

# Grove - Fingerprint Sensor

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# **Document Revision History**

Revision	Date	Author	Description
1.0	Sep 21, 2015	Victor.He	Create file



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### Disclaimer

For physical injuries and possessions loss caused by those reasons which are not related to product quality, such as operating without following manual guide, natural disasters or force majeure, we take no responsibility for that.

Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.

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### 1. Introduction

The Finger Print Sensor is one optical fingerprint sensor which will make fingerprint detection and verification adding super simple. There's a high powered DSP chip AS601 that does the image rendering, calculation, feature-finding and searching. 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 which will light up during taking photos so that you know its working condition. It is easy to use and by far the best fingerprint sensor you can get.





# 2. Specification

Supply voltage	3.6~6.0 V	
Operating current(Max)	120 mA	
Fingerprint imaging time	1.0 S	
Match Mode:	Compare Mode 1:1	
Search Mode	1:N	
Storage capacity	162 templates	
False Acceptance Rate	0.001% (Security level 3)	
False Reject Rate	1.0% (Security level 3)	
Baud rate	9600, 19200, 28800, 38400, 57600bps (default is 57600)	
Interface	TTL Serial	
Interface	TTL Serial	



# 3. Interface

Pin number	Name	Туре	Function Description
1	Vin	in	Positive Power Supply Input Terminal(Line color:Red)
2	TD	out	Serial data output, TTL logic levels(Line color: Yellow)
3	RD	in	Serial data input, TTL logic levels(Line color: White)
4	GND	-	Signal ground(Line color: Black)



## 4. Demonstration

The Finger Print Sensor module is 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 that can be stored in the onboard FLASH memory. There's a red LED in the lens which will light up during taking photos so that you know its working condition.

- Connect the Sensor to the Digital Port 2 of the Grove Base Shield.
- Plug the Grove Base Shield into Arduino and connect Arduino to PC by using a USB cable.

When you plug in the power, you can see the red LED blink which indicates the sensor is working.



• Download the <u>Finger Print Sensor Library</u> and Unzip it into the libraries file of Arduino IDE by the path: ..\arduino-1.0.1\libraries.

The library can enroll and search so it is perfect for any project. It can help you get running in under 10 minutes. There are basically two requirements for using the optical fingerprint sensor. First one, you'll need to enroll fingerprints - which 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) has currently been photographed.



- Open the enroll code directly by the path: File -> Example ->FingerPrint->Enroll.
- Upload the code into Arduino. Please click <u>here</u> if you do not know how to upload.
- Startup Serial Tool and Select the ComNum and BuadRate used by the Arduino.
- Select the "SendNew" option. Send the ID # you want to use. You can use up to 162 ID numbers.
   And it will ask you to press the finger to the sensor. At the moment, you should see the red LED blink.





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• If your press is OK, you could see the following message. You will then have to repeat the process,

to get a second clean print. Use the same finger! On success you will get notice.

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• If there's a problem such as a bad print or image, you'll have to do it again.

mage taken mage converted		
emove finger lace same finger :	again	
	taken	
mage converted ingerprints did no	ot match	
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Once you have the finger enrolled, it's a good idea to do a quick test to make sure it can be found in the database.

- Open the demo code: fingerprint and upload it.
- When prompted, press a different/same finger to the sensor. If it is the same finger, you should get a match with the ID # as show below.



SSCOM3.2 (Au	thor: NieXiaoMeng . http:/	//www.m 🗆 🗆 🗙
fingertest Found fingerprint Waiting for valid Found ID #15 with Found ID #1 with Found ID #2 with Found ID #4 with Found ID #4 with Found ID #15 with Found ID #2 with	sensor! finger confidence of 78 confidence of 101 confidence of 211 confidence of 310 confidence of 153 confidence of 72 confidence of 70	~
OpenFile FileNm		SendFile SaveData
ComNum COM5 💌	CloseCom Help	WWW. MCU51.
BaudRa 9600 V DataBi 8 V StopBi 1 V Verifyl None V FlowCox None V	DTR RTS Send eve 1000 ms/T SendHEX SendNew Data input: SEND	mme <mark>★嘉立创PCB样板,最低50元 ★点击进入打样板注册页面 ★http://www.daxia.com/t ★欢仰访问大虾电子网的大 ★点这里直接进入 www.dax</mark>
/ww.mcu51.cor S:0	R:355	COM5 opened 9600bps 1

• If it is not a finger in the database, this serial port will output nothing.



# 5. Resource

Finger Print Sensor Library File Finger Print Sensor Datasheet



#### ООО "ЛайфЭлектроникс"

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 3010181090000000703 БИК 044030703

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