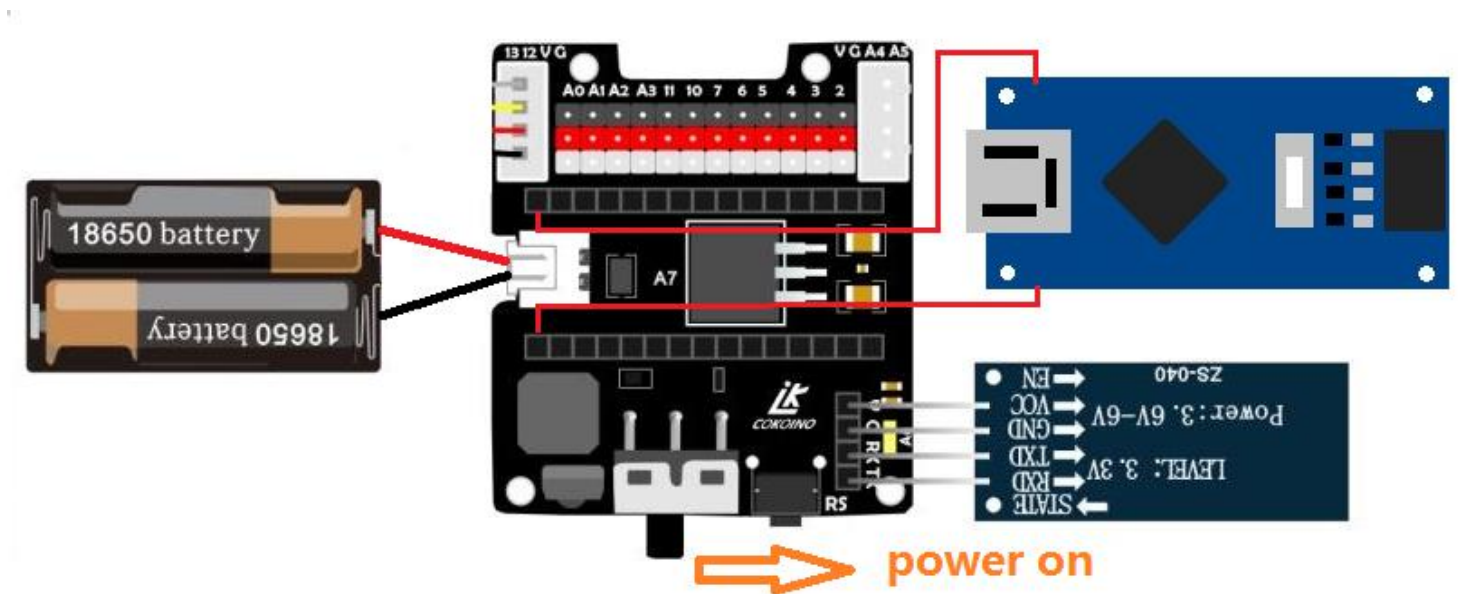


6.2 Upload Code:

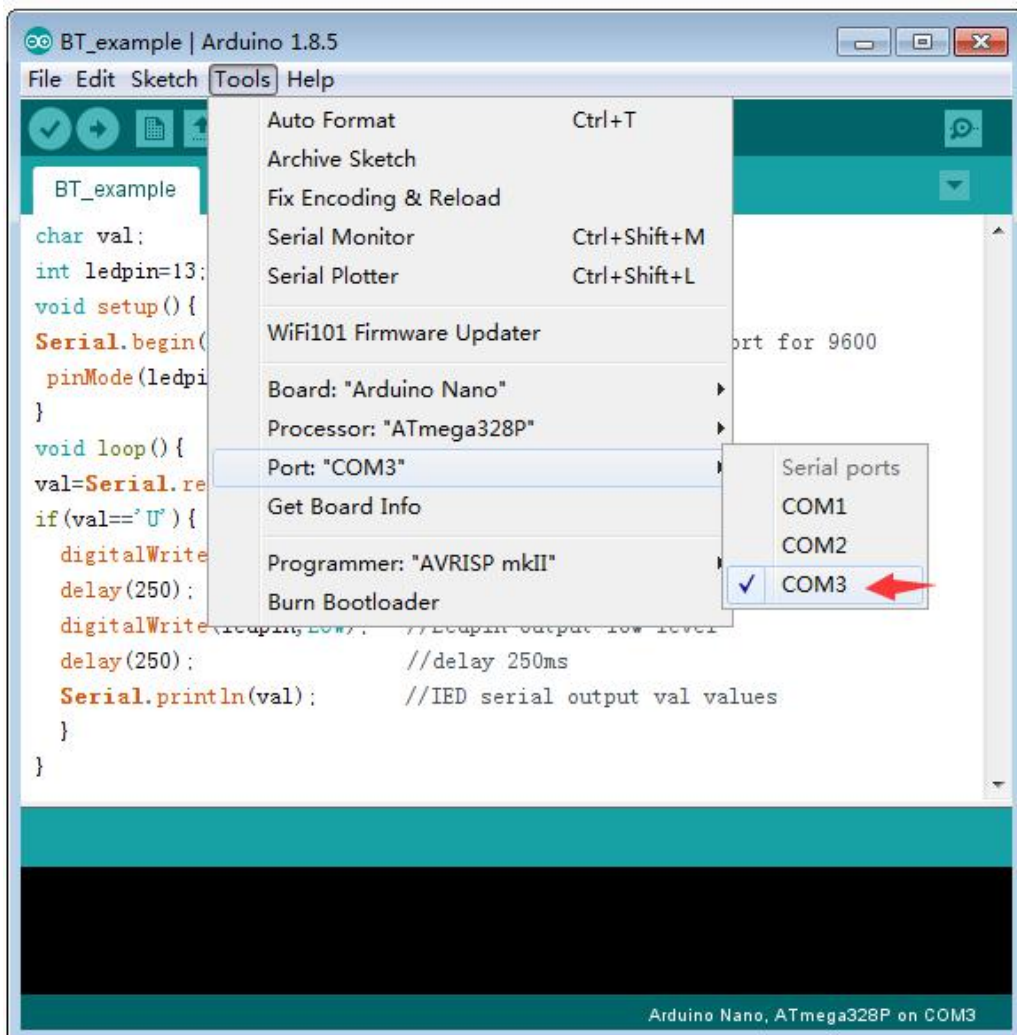
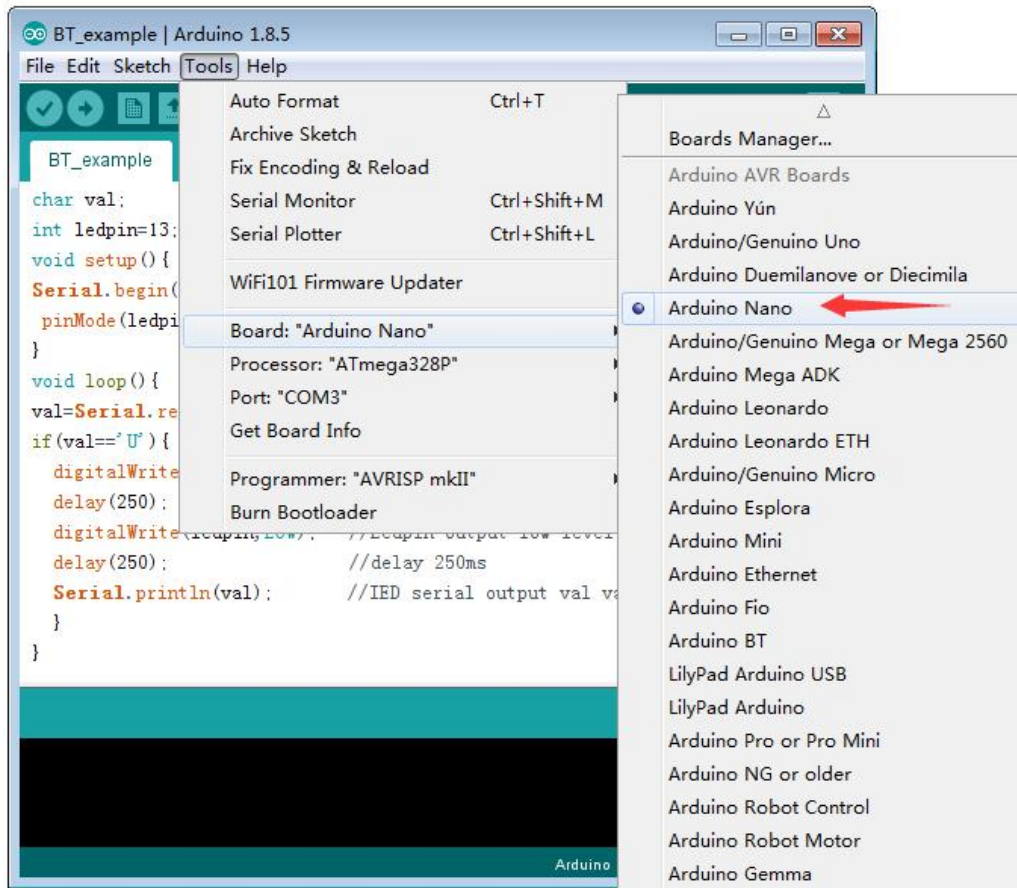
Note: When uploading the code, the Bluetooth module cannot be plugged into the expansion board. Please insert the Bluetooth back onto the expansion board after the code upload is completed.

