

Optical Fingerprint Sensor

Overview

This is an Arduino compatible fingerprint module. With the high speed DSP processor, it could also work with other serial device, like MSP430, 51, AVR, PIC, STM32, ARM and FPGA device. This fingerprint module could work alone without any principal computer or any PC software. It could store 1000 fingerprint. Support fingerprint entry, intelligent image processing, fingerprint comparison and fingerprint search mode. It also has a high sensitivity to both wet and dry fingerprint recognition.

This module could be widely used in security field, such as license management .etc. It can also be used to replace the IC card, password, hardware switch in your application.



Order Code

Order Code	Brand	Description
E37005-001	DFRobot	Optical Fingerprint Sensor

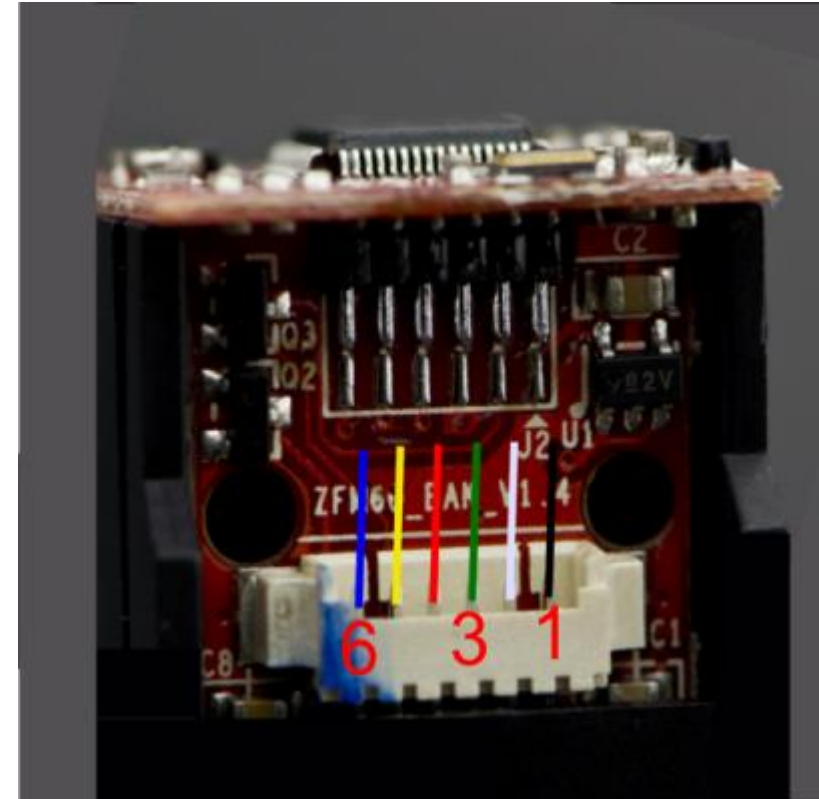
Specification

- Power supply: DC 3.8V-7.0V
- Operating current: 65mA (Typical)
- Interface: UART (TTL logical level)
- Baud rate: (9600*N)bps, N=1~12(default N=6, 57600bps)
- Image acquisition time: <1S
- Storage capacity: 1000
- FAR: <0.001%
- FRR: <1.0%
- Average searching time: <1s (1:500, average)
- Matching Mode: comparison mode (1:1) and search mode (1:N)
- Character file: 256 bytes
- Template file: 512 bytes
- Security level: 5(1,2,3,4,5(highest))
- Working environment:
 - Temp: -20°C - +60°
 - RH: 40%-85%
- Storage environment:
 - Temp: -40°C - +85°C
 - RH: <85%
- Touch area dimension: 14.5*19.4 mm
- Outline dimension: 54*20*20.5 mm

