# Fingerprint Scanner UART
# Adafruit compatible

Technical Manual Rev 2r0

The ***Adafruit Fingerprint is a PC interface UART (TTL logic level)*** an easy to use for your security project with biometric system, this all in one optical fingerprint sensor will make adding fingerprint detection and verification super simple.Typically used in safes there's a high powered DSP chip that does the image rendering, calculation, feature-findin and searching. Compatible to any gizDuino microcontroller or MCU system with TTL serial and send packets of data to take photos, detect prints, hash and search.Can store up to 162 finger prints in the onboard FLASH memory.

## General Specifications:

***Input supply voltage:*** 3.3 to 5V*
(it depends on the module see page 3)
***Operating current:*** <120mA
***Signature File:*** 256 bytes
***Template Files:*** 512 bytes
***Store capacity:*** 162 templates
***Security Level:*** Five (from low to high: 1,2,3,4,5)
***PC interface:*** UART (TTL logic level) or USB1.1
***Communications baud rate x N bps:*** 9600 N=1 to 12
(default value of N = 6,i.e 57600bps)
***Module Dimensions:*** 44.5mmH-a /27mmH-b,29mm Slant,
21mm W-side,21mm W-front
***PCB Dimensions:*** 21mm x 21 mm

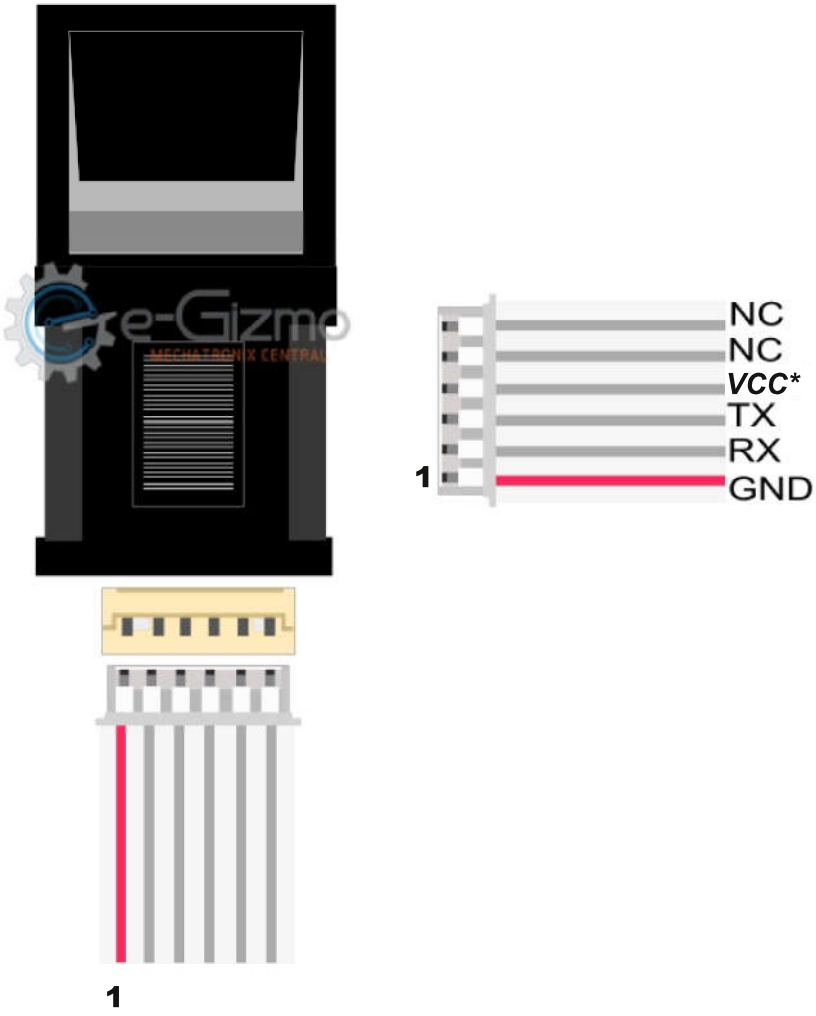



**Figure 1: Fingerprint Scanner UART Adafruit Compatible**

**Wiring Connections:**

**Gizduino to FPS**

| | |
|---|---|
| **GND** | **Black wire (1)** |
| **D3** | **Green wire (2)** |
| **D2** | **Blue wire (3)** |
| **Vcc*** | **Red wire (4)** |

