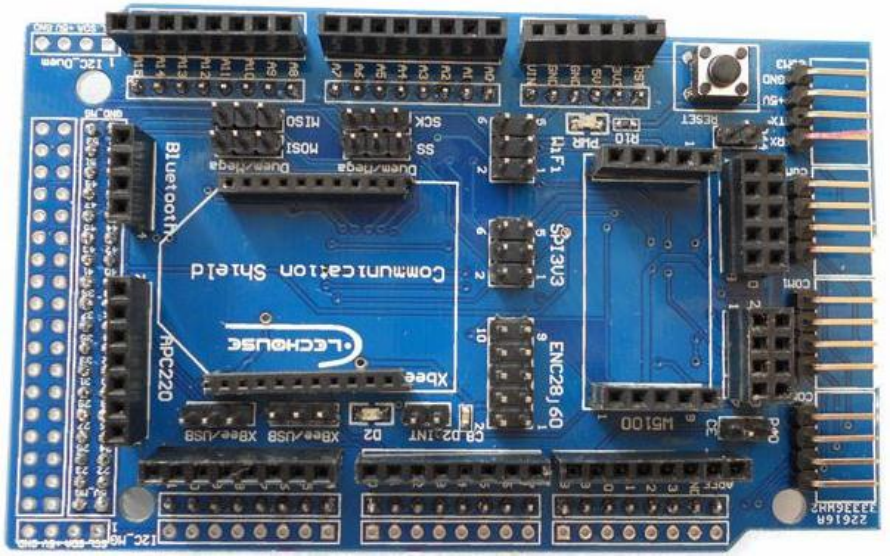
Communication Shield user manual

INTRODUCTION

Arduino is a good platform for open source hardware and can be used in many applications. Thus a lot of electronic modules would be used in this platform, such as APC220, XBee, Bluetooth, Ethernet module and so on. For different module, there might be different shield in the market. However, if you want to use a lot of modules, you might need to prepare a lot of shields, which can make your work troublesome, and you may have to pay a lot of money for these expensive shields. What's more, in the case of using two or more modules at the same time, it will be difficult or nearly impossible.

Since we supply many kinds of electronic modules for Arduino, we design this Communication Shield to solve the problems we talked above. And with it, your work would be much easier. You can use two or more modules on Arduino platform at the same time. And it works well in solving the problems of troublesome wire connection. You just plug the pins of your module into the slots or connect the pins of according places. Last but not least, the cheap price can save you a lot of money. Figure 1 shows the picture of it, including the front and the back.



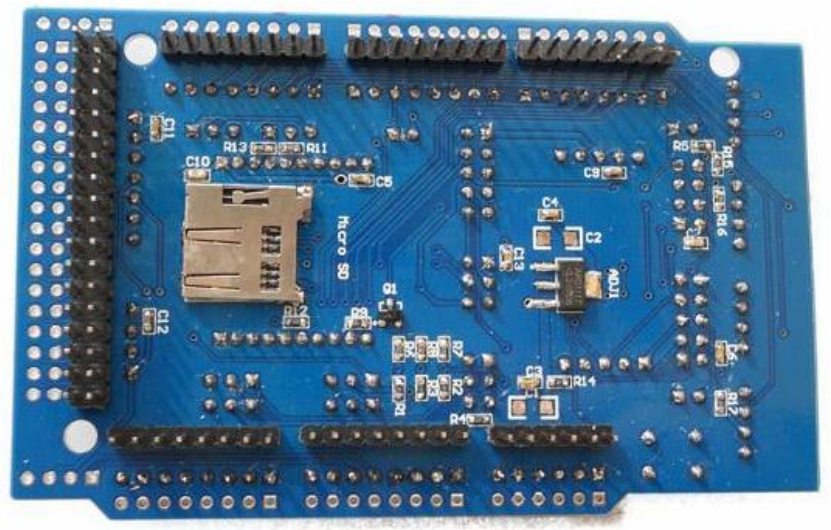
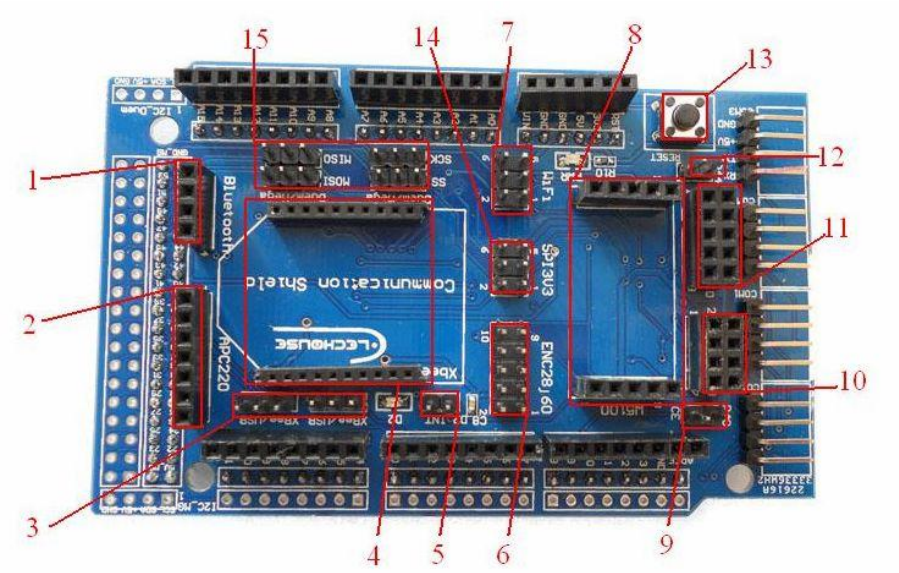