Optical Fingerprint Sensor

Board Overview

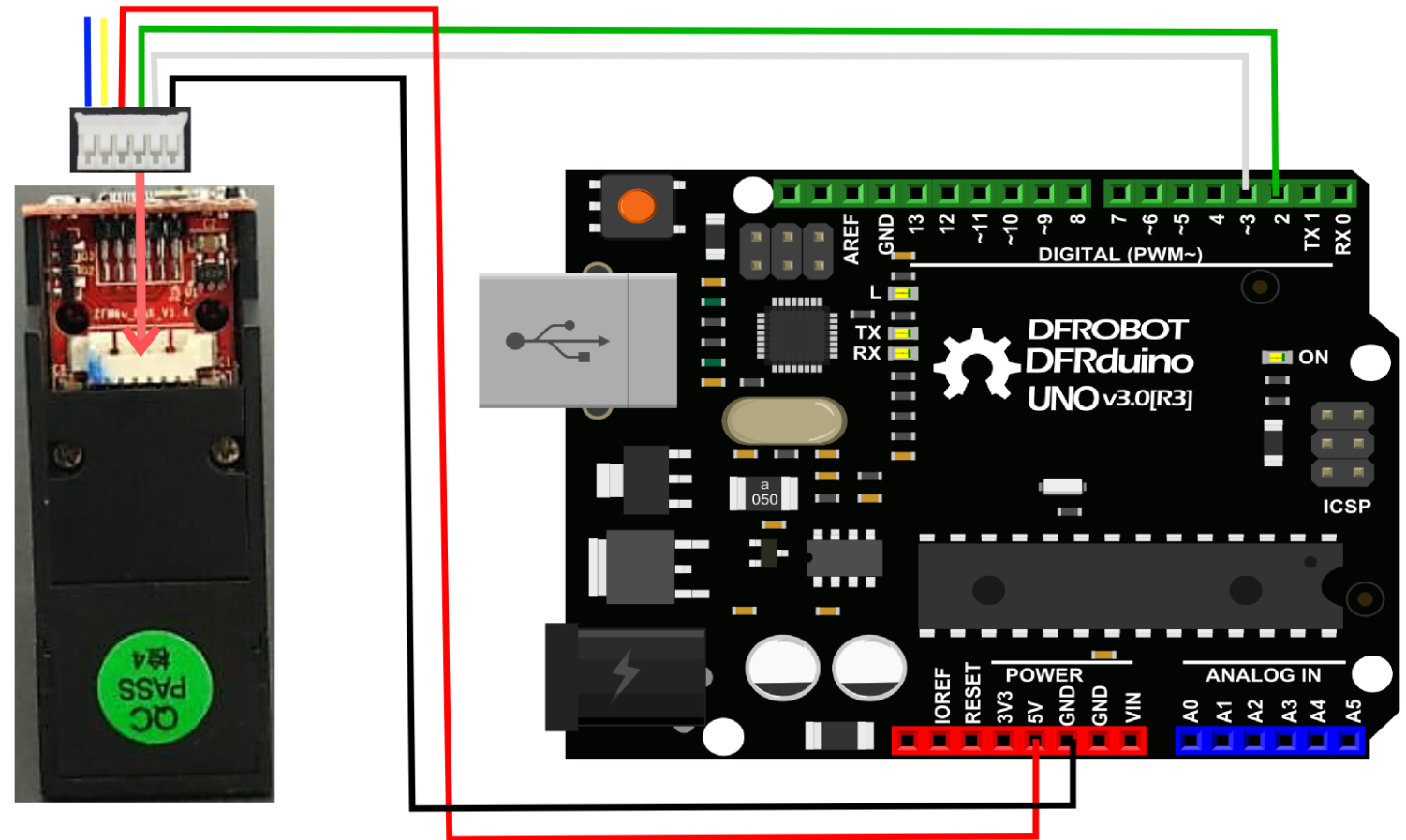
Label	Name	Description
1	GND	Signal ground.(cable color: black)
2	RD	Data input. TTL logical level (cable color: white)
3	TD	Data output. TTL logical level (cable color: green)
4	VIN	Power input (cable color: red)
5	SOUT	Induction signal output (cable color:yellow)
6	VTOUCH	Touch induction power input (cable color: blue)



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Connection Diagram

Fingerprint Pin	UNO Pin
VIN	5V
TD	2 (Software Serial RX)
RD	3 (Software Serial TX)
GND	GND



