Bluetooth Shield

Introduction

The Bluetooth Shield integrates a Serial Bluetooth module. It can be easily used with Arduino/Seeedstudio for transparent wireless serial communication. You can choose two pins from Arduino D0 to D7 as Software Serial Ports to communicate with Bluetooth Shield (D0 and D1 is Hardware Serial Port). The shield also has two Grove connectors (one is Digital, the other is Analog) for you to install Grove modules.

Note: The Shield may not be compatible with some Bluetooth capable devices, like some HTC mobile phone (G7 with Android 2.33) and Apple devices with special profile on Bluetooth function.



Features

- Seeeduino/Arduino compatible
- Up to10m communication distance in house without obstacle
- UART interface (TTL) with programmable baud rate (SPP firmware installed)
- Default Baud rate: 38400, Data bits: 8, Stop bit: 1, Parity: No parity
- Default PINCODE:"0000"
- A full set of configuration commands
- On board PCB Antenna
- FCC Part 15 Certificated

Specification

Item	Min	Typical	Max	Unit
Voltage	2.8	3.3	3.5	VDC
Current	3	/	100	mA
Communication Distance(in house)	/	/	10	m
Protocol	Bluetooth V2.0 with SPP firmware			/
Interface	Uart Serial Port(TTL)			
Supported Baudrate	9600, 19200, 38400, 57600, 115200, 230400, 460800			bps
ESD contact discharge		±4		KV

ESD air discharge	±8	/
Dimension	57.4x45.3x19.4	mm
Net Weight	10±2	g

Interface funcion



Pad Type	Description
PIO1	Status instruction port of Bluetooth module can be read by Arduino A1 port: low-disconnected, high-connected.
BT_RX	UART Data input of Bluetooth module.
BT_TX	UART Data output Bluetooth module.
Two Grove connectors	One is Digital (D8 and D9), the other is I2C/Analog (A4 and A5).

Usage

Communicating between two Bluetooth Shield



This demo will show you how to communicate between two Arduino/Seeeduino through Bluetooth Shield.For the special applications, you may need to write the code by yourself.

• Download the <u>Arduino Library</u> for the shield, and unzip it into the path of Arduino Libraries. This library includes two sketch, one for Master and the other for Slave. Make sure <u>Software Serial Library</u> is included as well.

Note: The current rev of Arduino has incorporated the NewSoftSerial features. Therefore, you don't need NewSoftSerial.

Instead, use the stock SoftwareSerial lib by changing the Master and Slave sketches:

#include <NewSoftSerial.h> to #include <SoftwareSerial.h>
and change

and change

NewSoftSerial blueToothSerial(RxD,TxD); to SoftwareSerial blueToothSerial(RxD,TxD);



- Upload the sketch Master.pde and Slave.pde to two separate Arduino/Seeeduino.
- Open two <u>Serial Terminals</u> on your PC, with the setting of 9600, 8, 1, N. Open the two Com Port of Arduino/Seeeduino.

🖡 SSCOM3.2 (Author: NieXiaoMeng 😑 🗵 🛛	👔 SSCOM3.2 (Author: NieXiaoMeng 🗖 🖷 🗙
The slave bluetooth is inquirable!	Master is inquiring!
OpenFile FileNn SendFile ConNum COMMISS - @ CloseCom Help WWW	OpenFile FileNn SendFile ConMun COM159 - @ CloseCon Melp W/W/
BaudRa 9600 ▼ □ DTR □ RTS DataBi 8 ▼ □ Send eve 1000 ms/Time StopBi 1 ▼ □ SendMEX □ SendNew Verify None ▼ Data input: SEMD	BaudRa 3600 ▼ □ DTR □ RTS DataBi 8 ▼ □ Send eve 1000 ms/Time ★白击这單i StopBi 1 ▼ □ SendUEX □ SendNew Verify None ▼ Data input: SEKD
FlowCod None 💌 Aello Avw.mcu51.cor S:0 R:36 COM156 op	PloxCoj None Inello www.mcu51.cor S:0 R:22 COM159 op

Plug the Bluetooth Shields to the Master board and the Slave Board, and reset the two boards.

Then you will see the red and green LED on the board are flashing in interval indicting they are inquiring for each other. After a while only the green led is flashing one time per second indicating that they are connected. There's also some information printed on the two terminal as following.

Master	is inqu	iring!				
Connect	ing to	slave:0,	18, E4,	C, 68,	5;SeeedBTS]	Lave
Connect	ed!		2 8 8	1.12 8		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						

The slave bluetooth is inquirable! +BTSTATE:3 CONNECT:OK +BTSTATE:4 Connected! Slave

Master

• The connection is successful now, and you can type any character on the Serial Terminal and send to each .