Figure 1.picture of Communication Shield

DETAILS OF THE BOARD

On the Communication Shield, there are a lot of ports for different modules and some jump wires to change the connection mode of the modules, as is shown in figure 2.



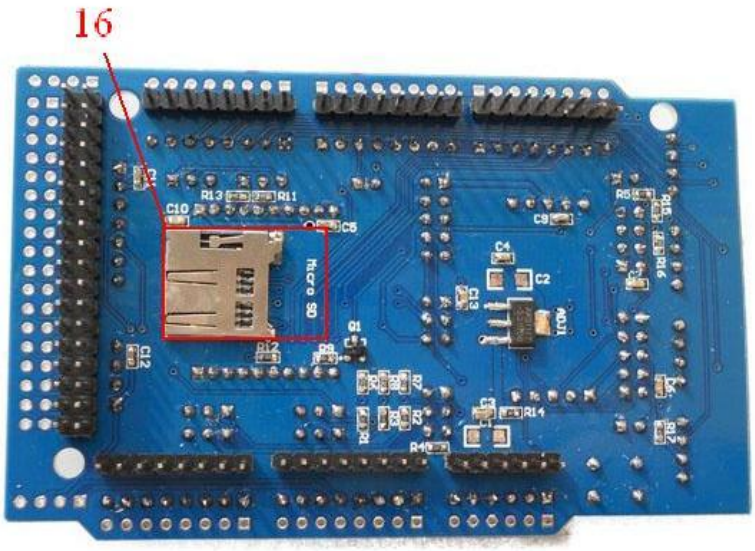


Figure 2.details of Communication Shield

1. *Slots for Bluetooth module, connected with Arduino through serial communication.*
2. *Slots for APC220 module, connected with Arduino through serial communication.*
3. *Jump wires for XBee module, change the connection of XBee module and make it connected to computer by USB interface or connected with Arduino through serial communication.*
4. *Slots for XBee module, two connection modes which can be changed by jump wire "USB/XBee".*
5. *Jump wire D2_INT,put it on to connect the interrupt port of the modules with D2 port of Arduino, modules including W5100,NRF24L01,CC1101.*
6. *Port for ENC28j60 module, connected with Arduino through SPI.*
7. *Port for WiFi module, connected with Arduino through SPI.*
8. *Slots for W5100 module, connected with Arduino through SPI.*
9. *Jump wire P40, used with jump wire P44 together to control the connection of Arduino and NRF24L01 or CC1101 modules.*
10. *Slots for NRF24L01 module, connected with Arduino through SPI.*
11. *Slots for CC1101 module, connected with Arduino through SPI.*
12. *Jump wire P44, used with jump wire P40 together to control the connection of Arduino and NRF24L01 or CC1101 modules. Port D9 of Arduino would be connected with port CE of P44 is on.*
13. *Reset button, press it to reset Arduino.*

14. *Port of 3.3V SPI interface, in case of using some other modules with 3.3V SPI.*

15. *Jump wires for SPI interface, choosing the right Arduino when using SPI.*

16. *Micro SD socket, using SD card on Arduino platform through SPI.*

To connect the Arduino board with Communication Shield, you just plug the pins on the back side of the shield into the according slots of the Arduino board and with the help of the mark on the board, you can make the connection very easily.