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How to use

Input Fingerprint Data

Codes download

- Download and install the Fingerprint Library:

[Click to download library files](#)
[Arduino Library Installation Tutorial](#)

- Open Fingerprint Library sample code -> fingerprint -> examples -> enroll.ino.
- Connect UNO and fingerprint module according to the connection diagram.
- If you want to clear all previous saved fingerprint template, please change the number which arrows point 0 to 1, if you don't want to clear all fingerprint data. just keep it "0" in the code.

```
enroll | Arduino 1.6.5
File Edit Sketch Tools Help
enroll
#include <fingerprint.h>

#include <SoftwareSerial.h>

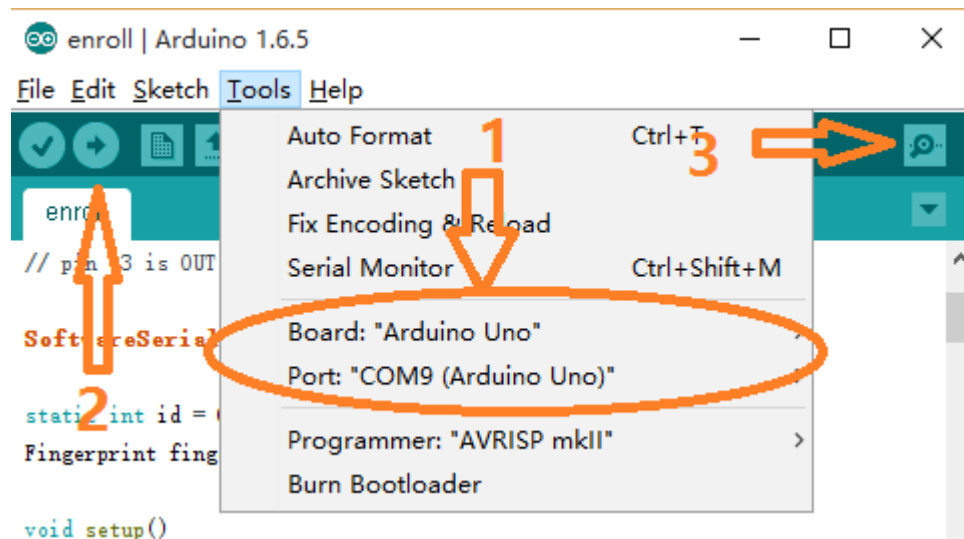
#define EmptyAllFingerPrint 0 //If you want Empty fingerprint set 1, if you no

// pin #2 is IN from sensor (GREEN wire)
// pin #3 is OUT from arduino (WHITE wire)
```

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How to use

- Select the Board and Port
- Upload
- Open Serial monitor



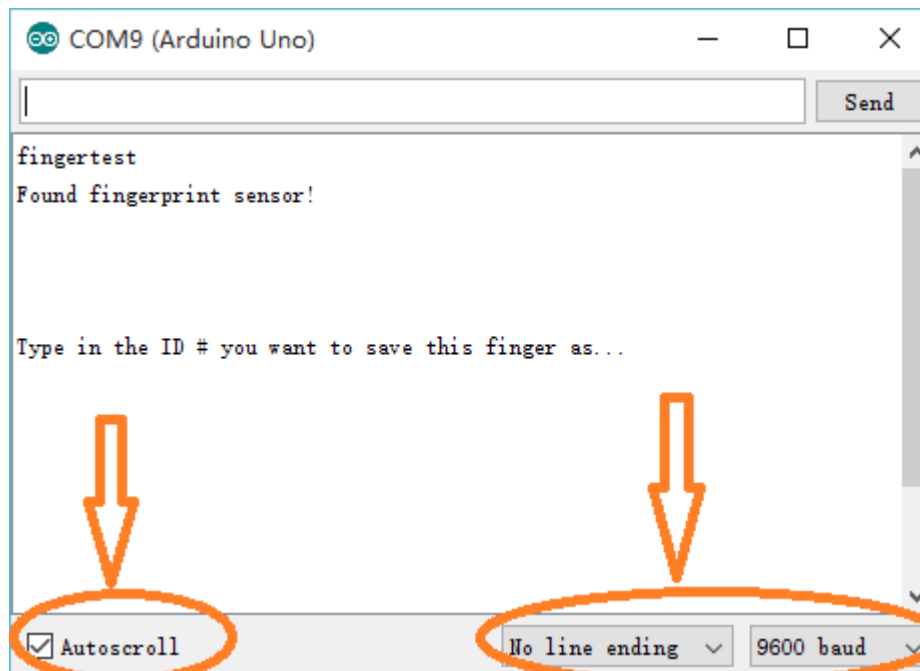
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How to use