***Note: VCC either 3.3V or 5V (it depends on the module - if you see the RED light is low in 3.3V, connect to 5V)***

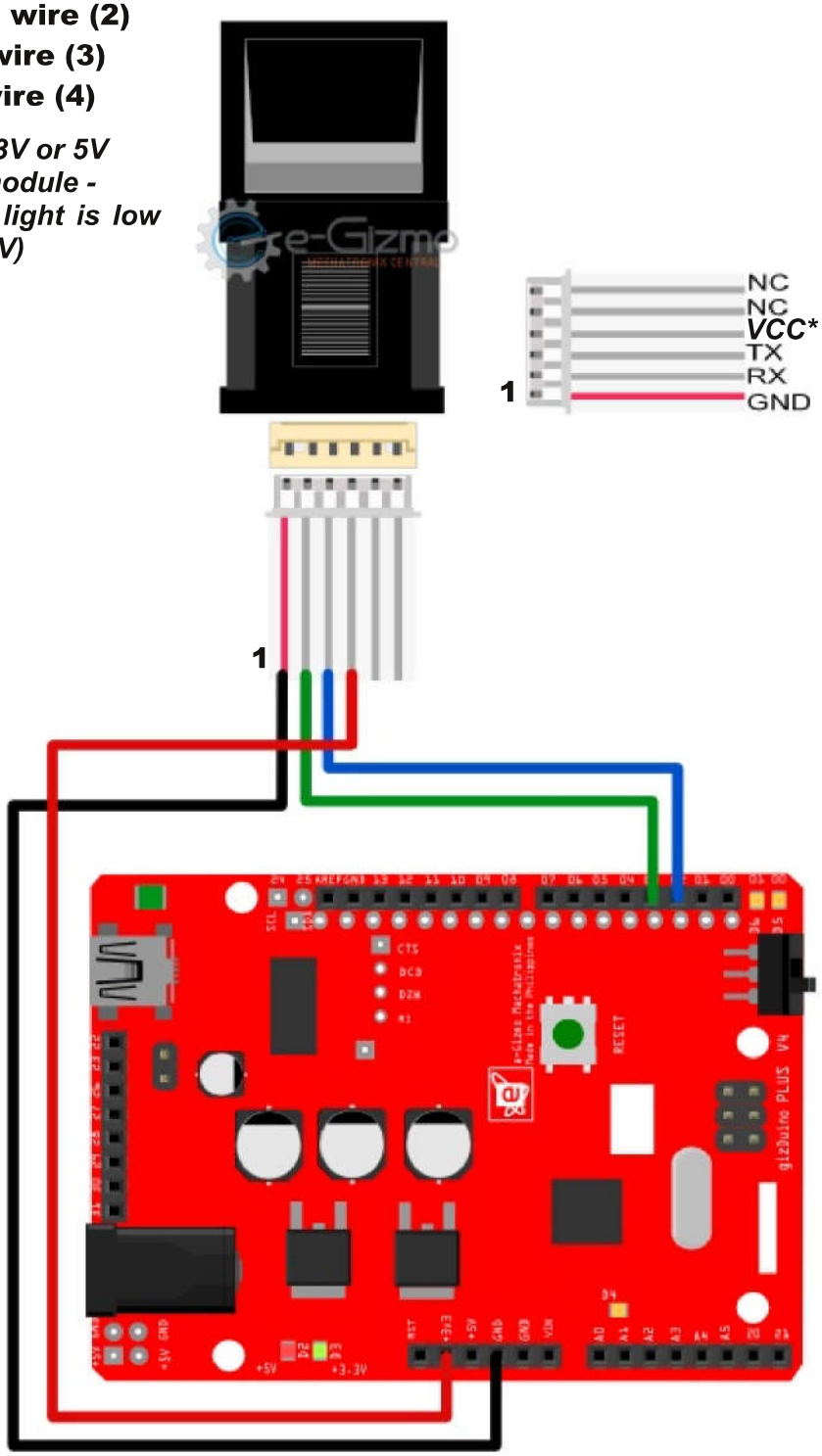



**Figure 2: Wiring diagram with gizDuino PLUS.**

***Adafruit_Fingerprint Library***
Download the library from adafruit Github account.
https://github.com/adafruit/Adafruit-Fingerprint-Sensor-Library

