Bluetooth Bee

Overview

Bluetooth Bee is an easy to use Bluetooth SPP module compatible with existing Xbee sockets, designed for transparent wireless serial connection setup.

Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR(Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Bluecore 04-External single chip Bluetooth system with CMOS technology. Hope it will simplify your overall design/development cycle.

License

Specifications

Hardware features

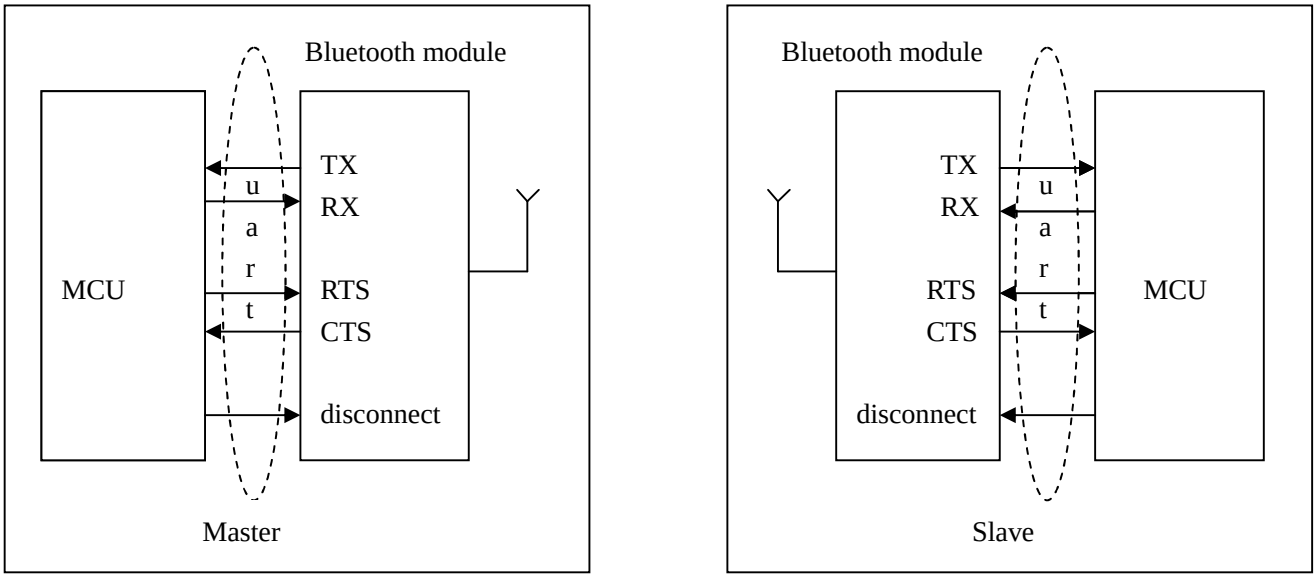
- Typical -80dBm sensitivity
- Up to +4dBm RF transmit power
- Fully Qualified Bluetooth V2.0+EDR 3Mbps Modulation
- Low Power 1.8V Operation ,1.8 to 3.6V I/O
- PIO control
- UART interface with programmable baud rate
- Integrated PCB antenna
- SMD package
- With edge connector