Serial Pont

- Set Serial baud rate 9600
- No line ending
- Check Autoscroll

After you finish seting its parameter and make sure the connection is right, you will get this display in the serial monitor :



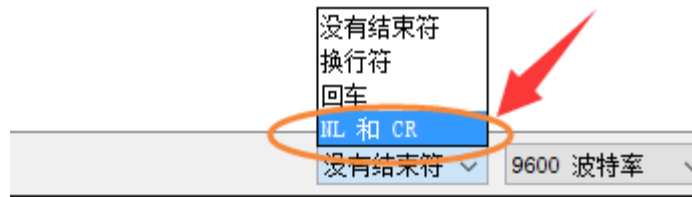
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How to use

Set mode

- Set the NL mode to the NL+CR

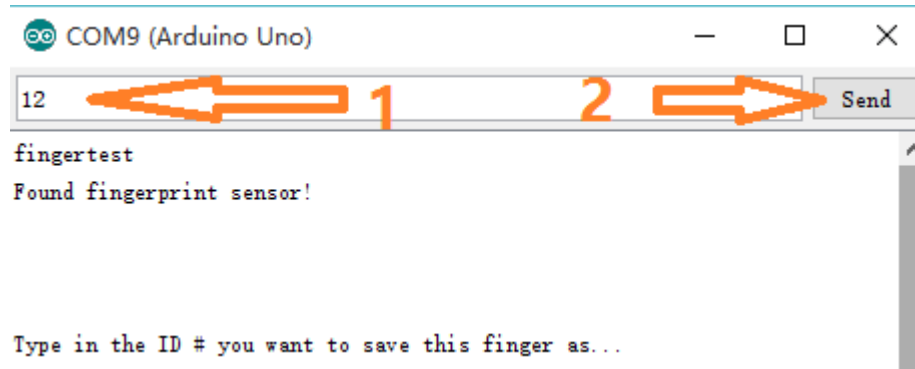


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How to use

Enter your fingerprint ID

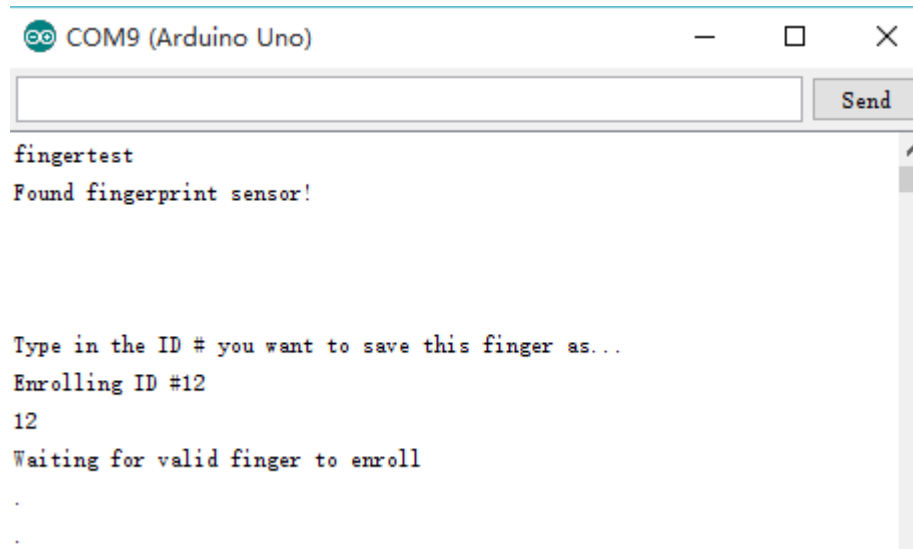
- Now please enter your fingerprint ID in the serial monitor and then click the "Send" button.



