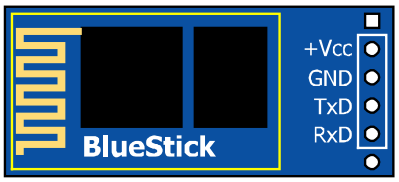
BlueStick

Bluetooth Serial module



This is a **Bluetooth Serial Port Profile (SPP)** device for wireless serial data communications via the bluetooth radio system. It is a low cost, compact and easy to use module.

1. Technical features

- Sensitivity -80dBm
- Maximum power transmission +4dBm
- Compatible with Bluetooth V2.0 + EDR (Enhanced Data Rate). Data transfer rate is 3Mbit per sesond
- Operating frequency 2.4GHz
- Opearted in SPP device class and slave mode only
- Range 10 metres.
- Default baurate is 9,600 bit per second with 8-bit data, no parity and 1-stop bit or 8N1
- Baudrate programmable; supports 1200, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600, 1382400 bit per second
- Programmable paring code 4-digit from 0000 to 9999. The default code is 1234.
- Operating supply voltage +3.3 to +5.5V with on-board regulator
- Includes UART device
- Built-in antenna
- Size 1.5cm. x 4.0cm.

The BlueStick Starter kit includes BlueStick module, 4-pin connector both male and female, UCON-2200 configuration board, USB cable and CD-ROM software

2. BlueStick pin assignment

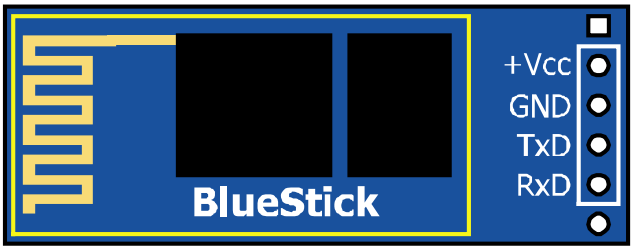
These are 4 pins connection as follows :

+Vcc : Power supply +3.3V to +5.5V

GND : Ground

TxD : UART data output. Connect with the UART data input of any microcontroller or peripherals

RxD : UART data input. Connect with the UART data output of any microcontroller or peripherals



3. Configuration preparing

The BlueStick is set to the default baudrate as 9600 bits per second, 8 data bits, no parity and 1 stop bit. User can set or change this seeting by using the UCON-2200 board and BlueStick Configure software. The following tools and equipments are required :

1. UCON-2200 board ; it is an USB to UART converter board.

2. BlueStick module

3. USB cable

4. PC running Windows XP SP2 or higher, and software BlueStick Configure.

Before using the UCON-2200 board, the USB driver must be installed prior to the UCON-2200 board. See details from the UCON-2200 documentation.

4. About the UCON-2200

UCON-2200 is designed for USB to UART converter. It also supports the BlueStick socket for configuration and can interface with anoy microcontroller.

Technical features

- Use the MCP2200 ; USB to UART converter device from Microchip Technology
- Receive and transmit LED status