On the left of the front of the Communication Shield, there are four serial communication ports marked "COM0","COM1"…They are connected with the four according serial communication ports of Arduino Mega, and when using Arduino UNO, the serial communication port is connected with "COM0". For each pin of these serial ports, the function is the same as marked in "COM3" on the board.

USER GUIDE

Connect with Arduino board

To connect the Arduino board with Communication Shield, you just plug the pins at the back of Communication Shield into the according slots of Arduino board. The marks on the Communication Shield can help you make the correct connection very easily. Figure 3 and figure 4 shows the connection between Communication Shield and the Arduino board, including Arduino UNO and Arduino Mega.

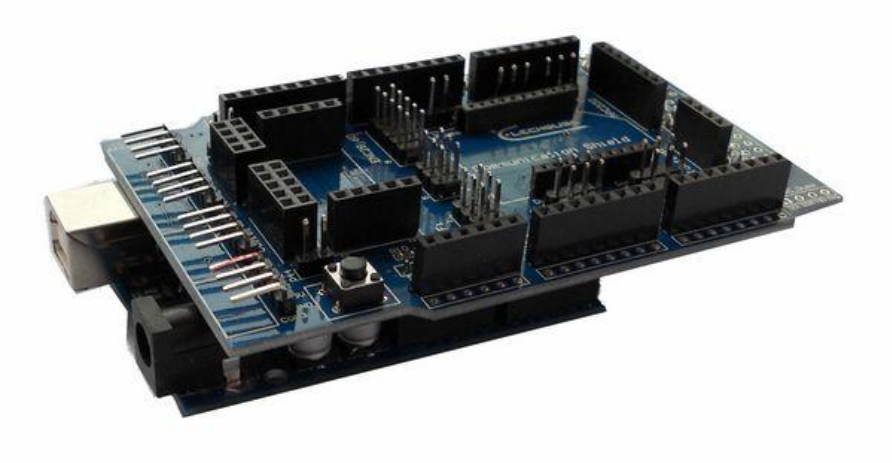


Figure 3.connection between Arduino UNO and Communication Shield