```
char val;
int ledpin=13;           //Define the pin 13 of ledpin
void setup(){             //Set parameter function
  Serial.begin(9600);      //Set the baud rate of serial port for 9600
  pinMode(ledpin,OUTPUT); //Define 13pin to output mode
}
void loop(){              //The main loop function
  val=Serial.read();       //Read a serial port is stored into the val
  if(val=='U'){            //Judge whether the value of the val FF01F
    digitalWrite(ledpin,HIGH); //Ledpin output high level
    delay(250);            //delay 250ms
    digitalWrite(ledpin,LOW); //Ledpin output low level
    delay(250);           //delay 250ms
    Serial.println(val);   //IED serial output val values
  }
}
```

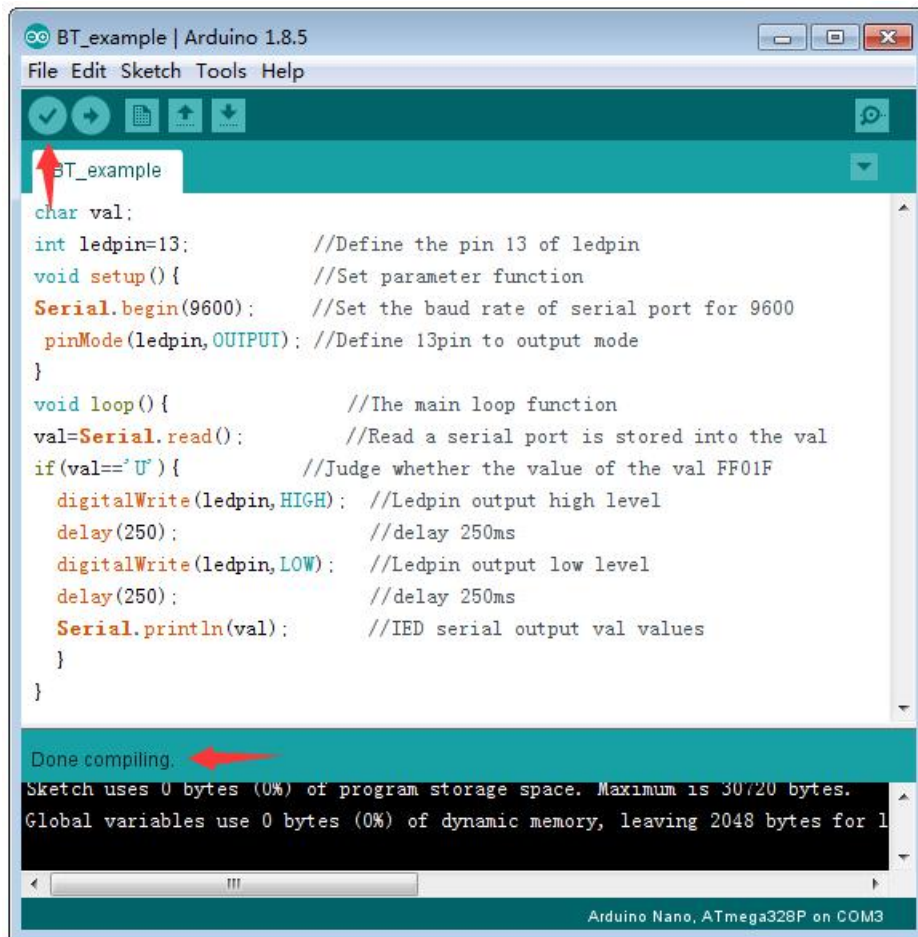
Wiring diagram



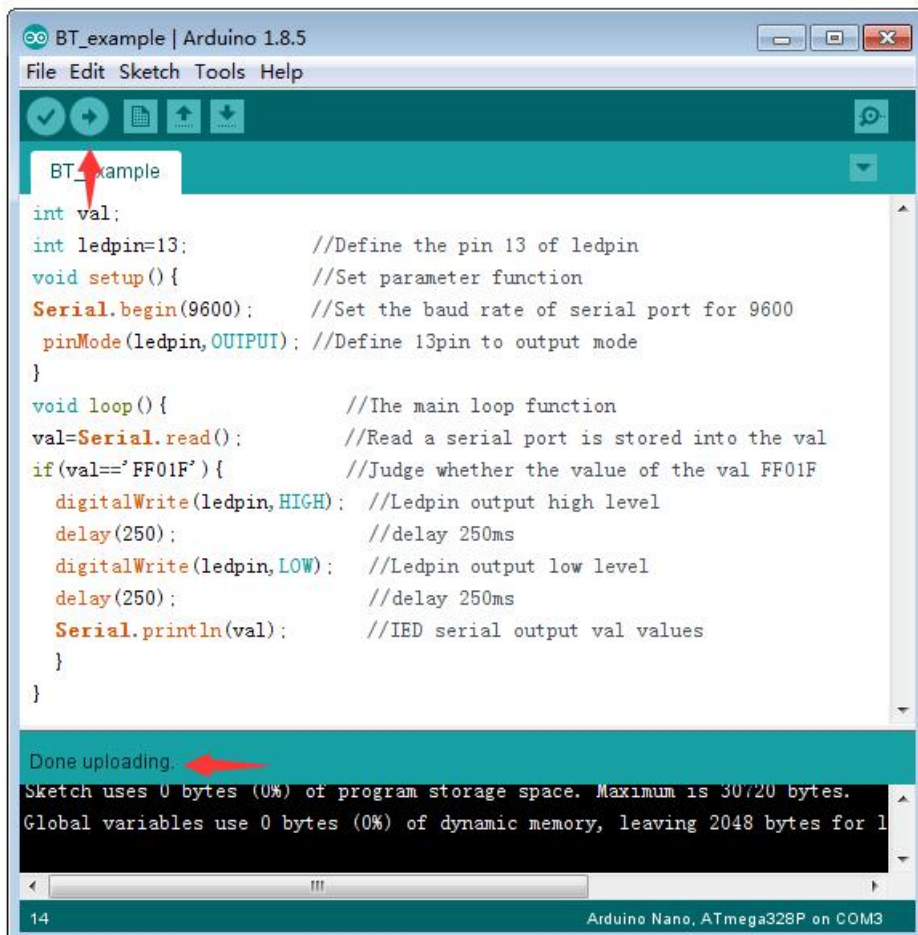
6.3 Select the corresponding board type and com port in the IDE:



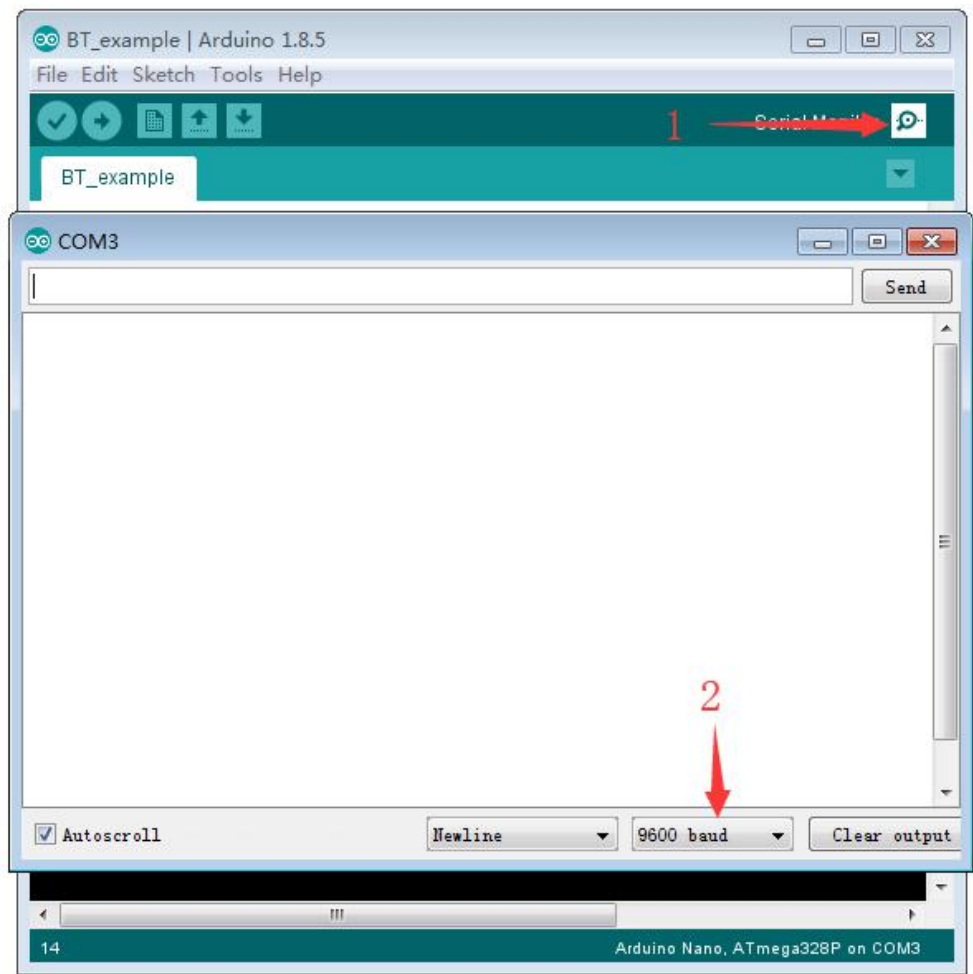
6.4 Copy the code in the IDE and verify the code:



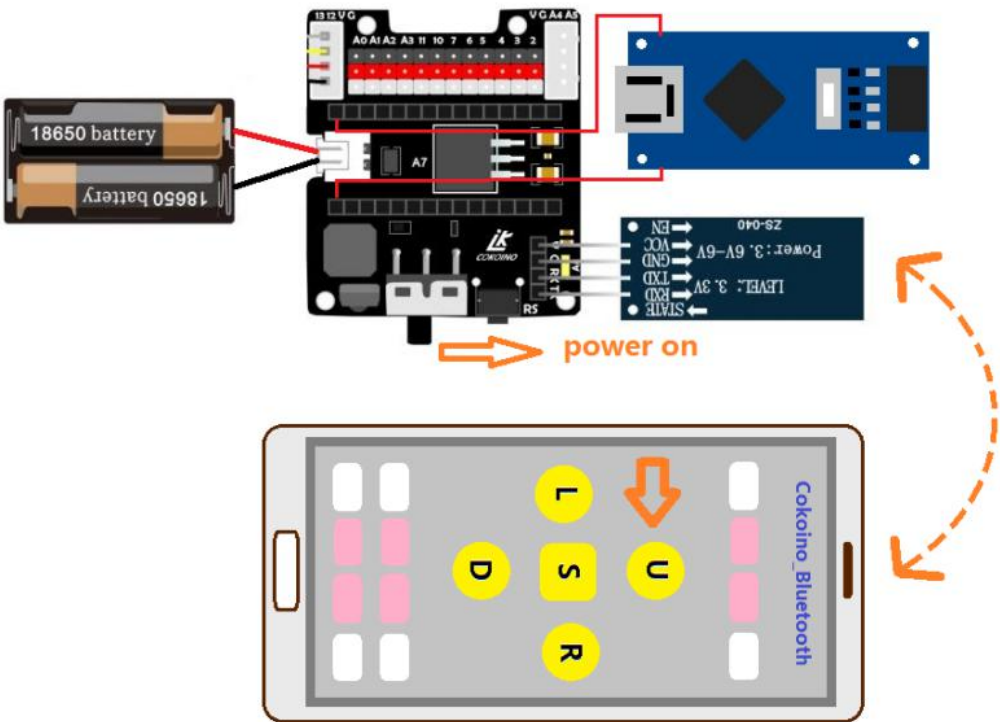
