

Grove - Fingerprint Sensor

Release date : 9/20/2015

Version : 1.0

Wiki: http://seeedstudio.com/wiki/Grove - Finger Print Sensor V1.0

Bazaar: http://www.seeedstudio.com/depot/Grove-Fingerprint-Sensor-p-1424.html



Document Revision History

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



Contents

Doc	ument Revision History	2
1.	Introduction	2
2.	Specification	3
3.	Interface ·····	4
4.	Demonstration	5
5.	Resource 1	.0



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.

Copyright

The design of this product (including software) and its accessories is under tutelage of laws. Any action to violate relevant right of our product will be penalized through law. Please consciously observe relevant local laws in the use of this product.



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.





SSCOM3.2	(Author: Nie	XiaoMeng .h	ttp://www		
fingertest Found fingerpr Type in the II Enrolling ID # Waiting for ve	rint sensor!) # you want #16 alid finger †	to save this	finger as.		^
OpenFile Fil	eNm		S	endFile	SaveData
ComNum COM5	• • o	pen Com}	{elp	www	V. MCUS
BaudRa 9600 DataBi 8 StopBi 1 Verifyl None	 DTR Send Send Data inj 	eve 1000 m HEX SendA put: SE	ms/Time ★ ND	大虾开发材 嘉立创PCE 进入大虾E	反已推出,敬)样板快捷计 电子网的大蚊
FlowCon None	• 16				
ww.mcu51.cor	S:4	R:167	COM5	closed 9	9600bp //

• 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.

maga takan			
Image taken Image converted			
Remove finger			
lace same fing	er again		
mage converted	Image taken		
rints matched!			
tored!			1
ype in the ID a	# you want to save this finger :	as	
aiting for val:	id finger to enroll		
			L
OpenFile FileN	[m	SendFile	Savel
OpenFile FileN ComNum COM5	m • Open Com Help	SendFile	Savel
OpenFile FileN ComNum COM5	Im Open Com Help DTR RTS	SendFile WWW	_Savel //. //(板已推
OpenFile FileN ComNum COM5 BaudRa 9600	M Open Com Help DTR RTS Send eve 1000 ms/Time	SendFile WWV ★大虾开发 ²	<u>Save</u> <i>N. Ma</i> 板已推。 B样板明
OpenFile FileN ComNum COM5 BaudRa 9600 DataBi 8	m Open Com Help DTR Send eve Send eve Send eve Send eve	SendFile WWV ★大虾开发 ² ★菜立创PCI ★讲入大虾	Save) <i>W. Mo</i> 板已推。 B样板快 申,子网的
OpenFile FileN ComNum COM5 BaudRa 9600 DataBi 8 StopBi 1	m ● Open Com Help ● DTR RTS ■ DTR NOO ms/Time ■ SendHEX ♥ SendNew ■ SendHEX ♥ SendNew	SendFile WWV ★大虾开发 ² ★嘉立创PCI ★讲入大虾	
OpenFile FileN ComNum COM5 BaudRa 9600 DataBi 8 StopBi 1 Verify None	m Open Com Help DTR RTS Send eve 1000 ms/Time SendHEX ✓ SendNew Data input: SEND	SendFile WWV ★大虾开发 ★嘉立创PCI ★讲入大虾	Savel <i>N. MC</i> 板已推迟 B样板快 申.子网的



• 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	
pe in the ID # your and the ID # your and the second second second second second second second second second se	ou want to save this finger as	
aiting for valid :	finger to enroll	
OpenFile FileNm	SendF	7ile SaveData
DpenFile FileNm ComNum COM5 💌	SendF Open Com Help W	Tile SaveData
OpenFile FileNm ComNum COM5 -	● Open Com Help W DTR ■ BTS ★嘉立	'ile SaveData / <i>WW. MCUS</i> 创PCB样板, 最低5
DpenFile FileNm ComNum COM5 V	● Open Com Help W DTR RTS ★嘉立 Send eve 1000 ms/Time	'ile SaveData <i>'WW. MCUS</i> 创PCB样板, 最低5 进入打样板注册で
openFile FileNm comNum COM5 - audRa 9600 - ataBi 8 -	● Open Com Help W DTR RTS Send eve 1000 ms/Time ★註: ★白击 ★白击	⁷ ile SaveData <i>WW. MCUS</i> 创PCB样板, 最低5 讲入打样板注册で ://www. daxia.co 访问士邨由子网
OpenFile FileNm ComNum COM5 audRa 9600 JataBi 8 JotopBi 1 Jarify None	● Open Com Help W ● Open Com Help W ■ DTR RTS ■ Send eve 1000 ms/Time ■ SendHEX ♥ SendNew ■ SendHEX ♥ SendNew ■ SEND ★点这	⁷ ile SaveData <i>WW. MCUS</i> 创PCB样板,最低5 讲入打样板注册で ://www.daxia.co 访问大虾申.子网的 単直接进入 www.

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



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный) **Факс:** 8 (812) 320-02-42 **Электронная почта:** <u>org@eplast1.ru</u> **Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.