How to use

Put your finger on the fingerprint module

- Don't move finger until you get "Remove finger".

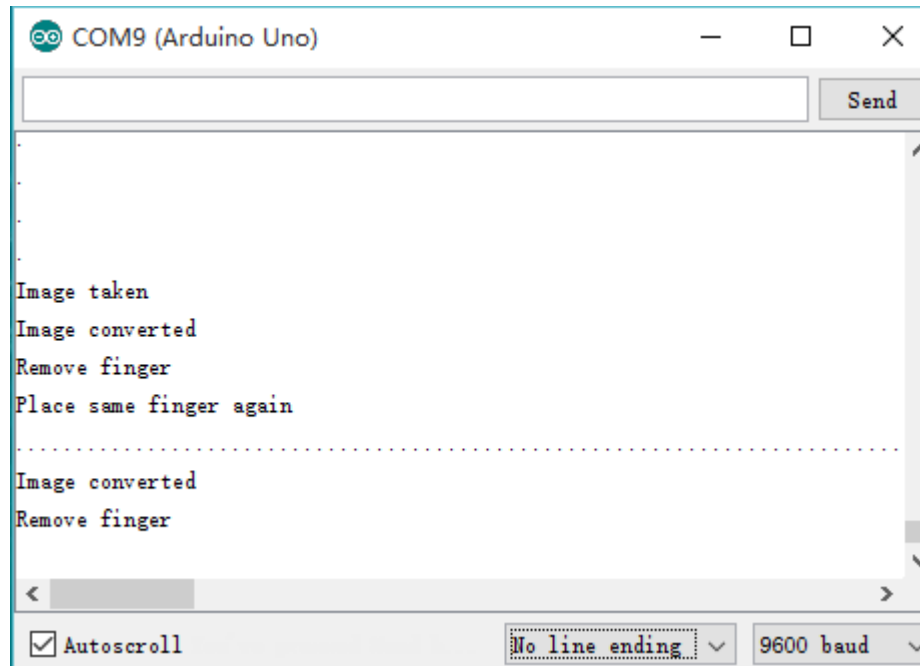


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How to use

Confirm your fingerprint again

- It will tell you to enter the fingerprint again, put the same finger on the module again.
- Don't move finger until you see "Remove finger"



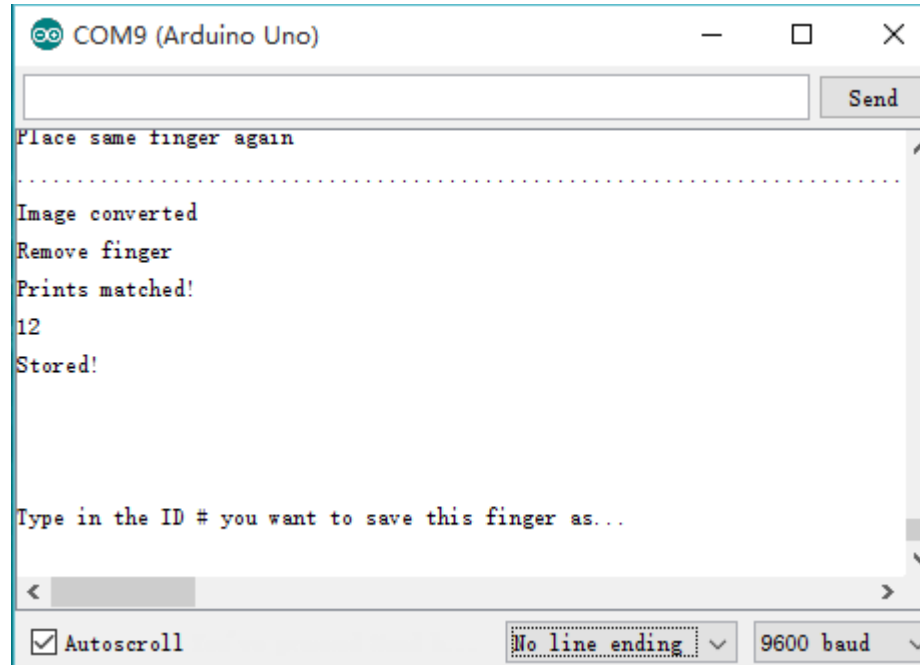
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How to use