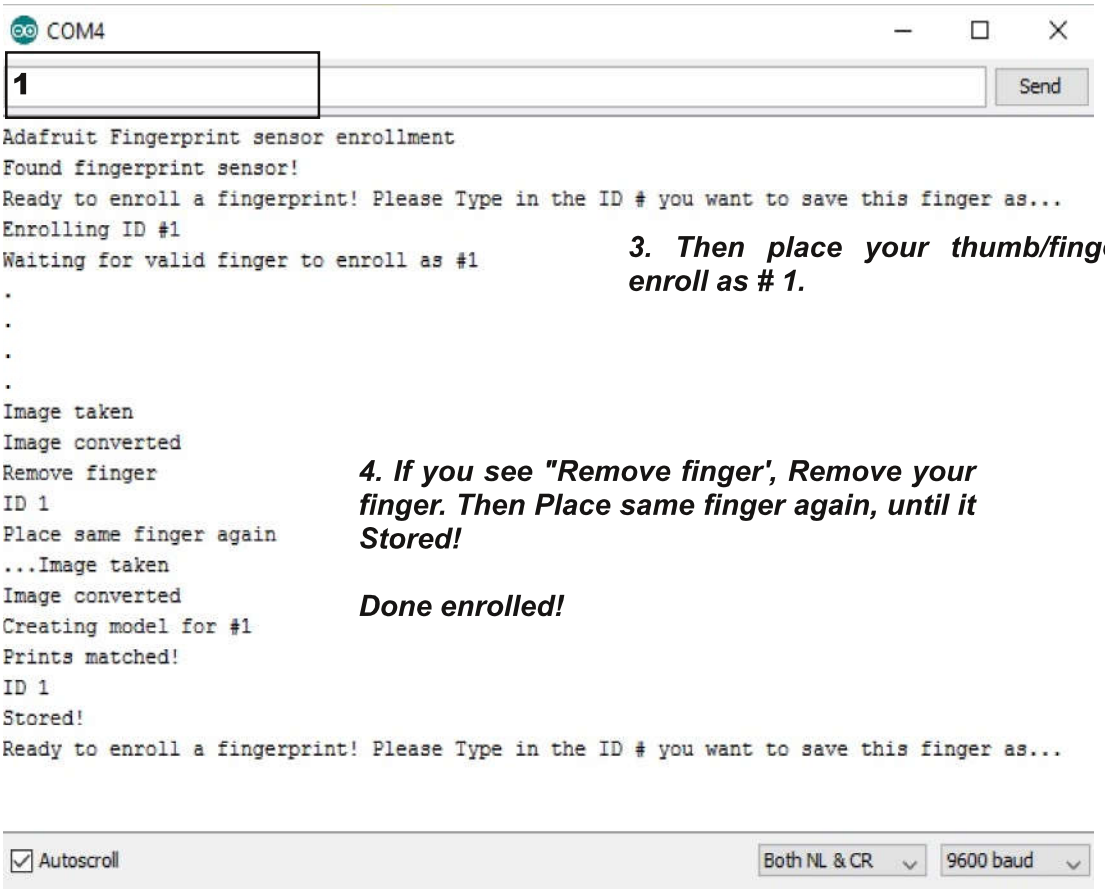
***Adding Library***
Go to My Documents> Arduino folder> libraries> add the extracted zip file. Folder file name: Adafruit_Fingerprint

***Upload the Adafruit_Fingerprint> enroll.ino***

Then open the Serial monitor as shown below. When the FP sensor is found and ready to enroll.

***1. Type here the ID# you want to save.***

***2. Press enter or send it.***




***3. Then place your thumb/fingerprint to enroll as # 1.***

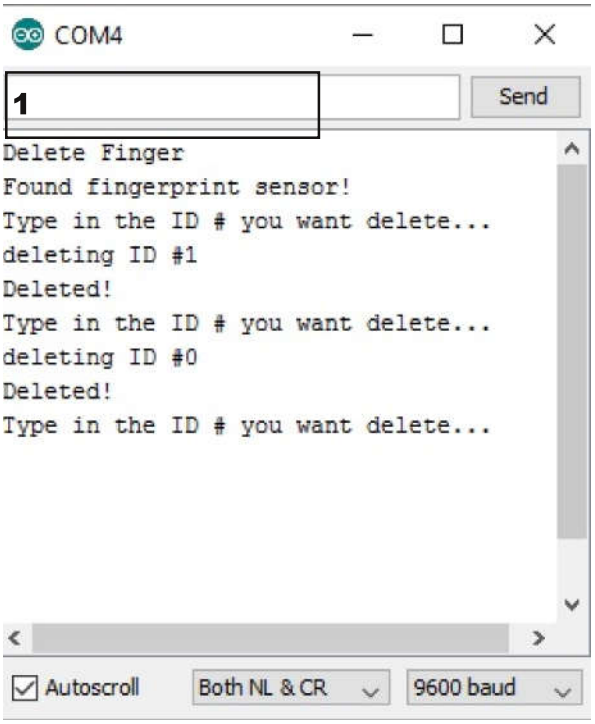
***4. If you see "Remove finger', Remove your finger. Then Place same finger again, until it Stored!***

***Done enrolled!***

***Upload the Adafruit_Fingerprint> delete.ino***

Then open the Serial monitor as shown below. When the FP sensor is found and ready to delete.

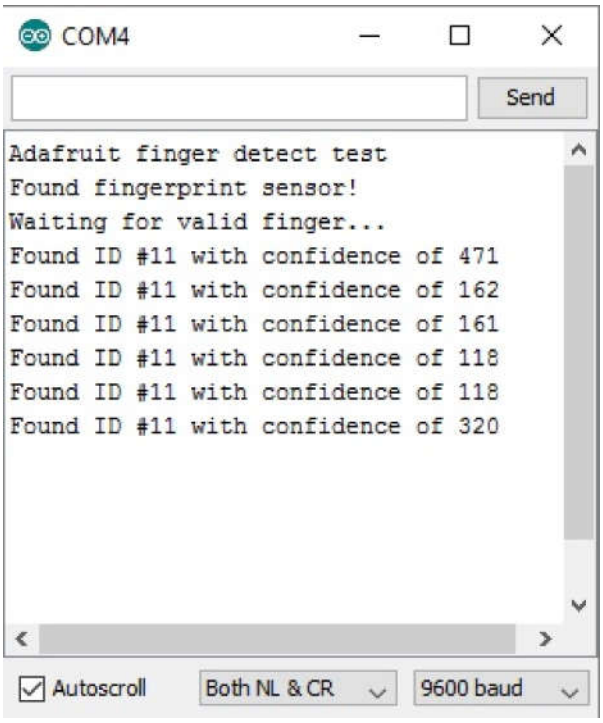
***1. Type here the ID# you want to delete.***




***Upload the Adafruit_Fingerprint> fingerprint.ino***

Then open the Serial monitor as shown below. When the FP sensor is found and ready to identify.