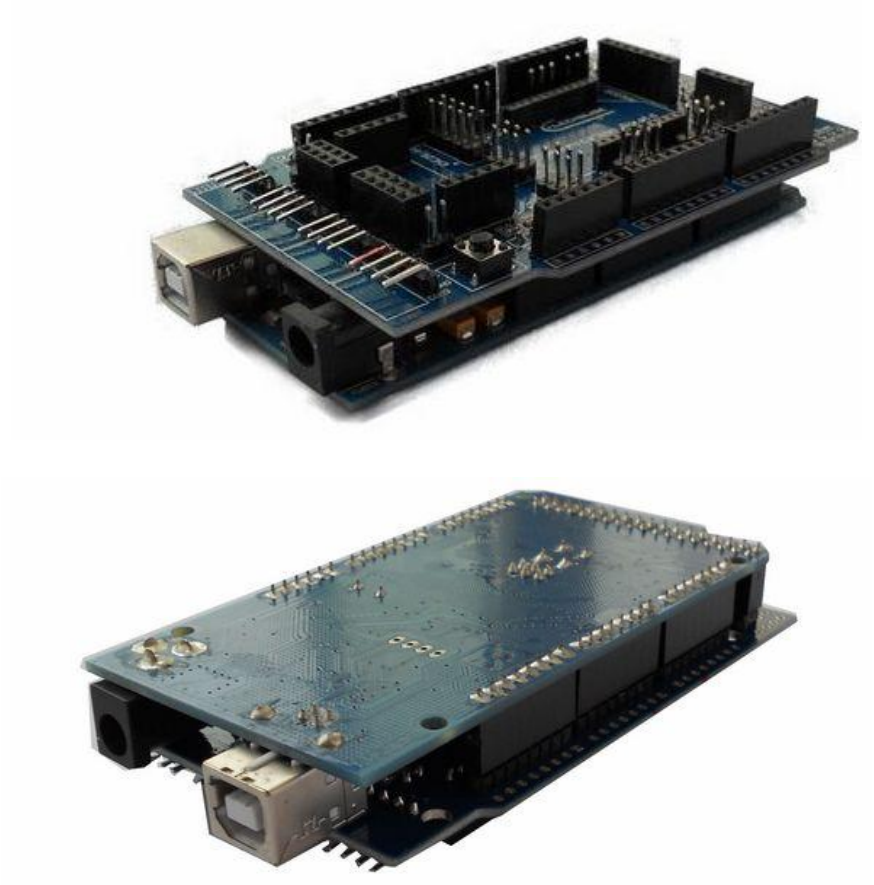


Figure 4.connection between Arduino Mega and Communication Shield

Connect the Bluetooth module

To connect the Bluetooth module correctly to Arduino through Communication Shield, you should understand the ports for Bluetooth module and connect correctly. The ports are connected with the serial communication ports of Arduino, as is shown in figure 5.

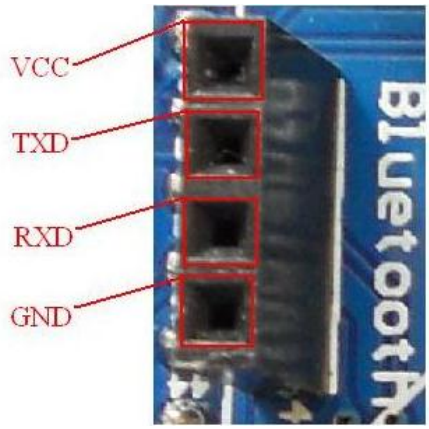


Figure 5.slots for Bluetooth on Communication Shield

You can finish the connection simply by plugging the pins of the module into the slots, as is shown in figure 6.

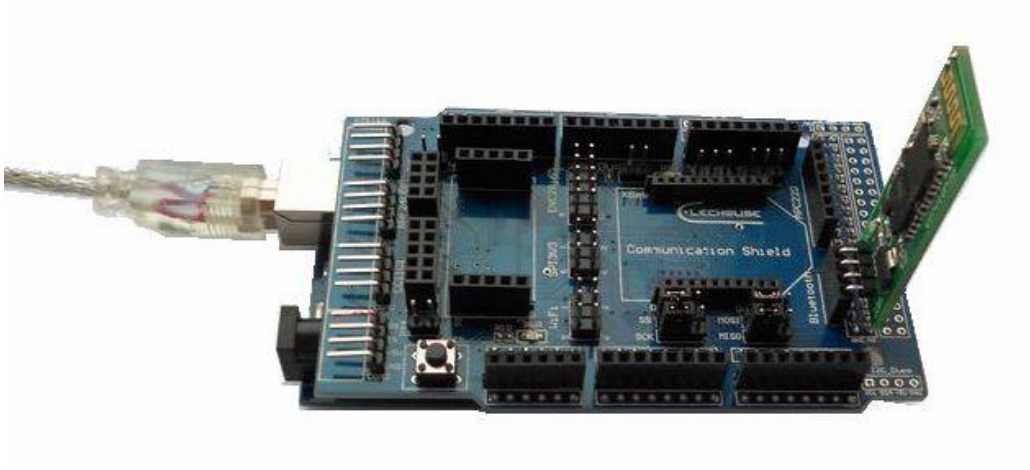


Figure 6.connect the Bluetooth module

Connect the APC220 module

The details of the slots for APC220 module are shown in figure 7.

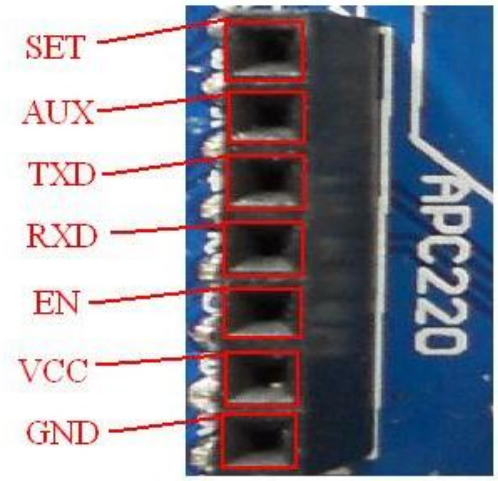


Figure 7.ports for APC220

And the correct connection is shown in figure 8.