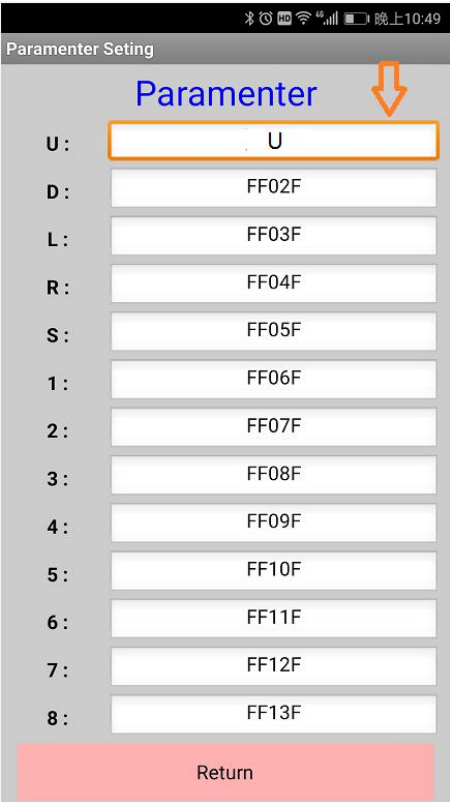
6.5 Upload the code to the nano motherboard: (The Bluetooth module cannot be connected to the nano expansion board when uploading the code, and then plugged in again after the upload is complete)



Then open the serial monitor and set the baud rate to 9600, as shown below:



6.6 Re-plug the Bluetooth module back into the nano expansion board, connect the HC-06 Bluetooth module to the phone, modify the parameter of the “U” button to “U”, and then click the “U” button to send the data “U”, as shown below:



6.7 The serial monitor prints a ‘U’, and the “L” LED on the nano motherboard flashes once:

