Keyes Fingerprint Biometric Sensor Module

General Description

Secure your project with biometrics - this all-in-one optical fingerprint sensor will make adding fingerprint detection and verification super simple. These modules are typically used in safes - there's a high powered DSP chip that does the image rendering, calculation, feature-finding and searching. Connect to any microcontroller or system with TTL serial, and send packets of data to take photos, detect prints, hash and search. You can also enroll new fingers directly - up to 162 finger prints can be

stored in the onboard FLASH memory. There's a red LED in the lens that lights up during a photo so you know that it's working.

There are basically two requirements for using the optical fingerprint sensor. First is you'll need to enroll fingerprints - that means assigning ID #'s to each print so you can query them later. Once you've enrolled all your prints, you can easily 'search' the sensor, asking it to identify which ID (if any) is currently being photographed.

You can enroll using the windows software (easiest and neat because it shows you the photograph of the print) or with the Arduino sketch (good for when you don't have a windows machine handy or for on-the-road enrolling)

Specifications

- Supply voltage: 3.6 – 6.0VDC
- Operating current: 120mA max
- Peak current: 150mA max
- Fingerprint imaging time:
- Window area: 14mm x 18mm
- Signature file: 256 bytes
- Template file: 512 bytes
- Storage capacity: 162 templates
- Safety ratings (1-5 low to high safety)
- Interface: TTL Serial
- Baud rate: 9600, 19200, 28800, 38400, 57600 (default is 57600)
- Working temperature rating: -20C to +50C
- Working humidity: 40%-85% RH
- Full Dimensions: 56 x 20 x 21.5mm
- Exposed Dimensions (when placed in box): 21mm x 21mm x 21mm triangular
- Weight: 20 grams

Enrolling New Users (fingerprint)

You can enroll fingerprint using the windows software included or using Arduino.

You need:

Arduino

Fingerprint Reader

Connecting wires (included)

SFGDemo (Test Software)

1. Connect the Fingerprint Reader to your arduino by following the pin connections shown below.

2. Download [Fingerprint Reader files](#) and extract it to your desktop.

3. Two folders are included, Adafruit_Fingerprint library and SFGDemo2.0. Move the library folder to your Arduino libraries folder.

4. Enter this sketch to your Arduino IDE then click upload.

```
void setup(){
}

void loop(){
}
```

NOTE: if you are using an Arduino based on ATmega32u4 (Leonardo, Micro, Yun etc...) upload this sketch instead:

```
void setup(){
  Serial1.begin(57600);
  Serial.begin(57600);
}

void loop(){
  while (Serial.available())
    Serial1.write(Serial.read());
  while (Serial1.available())
    Serial.write(Serial1.read());
}
```

5. Open SFGDemo.exe in SFGDemo2.0 folder.

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a. Click Open Device(O)

b. Choose COM Port. It can be found on Device Manager> Ports (COM & LPT).