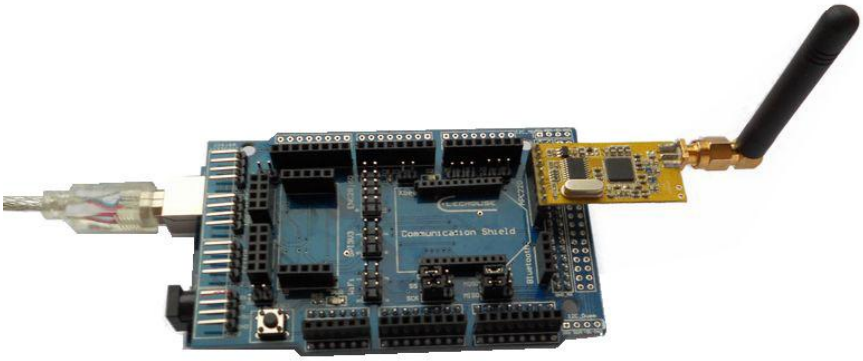


Figure 8.connect the APC220 module

Connect the XBee module

There are many ports of XBee modules, however you do not need to know each of them. Because we often use it with an expansion board on the Arduino platform, it is connected with Arduino through serial communication. To use Communication Shield, you just need to know how to make the right connection, which is already marked on the board. Figure 9 shows the right connection.

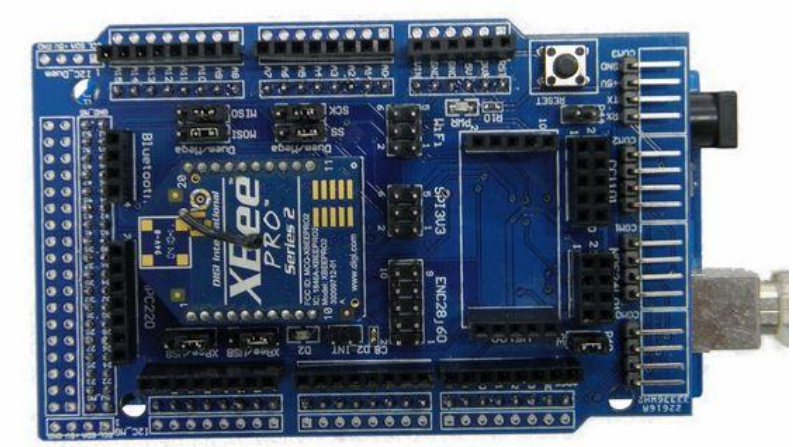


Figure 9.XBee on Communication Shield

But to use it correctly, you also have to make the right choice of connection mode by its jump wires, as is shown in figure 10.

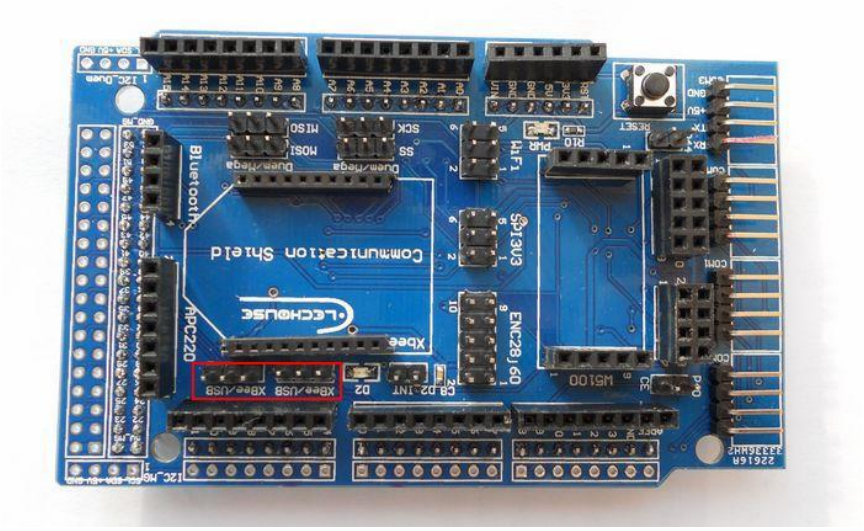


Figure 10.jump wires for XBee

Connect the ENC28j60 module

ENC28j60 module should be connected with Arduino through SPI, and by using Communication Shield you can make the right connection easily, you just need to understand the ports for it on Communication Shield, as is shown in figure 11.