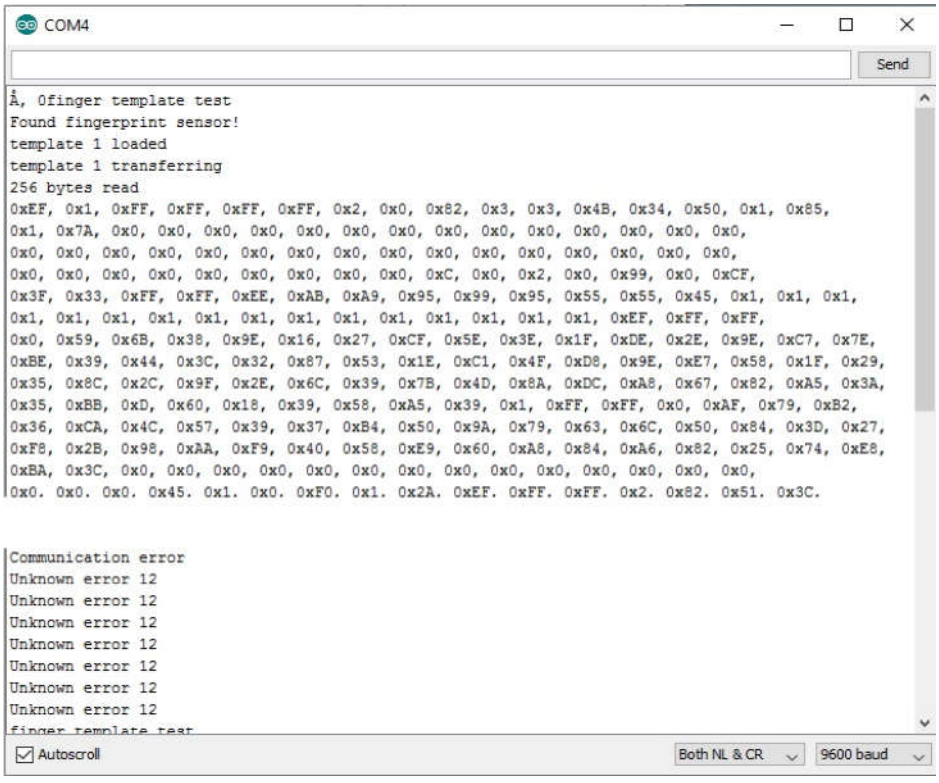
***1. Place your finger/thumb that you've been enrolled and it will show up on the serial monitor the # ID with confedence value.***



***Upload the Adafruit_Fingerprint> show_fingerprint_templates.ino***

Then open the Serial monitor as shown below. When the FP sensor is found and ready to template test.

***1. Place your finger/thumb that you've been enrolled and it will show up on the serial monitor the data with bytes read in hex format.***



***Upload the Adafruit_Fingerprint> blank.ino***

Blank sample code is compose of

**void setup(){}**
**void loop(){}**

Upload this code then make sure your connections from gizDuino with the FPS is correct. Please see the wiring connections (Figure 3).

This code is for SFGDemo rev2.0 from Adafruit website. "Compatible in windows only test software"

Here's the link:
https://learn.adafruit.com/adafruit-optical-fingerprint-sensor/downloads

**Wiring Connections:**
**Gizduino to FPS**

| | |
|---|---|
| **GND** | **Black wire (1)** |
| **D0/RX** | **Green wire (2)** |
| **D1/TX** | **Blue wire (3)** |
| **VCC*** | **Red wire (4)** |