c. An "Open Device Success!" will be shown if the device is functioning.
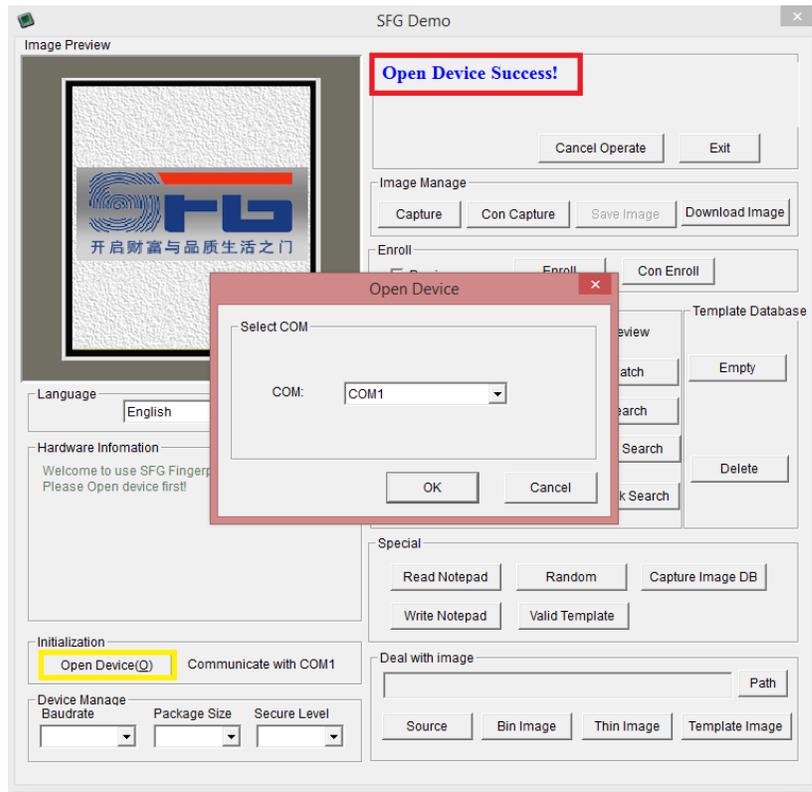
6. Click capture. When the fingerprint image is displayed, click Enroll then choose an ID (0-161)
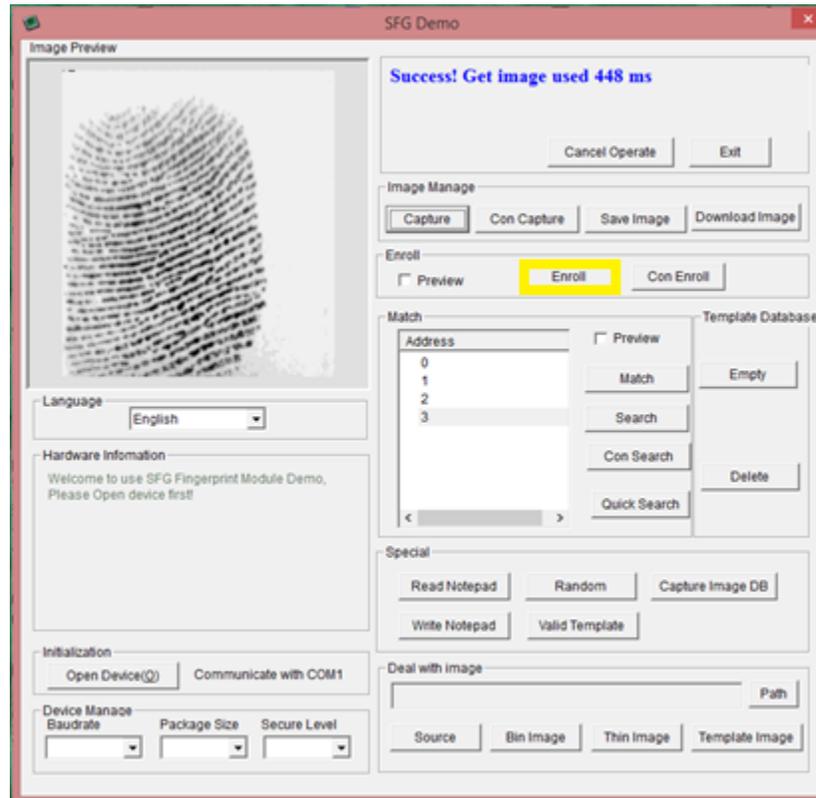
Searching for Fingerprints

        Arduino

        Fingerprint Reader

        Connecting wires (included)

        SFGDemo (Test Software)

1. Connect the Fingerprint Reader to your arduino by following the pin connections shown below.

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2. Open fingerprint sketch, it can be found on Arduino IDE File>>Examples>>Adafruit_fingerprint.

3. Click Upload and open Serial Monitor.

Actual Setup
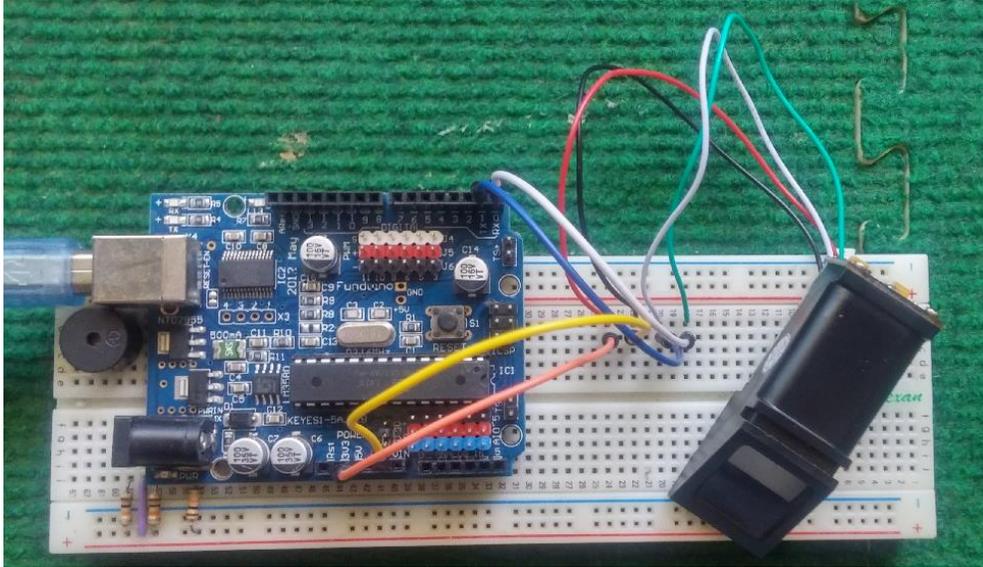
Results

Sample Program

Now that you know how to enroll fingerprints and search for the fingerprint's ID number, we can now code fingerprint reader on Arduino easily. This sample program is from the fingerprint sketch and will display a message based on the fingerprint's ID number. Sketch is included in the library and it can be found on Arduino IDE File>>Examples>>Adafruit_fingerprint>>fingerCase. Have fun!

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