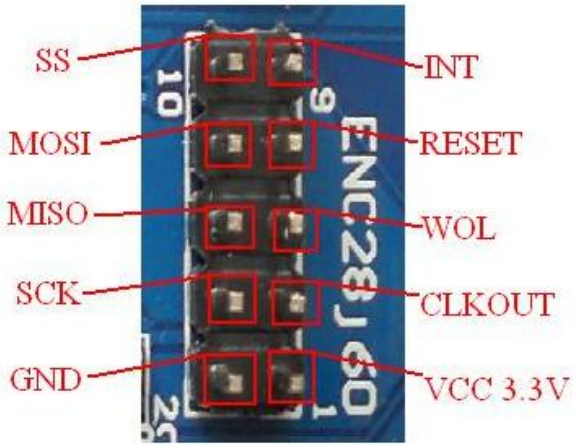


Figure 11.pins for ENC28j60 module

After you understand the ports, you can connect the module correctly. It would be very easy to make the correct connection, because the ports of the module are in according places, as is shown in figure 12.

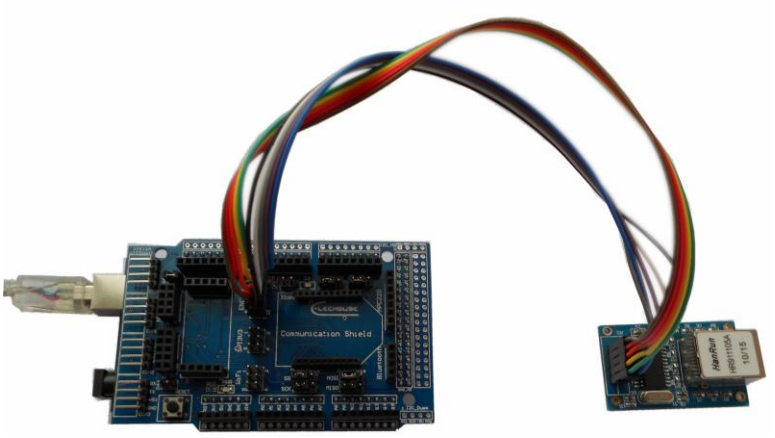


Figure 12.connect ENC28j60 module with Arduino through Communication Shield

Connect the WiFi module

To connect the WiFi module correctly, you should understand the ports of the module and the ports for it on Communication Shield. However, because the ports are lined at according places, so you do not need to find for everyone. The ports for WiFi module are shown in figure 13.

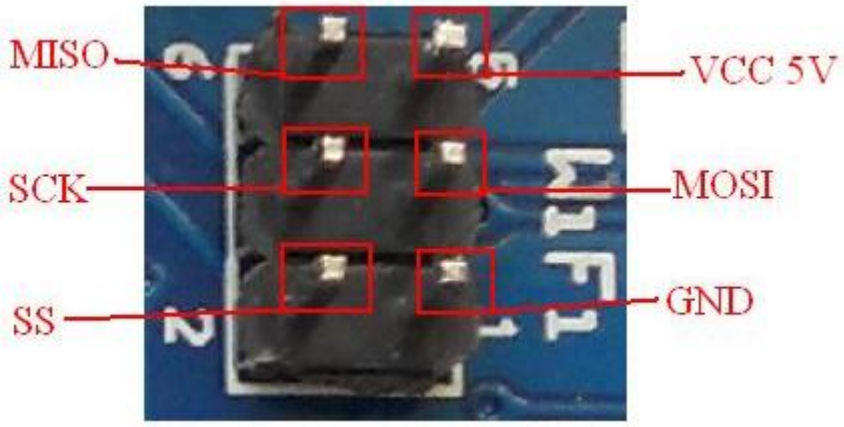


Figure 13.pins for WiFi module on Communication Shield

After you understand the pins of the WiFi module, you can make the right connection. Because they are lined at according places, so it would be very easy to make it, as is shown in figure 14.