Software features

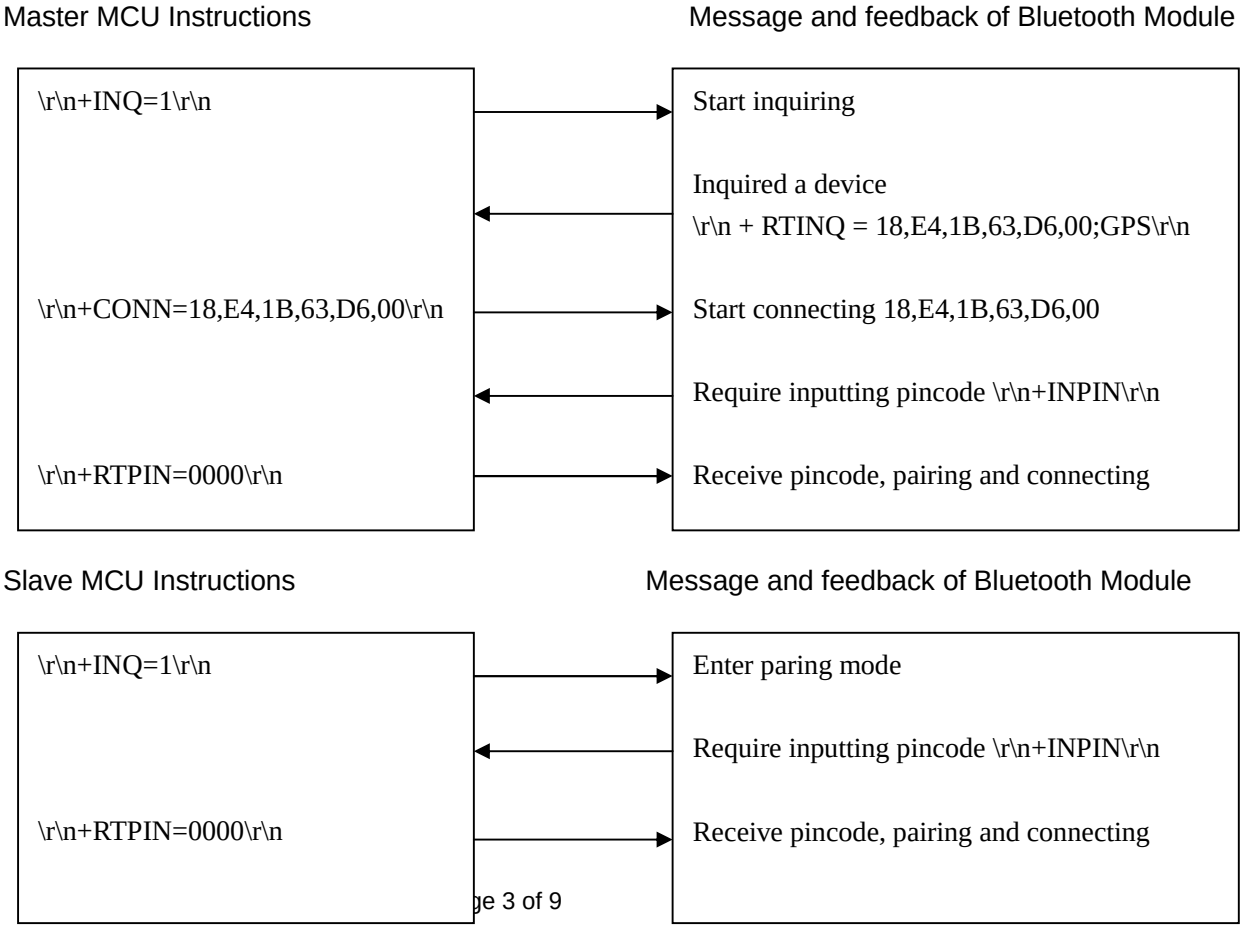
- Default Baud rate: **38400**, Data bits:8, Stop bit:1,Parity:No parity, Data control: has. Supported baud rate: 9600,19200,38400,57600,115200,230400,460800.
- Use CTS and RTS to control the data stream.
- When a rising pulse is detected in PIO0, device will be disconnected.
- Status instruction port PIO1: low-disconnected, high-connected;
- PIO10 connected red led, PIO11 connected green led. When master and slave are paired, red and green led blinks 1time/2s in interval, while disconnected only green led blinks 2times/s.
- Auto-connect the last device on power as default.
- Permit matched device connect by default.
- Default PINCODE:"**0000**".
- Auto-reconnect in 30 min when disconnected as a result of beyond the range of connection.

Software Instruction

Working Sketch Map



Flowchart



Commands to change default settings

1. Set working MODE

\r\n+STWMOD=0\r\n Set device working as client (slave), Save and Rest
\r\n+STWMOD=1\r\n Set device working as server (master), Save and Rest

Note: **\r\n** is needed, and the value of which is 0x0D 0x0A in Hex, meaning return and next row,

2. Set BAUDRATE

\r\n+STBD=115200\r\n Set baudrate 115200, Save and Rest
Supported baudrate: 9600, 19200,38400,57600,115200,230400,460800.

3. Set Device NAME

\r\n+STNA=abcdefg Set device name “abcdefg”, Save and Rest

4. Auto-connect the last paired device on power

\r\n+STAUTO=0\r\n Forbidden, Save and Rest
\r\n+STAUTO=1\r\n Permit, Save and Rest

5. Permit Paired device to connect me

\r\n+STOAUT=0\r\n Forbidden, Save and Rest
\r\n+STOAUT=1\r\n Permit, Save and Rest

6. Set PINCODE

\r\n +STPIN=222\r\n Set pincode “2222”, Save and Rest

7. Delete PINCODE(input PINCODE by MCU)

\r\n+DLPIN\r\n Delete pincode, Save and Rest

8. Read local ADDRESS CODE

\r\n+RTADDR\r\n Return address of the device

9. Auto-reconnecting when master device is beyond the valid range (slave device will auto-reconnect in 30 min when it is beyond the valid range)

\r\n+LOSSRECONN=0\r\n Forbidden auto-reconnecting
\r\n+LOSSRECONN=1\r\n Permit auto-reconnecting

Commands for Normal Operation:

1. Inquire

a) Master
\r\n+INQ=0\r\n Stop Inquiring
\r\n+INQ=1\r\n Begin/Restart Inquiring
b) Slave
\r\n+INQ=0\r\n Disable been inquired
\r\n+INQ=1\r\n Enable been inquired

2. Bluetooth module returns inquiring result

\r\n+RTINQ=aa,bb,cc,dd,ee,ff;name\r\n A serial Bluetooth device with the address “aa,bb,cc,dd,ee,ff” and the name “name” is inquired

3. Connect device

\r\n+CONN=aa,bb,cc,dd,ee,ff\r\n Connect to a device with address of “aa,bb,cc,dd,ee,ff”