Connecting Bluetooth Shield to PC under Windows 7



This demo will show you how to connect the Arduino/Seeeduino with Bluetooth Shield to PC.For the special applications, you may need to write the code by yourself.

- Download the <u>Arduino Library</u> for the shield, and unzip it into the path of Arduino Libraries. This library includes two sketch, one for Master and the other for Salve. Make sure <u>Software Serial Library</u> is included as well.
- Plug the Bluetooth Shield onto the Arduino/Seeeduino, and upload the Slave.pde to the board.Open the Serial Terminal with setting of 9600, 8, 1, N.

SSCOM3.2 (Aut	nor: NieXiaoMeng ,http://w	ww.mcu.		□ X
The slave bluetoo	th is inquirable!			*
				T
OpenFile FileNm		Se	ndFile	SaveData
ComNum COM156 💌	CloseCom Hel	P	WW	N. MCU51
BaudRa 9600 ▼ DataBi 8 ▼ StopBi 1 ▼ Verify None ▼	DTR RTS Send eve 1000 ms/ SendHEX SendNew Data input: SEND	Time ★1 ★2 / ★2	≹使用"∏ 5击这里; 层全包5× 次仰访问;	PCB打样计价器 进入,网上计价 K5cm最低50元 大虾论坛! 国
FlowCon None 💌	hello			
www.mcu51.con S:0	R:36	COM156	opened	9600bps

• Install the Microsoft Bluetooth default drivers(Skip this if your PC has integrated Bluetooth function). See the following picture after installed.



• Click Add a Device button.



• Select the "SeeedBTSlave" device and click Next.

JUST Bluetooth Laptop computer	Laptop computer Bluetooth Laptop computer
Laptop computer Bluetooth Laptop computer	SeeedBTSlave Bluetooth Other

• When connecting is successful, we will get the following information.

This device has been suc	ccessfully added to this computer	
Windows is now checking for di necessary. You may need to wai is ready to use.	rivers and will install them if It for this to finish before your device	0
To verify if this device finished i Devices and Printers.	nstalling properly, look for it in	SecedBTSlave
ver Software Installation		<u></u>
ir device is ready to use tooth 链接上的标准串行 (COMI60) tooth 链接上的标准串行 (COM72)	🖋 Ready to use 💞 Ready to use	
	_ ci	ose
		Close

• Open another Serial Terminal with the setting of 9600, 8, 1, N. Open the first COM(COM160) shown on the last picture. There will be showing the information as in the following picture.



• Click it, and enter **0000** in the shown diagram. Click Next to wait the establish.

	23
) 🖉 Add a device	
Enter the pairing code for the device	
This will verify that you are connecting to the correct device.	
The code is either displayed on your device or in the information that	
came with the device.	SeeedBTSlave
What if I can't find the device pairing code?	

• The connection may be failed as shown in the following picture.

Adding this device to this computer failed	
Adding the device failed resulting in an unknown error. The reported error code is: 0x8007048f. Contact your device manufacturer for assistance. Warning To help protect your computer from someone accessing it without your permission, only make your computer discoverable when you want a Bluetooth device to find your computer. Disable discovery when you no longer need it.	SeeedBTSlave
How can I fix device adding errors?	

• Click Close, and open the COM160 again, try the previous step till it is successful as following.