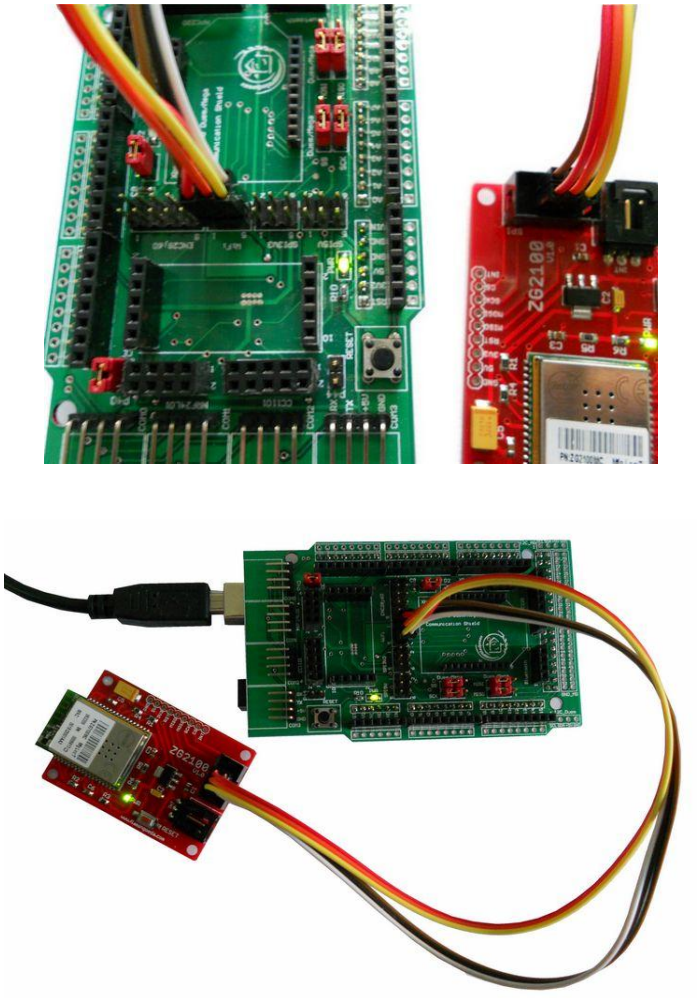


Figure 14.connect the WiFi module through Communication Shield

Connect the W5100 module

To connect the W5100 module, you should first find the ports for it on Communication Shield, which is shown in figure 15.

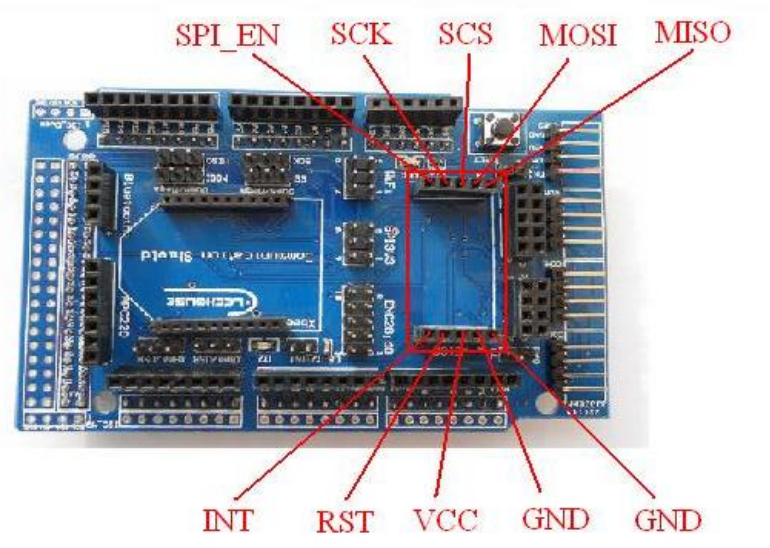


Figure 15.ports for SW5100 on Communication Shield

After you find the ports and understand them, you can make the correct connection, as is shown in figure 16.

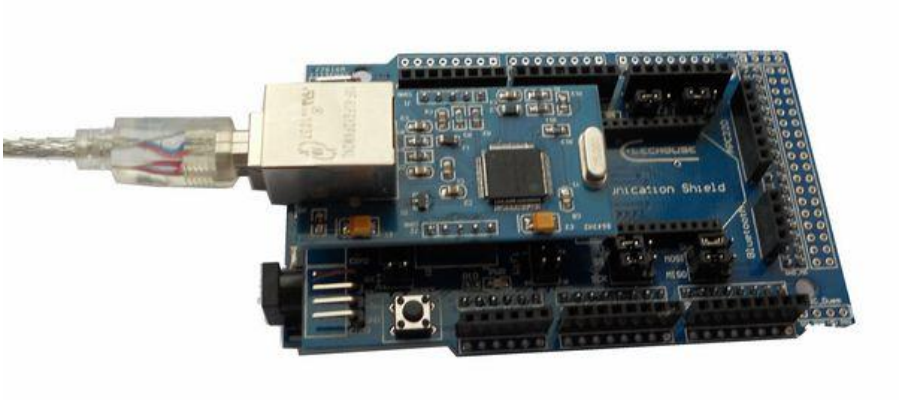


figure 16.W5100 on Communication Shield

Connect the NRF24L01 module

To connect NFR24L01 module with Arduino correctly, you have to understand the ports for NRF24L01 on Communication Shield, as is shown in figure 17. The module is linked with Arduino through SPI.