Store successfully and you can input to the next finger again

- Stored successfully
- Keep going to input fingerprint if you want



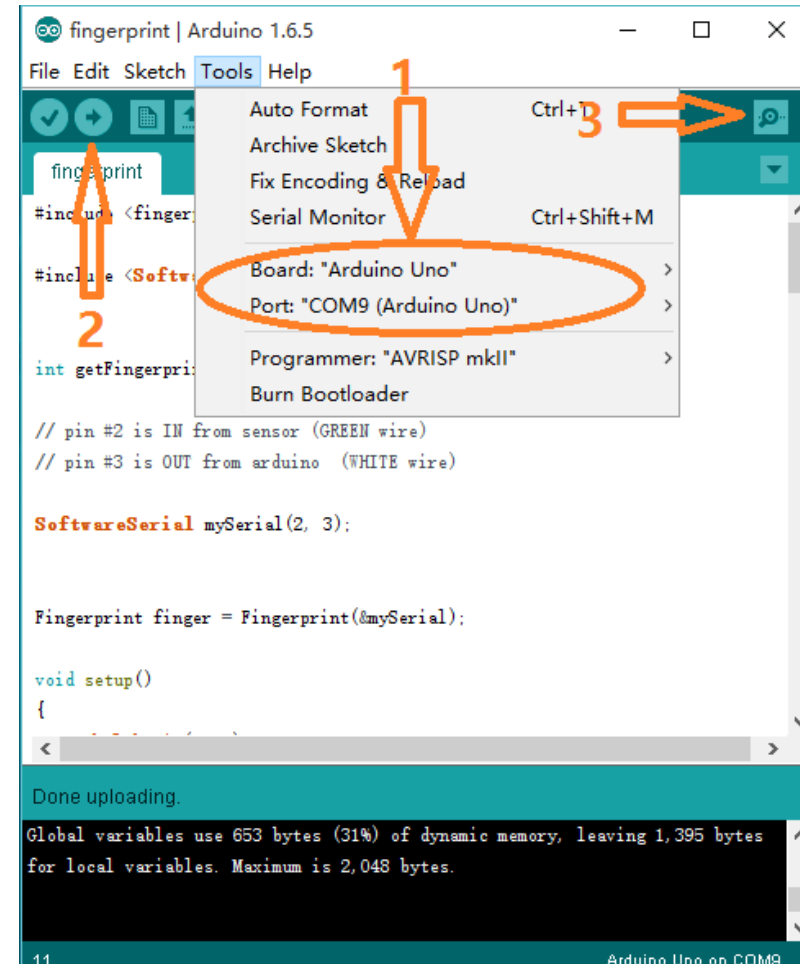
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How to use

Read fingerprints

Code downloads

- Similar to the fingerprint input, download the Examples -> fingerprint.ino to UNO:
- Set Board and Port;
- Open Serial Monitor;

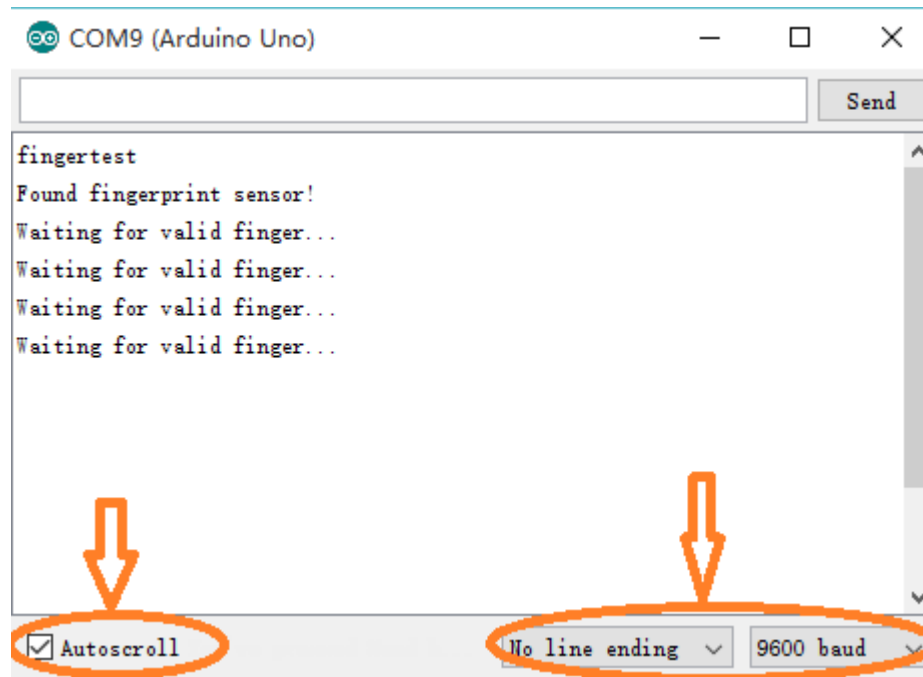


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How to use

Read fingerprints

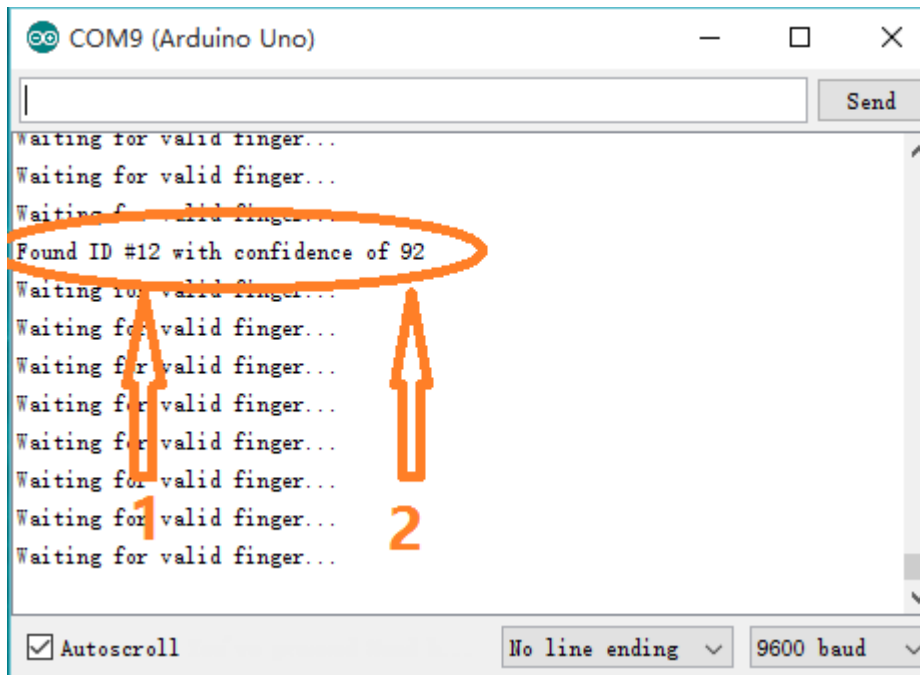
- If the fingerprint module is connect successful, it will always prompt you to press your fingers



How to use

Read Succeeded

- Press your finger on the screen and do not move, you may also be prompted to press the fingers, but the prompting message will be slower, if your fingerprints has been in the template, it will appear as shown



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Documents

- [Fingerprint Identification Module User Manual](#)

Revision History

Date	Revision	Change description
30/10/2025	1.0	Initial release