This desired a						
This device ha	s been successfu	ully added	d to this co	mputer		
Windows is now cl necessary. You ma is ready to use.	ecking for drivers an y need to wa <mark>it f</mark> or thi	nd will install is to finish b	l them if efore your de	vice	E.	0
To verify if this dev	ice finished installing	a properly. Ic	ook for it in			
Devices and Printe	3.	2 Free Str. J. W			1	
					See	INTEL
Warning					Jee	edB1Slave
Warning To help protect yo	ur computer from so	meone acce	essing it witho	ut	200	edB I Slave
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Warning To help protect yo SSCOM3.2 (Aut OpenFile FileM	ur computer from so hor: NieXiaoMeng .	omeone acce http://www.	ssing it witho .mcu51.com, SendFile	E. C E) 8	
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Warning To help protect yo SSCOM3.2 (Aut OpenFile FileMn ConHun COM160 - BandBa 9600 -	ur computer from so hor: NieXiaoMeng .	http://www.	essing it witho .mcu51.com, 	ut E 〇 回 SaveData」 V. MCUS PCB打样计价指	〕 窓 - - - - - - - - - - - - -	
Warning To help protect yo SSCOM3.2 (Aut OpenFile FileKn ConHun COM160 ¥ BaudRa 9600 ¥ DataBi 8 ¥	ur computer from so hor: NieXiaoMeng . CloseCom DTR F Send eve 100	http://www. http://www. Help RTS 0 ms/Time	ssing it witho .mcu51.com, SendFile WWV	ut E 回 回 SaveData W. MCU5 WCB打样计价语 进入, 网上计价	JEER () 窓 () 窓 () () () () () () () () () () () () () (
Warning To help protect yo SSCOM3.2 (Aut OpenFile FileMn ConHun COM160 ¥ BaudRa 9600 ¥ DataBi 8 ¥ StopBi 1 ¥	ur computer from so hor: NieXiaoMeng . CloseCom DTR F Send eve 100 SendHEX S	Http://www. http://www. Help RTS 0 ms/Time SendNew	ssing it witho .mcu51.com, 	ut E 回 回 SaveData <i>V. MCU5</i> ITCB打样计价 #入.网上计 针入.网上计	Clear (Clear (.COM 器",价格 (.支持润雪 (10+10cs5)	Close

• Now you can send any character between each other.

🚺 SSCOM3.2 (Author: NieXia 📼 💷 🔀	👔 SSCOM3.2 (Author: NieXi 😑 🔍
The slave bluetooth is inquirable! +BTSTATE:3 CONNECT:OK +BTSTATE:4 hello -	hello
OpenFile FileNm ComHum COM156 - @ CloseCom Help	OpenFile FileMn ComMum COM160 - @ CloseCom Help
BaudRa 9600 V DTR RTS DataBi 8 V Send eve 1000 ms/Time StopBi 1 V SendMEX SendNew Verify None V Data input: SEND PlowCon None V hello	BaudRa 9600 V DTR RTS DataBi 8 V Send eve 1000 ms/Tim StopBi 1 V SendHEX SendNew Verifyl None V Data input: SEND FlowCon None V hello
www.mcu51.con S:5 R:83	www.mcu51.con S:5 R:5

Connecting Bluetooth Shield to Android Phone



This demo will show you how to connect Bluetooth Shield to Android Phone. Here we test on HTC Legend with Android 2.2.For the special applications, you may need to write the code by yourself.

- Download the <u>Arduino Library</u> for the shield, and unzip it into the path of Arduino Libraries. This library includes two sketch, one for Master and the other for Salve. Make sure <u>Software Serial Library</u> is included as well.
- Plug the Bluetooth Shield onto the Arduino/Seeeduino, and upload the Slave.pde to the board.Open the Serial Terminal with setting of 9600, 8, 1, N.

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					-
OpenFile FileNm				SendFile	SaveData
ComNum COM156 💌	Closed	Com He	lp	WWI	N. MCUS
BaudRa 9600 - DataBi 8 - StopBi 1 - Verify None -	□ DTR □ Send eve □ SendHEX Data input:	F RTS 1000 ms SendNe SEND	:/Time	★★使用"I ★点击议里i ★2层全包5 ★欢迎访问:	PCB打样计价器 讲入,网上计行 *5cm最低50元 大虾论坛! 国
FlowCon None -	hello				
ww.mcu51.con S:0	R	:36	COM	156 opened	9600bps

• Download an Serial Terminal for Android to the phone. <u>Here</u> we find an apk (Bluetooth SPP) in Chinese. Install the apk.



• Enable the bluetooth function and scan for devices. "SeeedBTSlave" will be shown as in the following picture.



• Select and pair with the "SeeedBTSlave", input the PIN code **0000**, choose OK.



• Now let's open the Bluetooth SPP on Android. It illustrates **Press [MENU] key to create Bluetooth-enabled device. Tip:set up before the first connection and the Bluetooth pairing phone**.



• Press MENU key, and there will be a list of devices found shown the phone.



• Select "SeeedBTSlave", and wait a second, the connection will be established. And you can receive and send any character through this terminal.



Full AT Command

Check here for the full AT Command of Bluetooth Module.

Support

- Ask questions on Seeed Forum
- How to connect with Mega 2560





Version Tracker

Resources

- <u>Bluetooth Shield Eagle Files</u>
- <u>NewSoftLibrary</u>
- Bluetooth Shield Demo Code
- Bluetooth Shield Demo Code for Arduino 1.0
- <u>Information</u> on how to setup connections between Serial Bluetooth is available in Seeedstudio Forum.
- Information on PC connecting Serial Bluetooth in Seeedstudio Forum

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