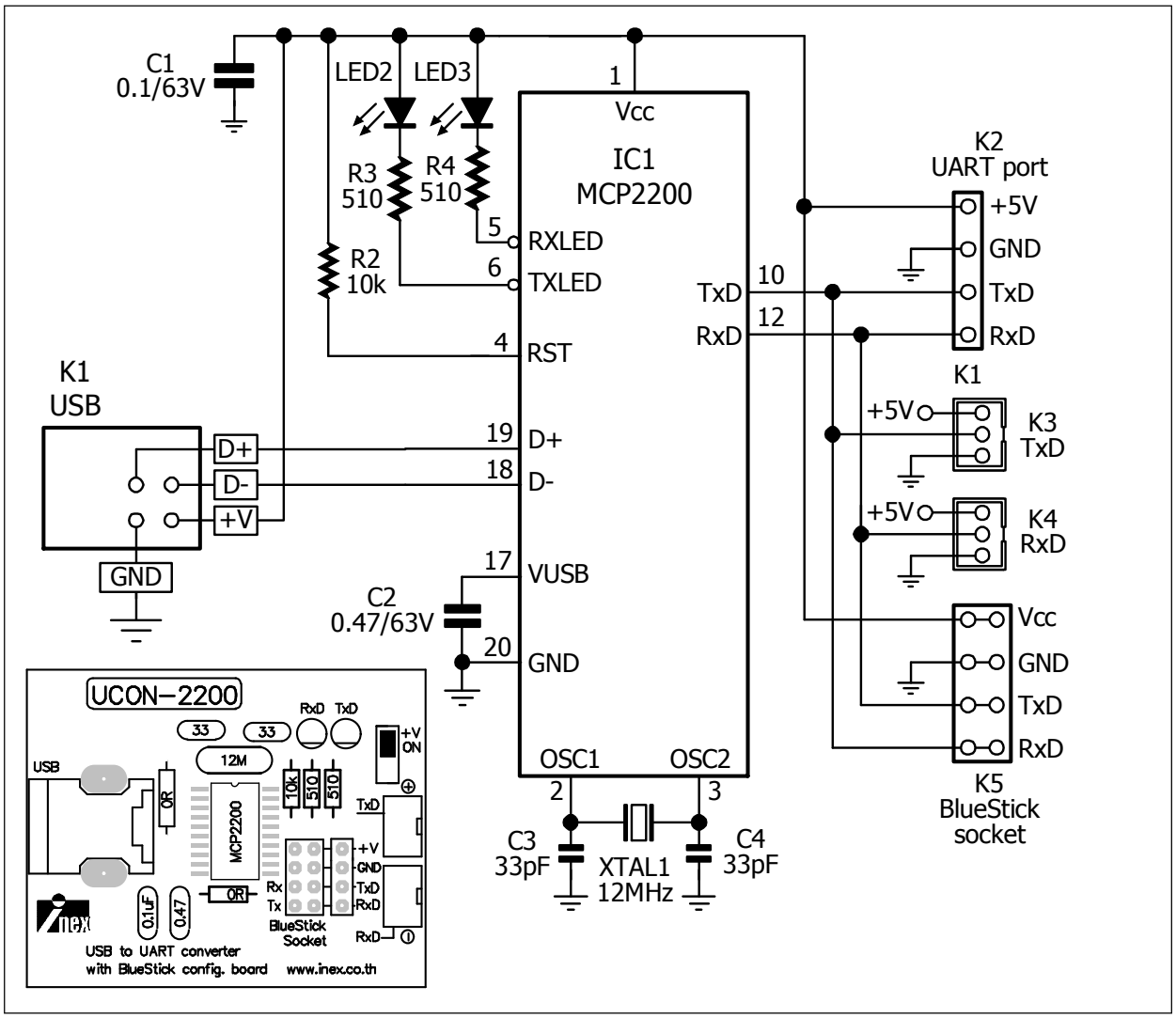
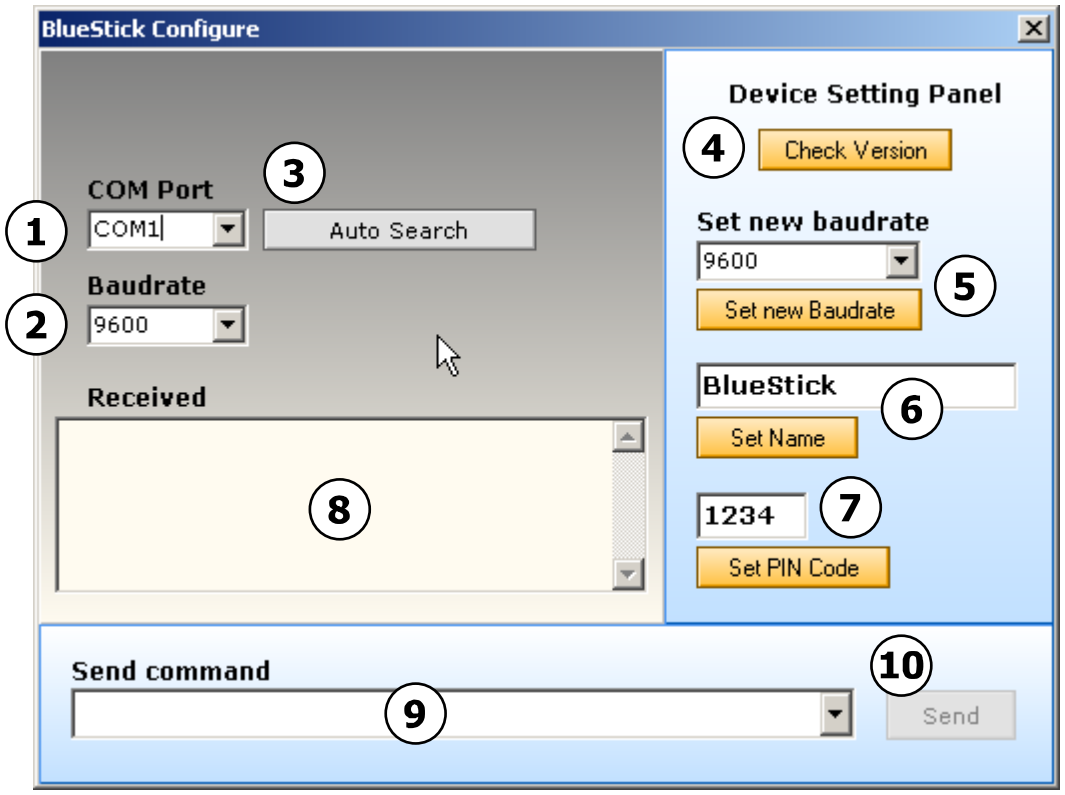