4. Bluetooth module requests inputting PINCODE

\r\n+INPIN\r\n

5. Input PINCODE

\r\n+RTPIN=code\r\n
Example: RTPIN=0000 Input PINCODE which is four zero

6. Disconnect device

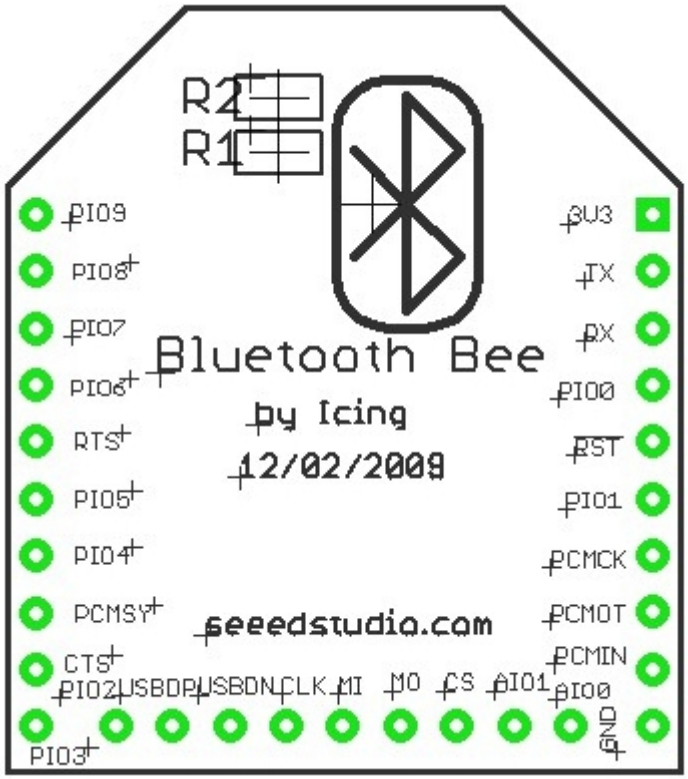
Pulling PIO0 high will disconnect current working Bluetooth device.

7. Return status

\r\n+BTSTA:xx\r\n
xx status:
0, Initializing
1, Ready
2, Inquiring
3, Connecting
4, Connected
(Note: This is not a command, but the information returning from the module)

More information about how to setup connections between Bluetooth in seeedstudio forum:
http://www.seeedstudio.com/forum/viewtopic.php?f=4&t=687

Pinout


R2
R1
PIO9
PIO8
PIO7
PIO6
RTS
PIO5
PIO4
PCMSY
CTS
PIO2
USBDP
USBDN
CLK
MI
MO
CS
PIO1
PIO0
PIO3
3U3
TX
RX
PIO0
RST
PIO1
PCMCK
PCMOT
PCMIN
GND
Bluetooth Bee
by Icing
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seeedstudio.com

Pin Function

PIN	#	Pad Type	Description
PIO9	29	Bi-Direction	Programmable input/output line
PIO8	28	Bi-Direction	Programmable input/output line
PIO7	27	Bi-Direction	Programmable input/output line
PIO6	26	Bi-Direction	Programmable input/output line
RTS	25	CMOS output, tri-stable with weak internal pull -up	UART request to send, active low
PIO5	24	Bi-Direction	Programmable input/output line
PIO4	23	Bi-Direction	Programmable input/output line
PCMSY	22	Bi-Direction	Synchronous PCM data strobe
CTS	21	CMOS output, tri-stable with weak internal pull -up	UART clear to send, active low
PIO3	20	Bi-Direction	Programmable input/output line
PIO2	19	Bi-Direction	Programmable input/output line
USBDP	18	Bi-Direction	
USBDN	17	Bi-Direction	
CLK	16	CMOS output, tri-stable with weak internal pull -up	SPI(Serial peripheral interface) clock
MI	15	CMOS output, tri-stable with weak internal pull -up	SPI data output
MO	14	CMOS output, tri-stable with weak internal pull -up	SPI data input
CS	13	CMOS output, tri-stable with weak internal pull -up	Chip select for serial peripheral interface, active low
AIO1	12	Bi-Direction	Programmable input/output line
AIO0	11	Bi-Direction	Programmable input/output line
GND	10	VSS	Ground port
PCMIN	9	CMOS input	Synchronous PCM data input
PCMOT	8	CMOS output	Synchronous PCM data output
PCMCK	7	Bi-Direction	Synchronous PCM data clock
PIO1	6	Bi-Direction	Programmable input/output line
!RST	5	CMOS input with weak internal pull-up	Reset if low,input must be low for >5ms to cause a reset
PIO0	4	Bi-Direction	Programmable input/output line
RX	3	CMOS input with weak internal pull-up	UART Data input
TX	2	CMOS output,tri-stable with weak internal pull-up	UART Data output
3V3	1	3.3V	Integrated 3.3V(+)supply with on-chip linear regulator output within 3.15-3.3V

Revision History

Rev.	Descriptions	Release date
V1.0	Initial version	2009/12/14
V1.1	Modify Inquire command and add some notes	2010/03/15
V1.2	Modify Hardware and Software features	2010/04/07
V1.3	Update the profile, add the return status, delete ECHO command.	2010/04/21