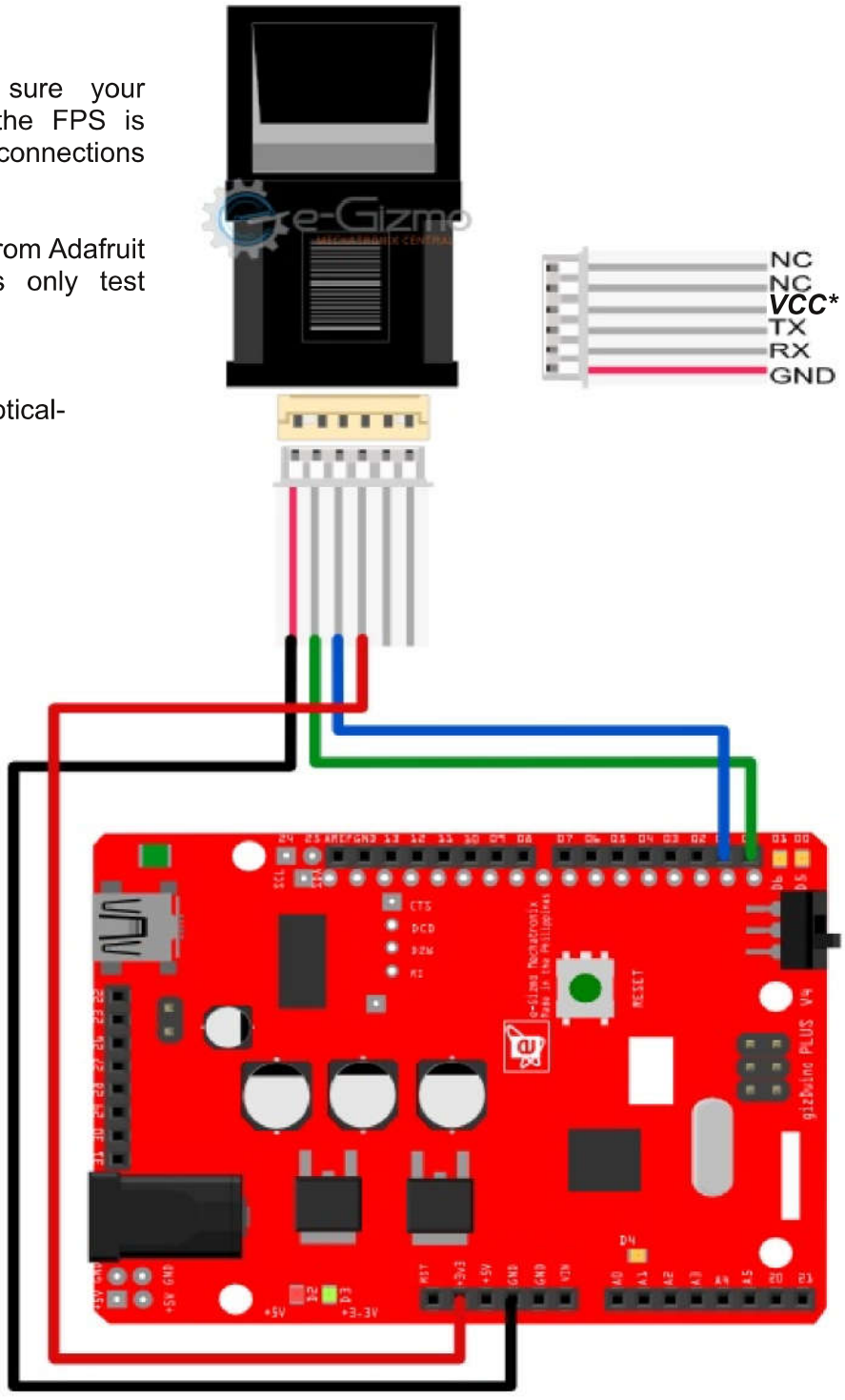
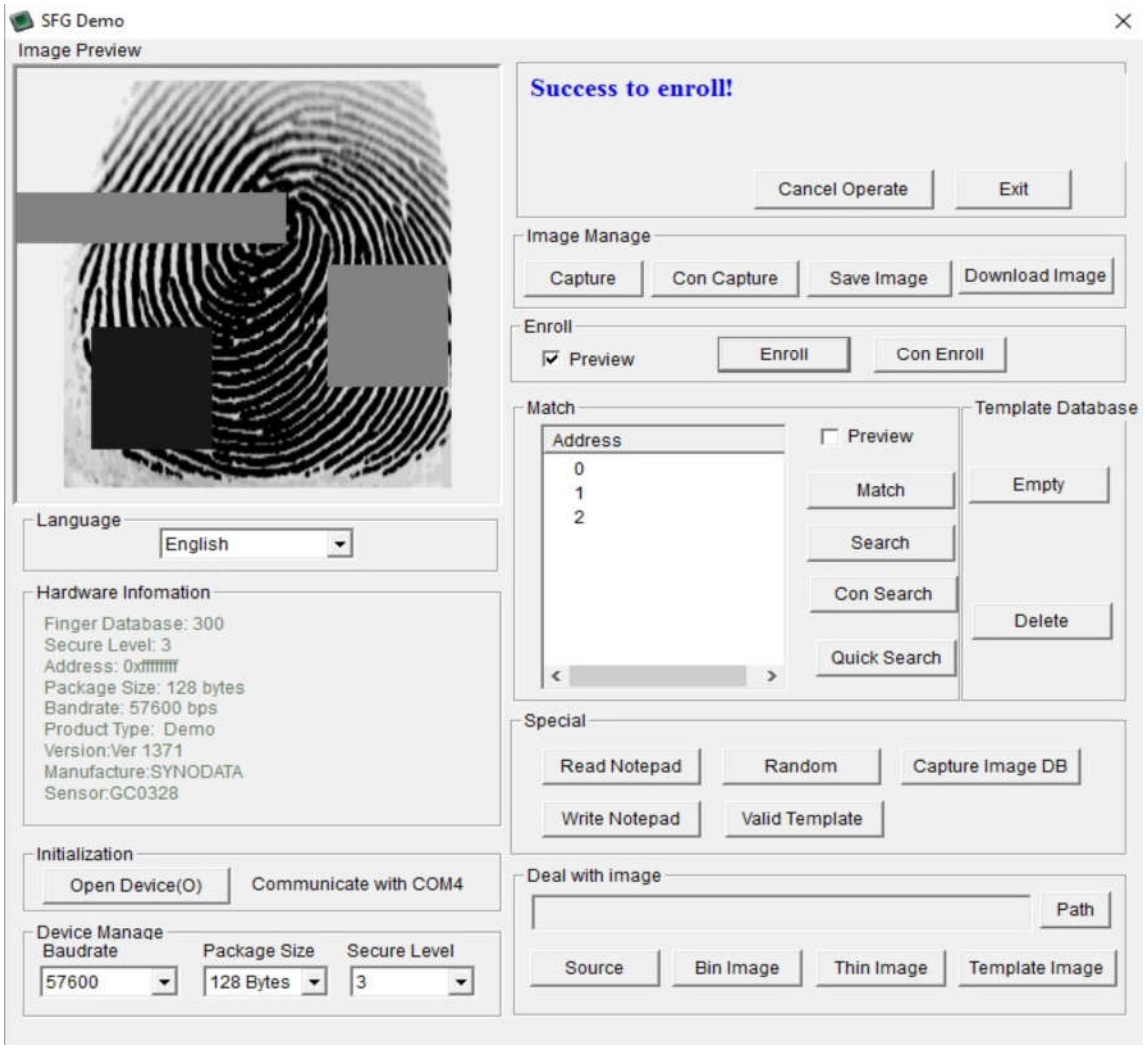



**Figure 3:**
**Sample Diagram to communicate with COM# using SFG Demo Software.**




***1. Once you've done constructing the wiring connections and uploading the code. Click "Open Device(O)" then a new window will show SELECT the COM PORT NO.***

Note: If it is does't connecting, we adviced to change your COM port. or if it is up to COM10 to COM99, change it to COM2 to COM4.

***2. If it is connected, and successfully "Communicate with COM#".***
***Set up this on the "Device Manage" section.***
***Baudrate: 57600***
***Package Size: 128Kbytes***
***Secure Level: 3***

***3. In "Enroll" section. Check the "Preview", then Click "Enroll". Another window will show up, if the address has already been taken. its up to you to overwrite on it or select/ type your address no. you want.***

***Just click ok and wait ,up to 8 - 10secs until the transfering is done and for the second attempt for finishing. The message will show up "Success to enroll!".***