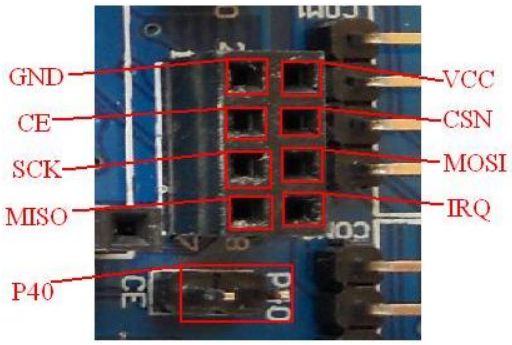


Figure 17.ports and jump wire for NRF24L01 on Communication Shield

After you understand the port, you can connect them correctly, as figure 18 shows. However, you should also put the jump wire P40 on.

Figure 18.connect NRF24L01 to Arduino through Communication Shield

Connect the CC1101 module

To connect CC1101 module with Arduino correctly, you have to understand the ports for CC1101 on Communication Shield, as is shown in figure 19. The module is linked with Arduino through SPI.

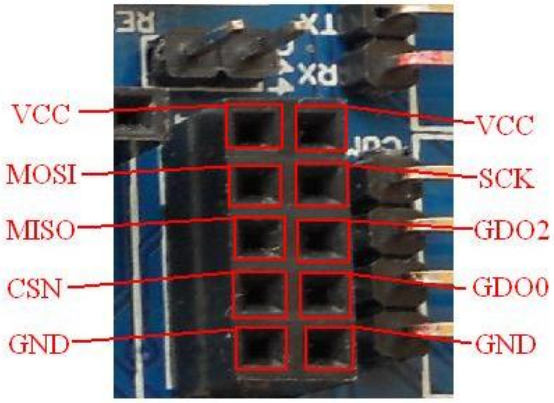


Figure 19.ports for CC1101

After you understand the port, you can connect them correctly, as figure 18 shows. However, you should also put the jump wire P40 on, and if you are going to use GDO2 of CC1101,put P44 on, too.

Figure 20.CC1101 on Communication Shield

Other ports

Except the ports for the modules, there are some other ports for more applications and extension, as is shown in figure 21.

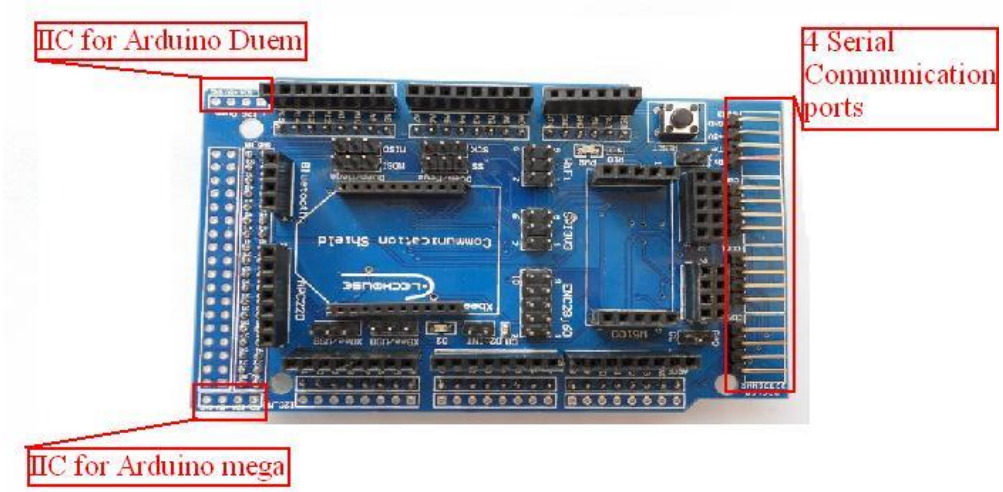


Figure 21.other ports on Communication Shield

Disclaimer and Revisions

The information in this document may change without notice.

Revision History

Rev.	Date	Author	Description
A	May. 22nd, 2011	Wilson Shen	Initial version