Figure 1 : The schematic diagram of UCON-2200 board

- The TxD and RxD connector available with male and female 2.54mm. IDC header and 3-pin 2mm. male JST connectors
- USB port power supply not require the external power supply.
- Supports any popular microocntroller for interfacing with computer via USB port via the virtual COM port driver
- Operates with the Virtual COM port. Support the applications that developed by Visual Basic , Visual C or Borland Delphi
- BlueStick socket for setting configuration
- Free download the latest driver of MCP2200 from **http://www.microchip.com**
- Sizing 2.1 x 1.7 Inches or 5.3 x 4.3 cm.

5. BlueStick Configure introduction



1. **COM Port** : Displays the port that is connected to UCON-2200 board. It should be COM3 or higher.

2. **Baudrate** : Displays the current baudrate of the BlueStick module. The default is 9600.

3. **Auto Search** : Find the COM port that is connected to the UCON-2200 board with the BlueStick module installed already.

4. **Check Version** : Check the BlueStick module version. User can use this button to test the communication between the BlueStick and computer. If correct, the data area shows OK message following the version or model name of BlueStick.

5. **Set new baudrate** : This button use to set the new baudrate of BlueStick module

6. **Set Name** : This button is for setting the new name for BlueStick module. 16 charaters are maximum (only in English)

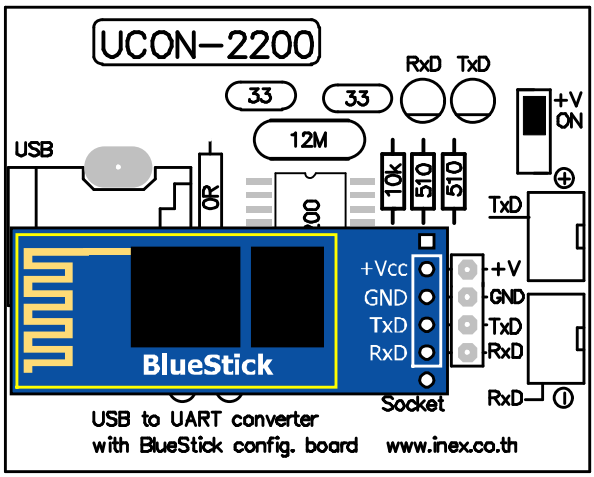
7. **Set PIN Code** : Set the paring code. The code consist of 4 digits of number 0 to 9. The default code is 1234.

8. **Received data space :** Displays all receiving data and setting value of BlueStick configuration.

9. and 10. are not using.

