

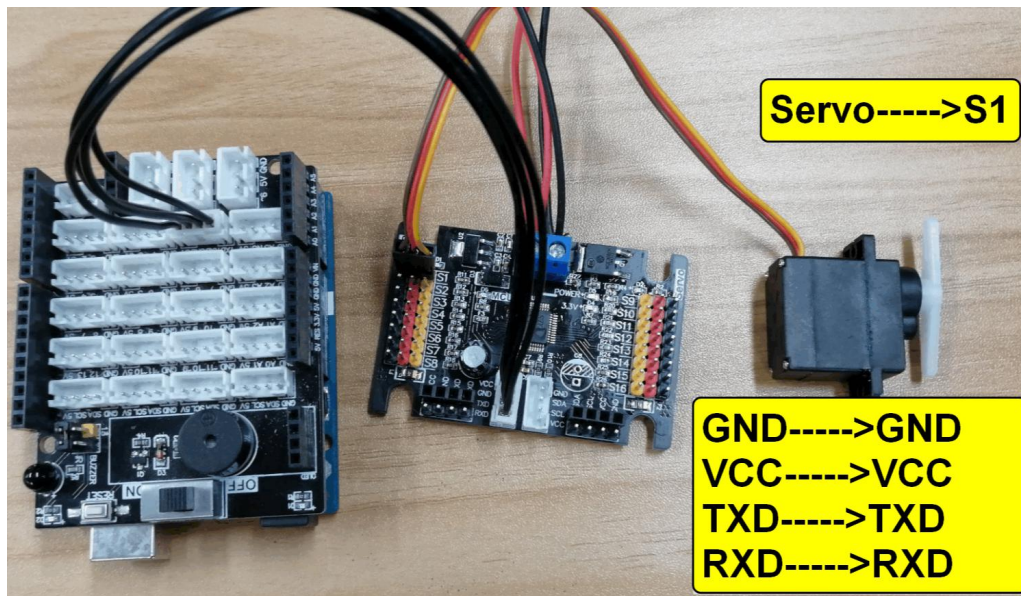
Serial control servo

1. Learning goals

In this course, we mainly learn to use Arduino and 16-channel servo debugging board to control the servo through IIC.

2. Preparation

Connect the RXD and TXD of the module to the RXD and TXD pins of the arduino UNO board. VCC and GND are connected to 5V and GND of Arduino UNO respectively. As shown below.



3. About code

3.1 The servo control function, according to the protocol, 0x24 and 0x23 are the header and the end of the data packet respectively.

```
bool UARTWrite(unsigned char reg_addr, unsigned char date)
{
    unsigned char date1 = 0;
    unsigned char date2 = 0;
    unsigned char date3 = 0;
    reg_addr = 64 + reg_addr;
    date1 = date/100 + 48;
    date2 = (date%100)/10 + 48;
    date3 = date%10 + 48;
    Serial.write(0x24);
    Serial.write(reg_addr);
    Serial.write(date1);
    Serial.write(date2);
    Serial.write(date3);
    Serial.write(0x23);
    delay(100);
    return true;
}
```

3.2 Initialize serial communication

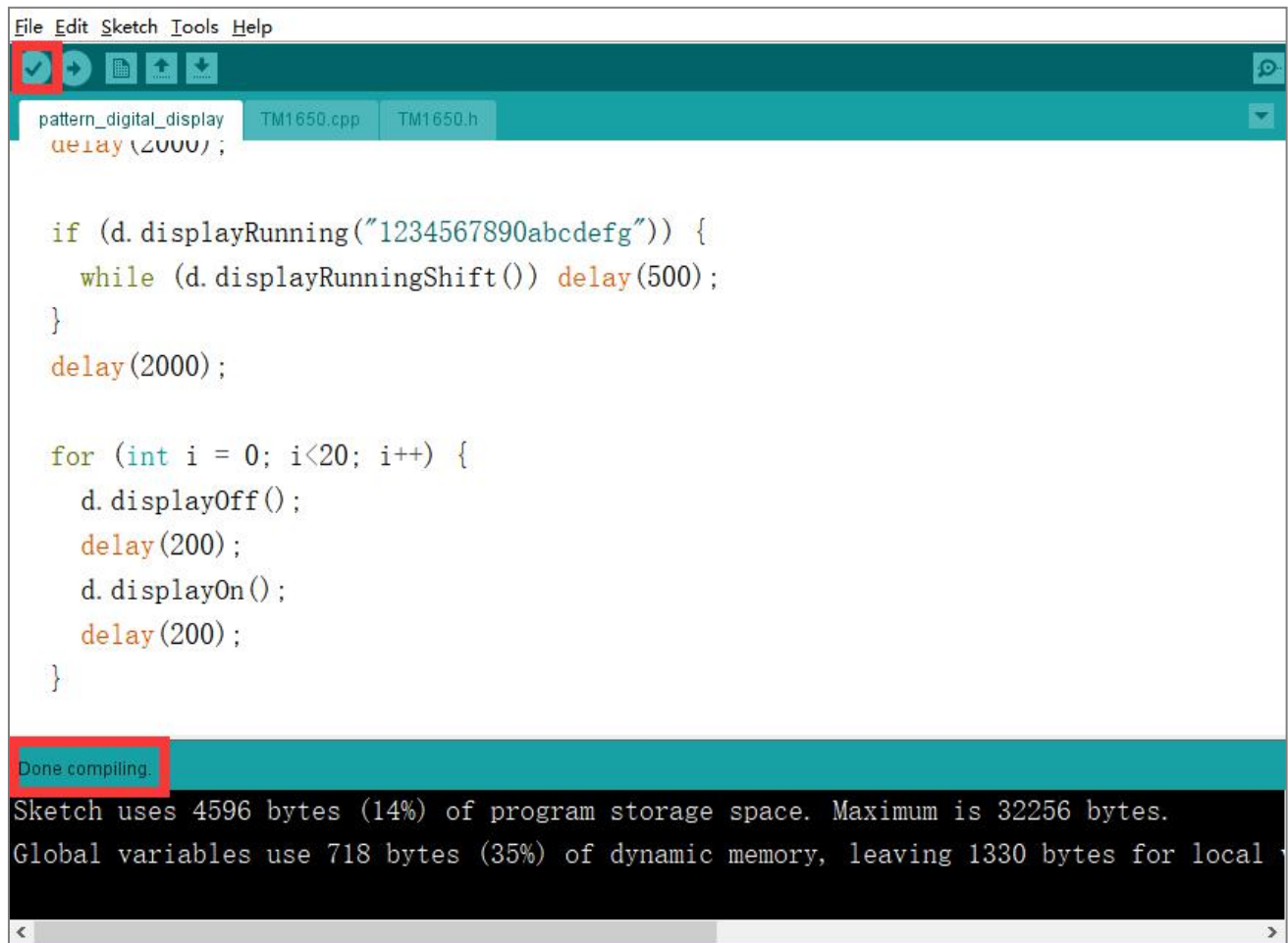
```
Serial.begin(9600);
```

3.3 Set the angle of the servo S1 to 0

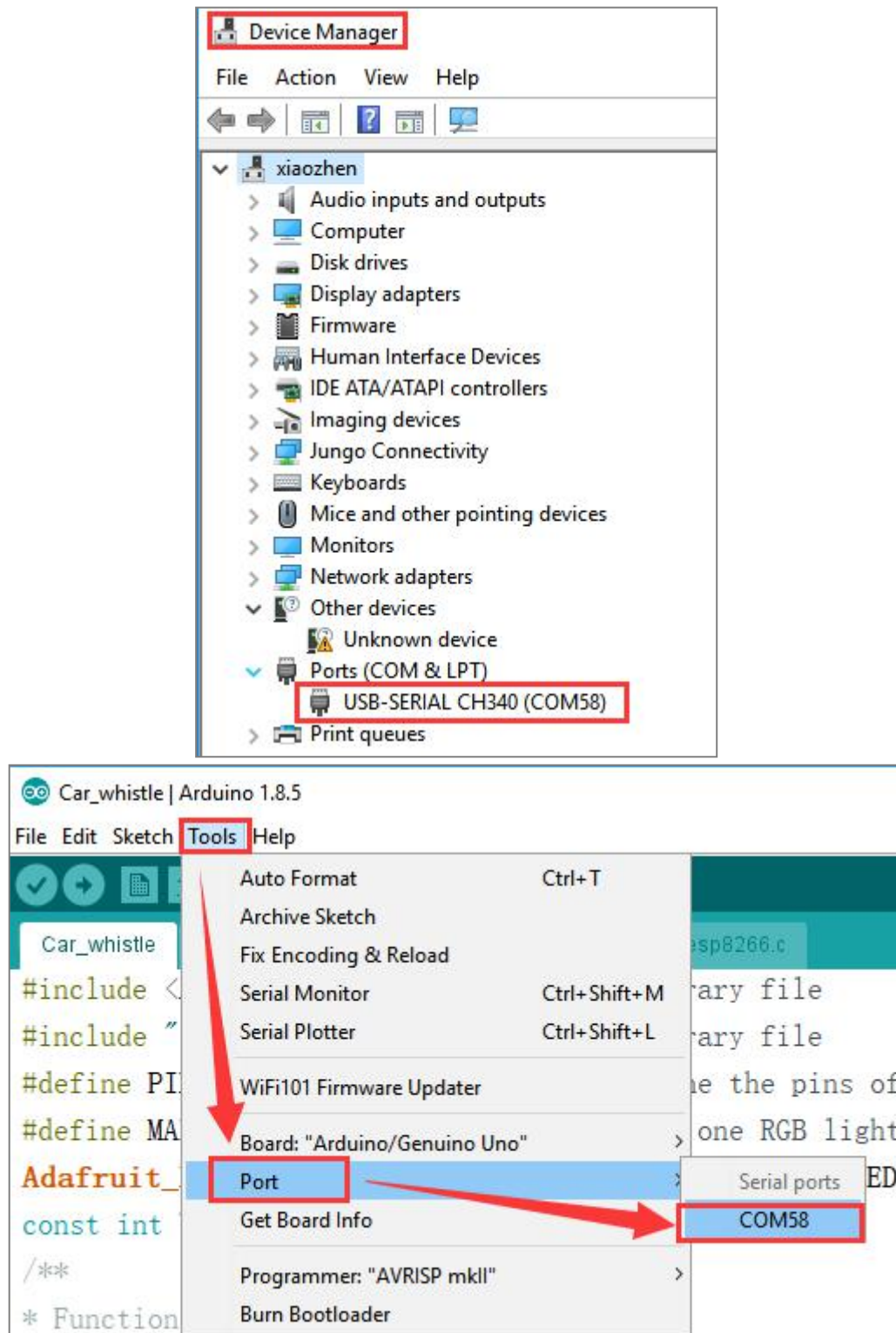
```
UARTWrite(1,0);
```

4. Compiling and downloading code

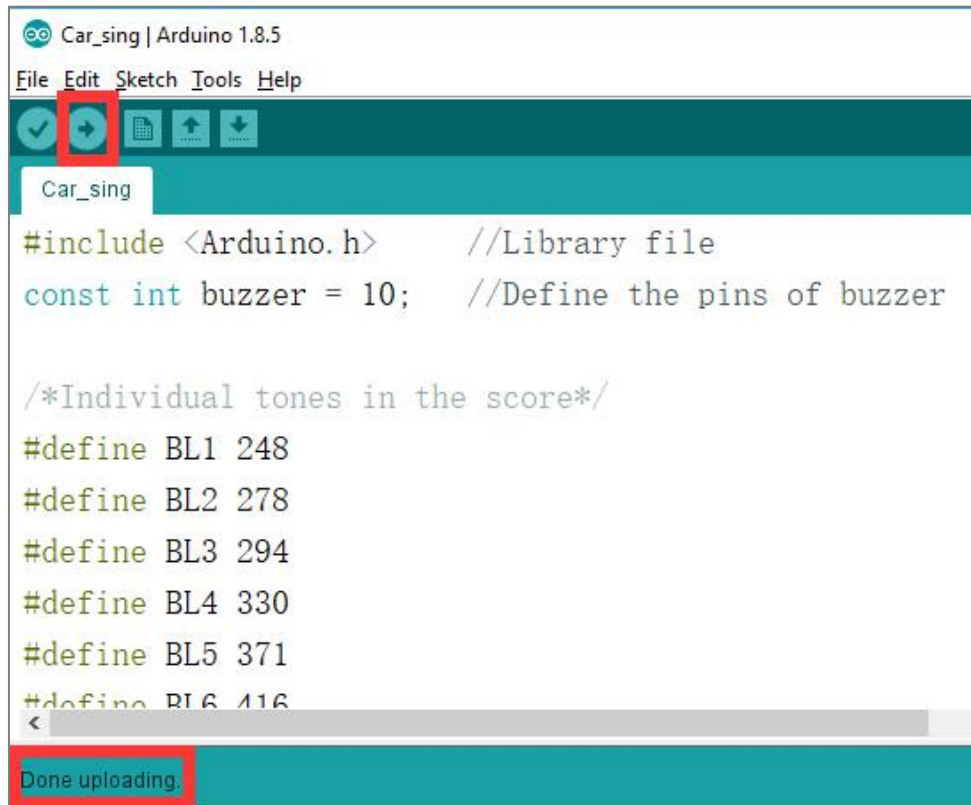
4.1 We need to open the **.ino** file by Arduino IDE software. Then click “v” under the menu bar to compile the code, and wait for the word "Done compiling " in the lower left corner, as shown in the figure below.



4.2 In the menu bar of Arduino IDE, we need to select **Tools** --- **Port** --- selecting the port that the serial number displayed by the device manager just now, as shown in the figure below.



4.3 After the selection is completed, you need to click “→” under the menu bar to upload the code to the UNO board. When the word “Done uploading” appears in the lower left corner, the code has been successfully uploaded to the UNO board, as shown in the figure below.



5. Phenomenon

After the program is downloaded successfully. The servo will rotate 0° , after 2s it will rotate 180° , after 2s servo will rotate 0° , keep the loop like this status.