6. BlueStick configuration

(6.1) Plug the BlueStick module to the BlueStick socket on the UCON-2200 board.

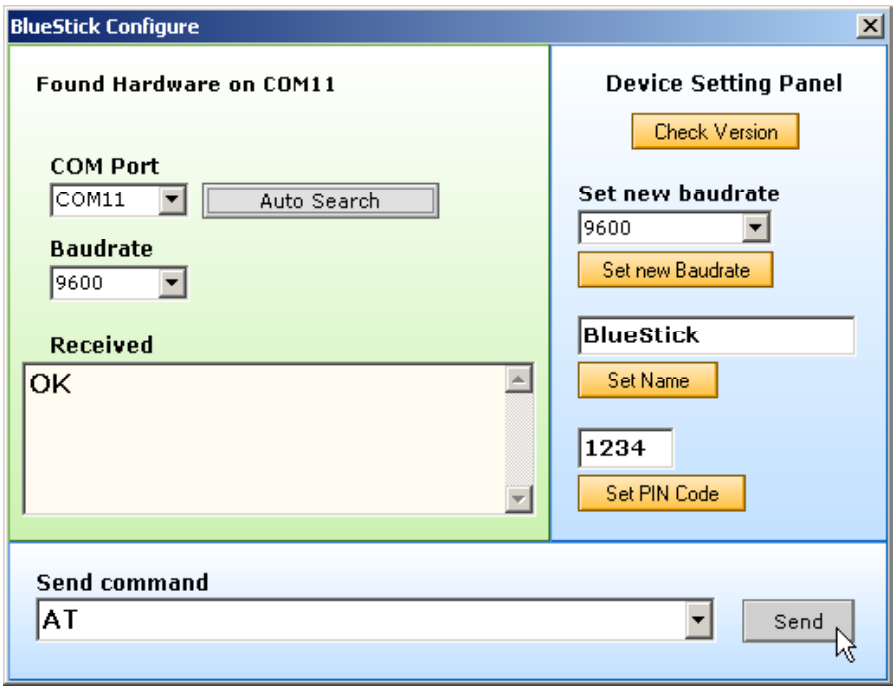


(6.2) Connect the USB cable from board to USB port.

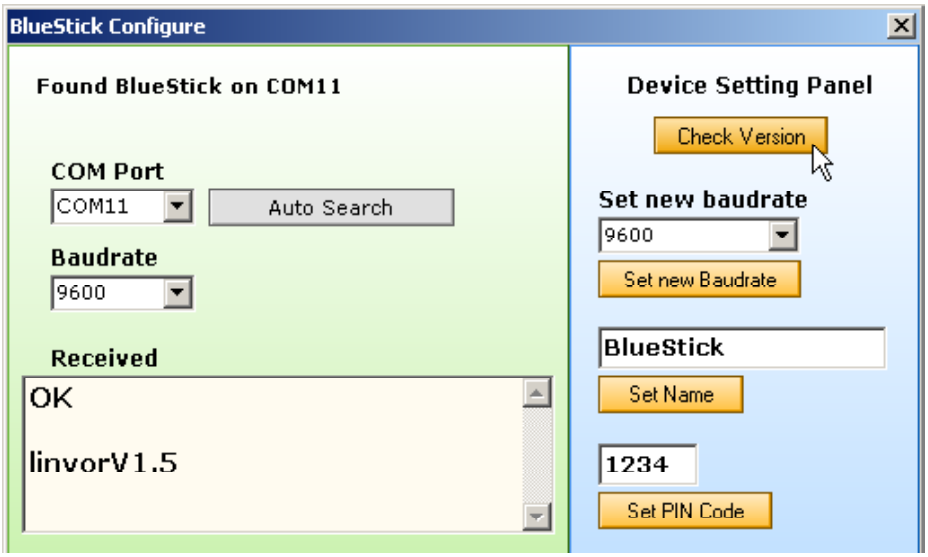
(6.3) Choose +V jumper to ON for applying the supply voltage to the BlueStick.

(6.4) Check the USB serial port address that created by USB virtual COM port driver of the UCON-2200 board. (**Control panel > System > Hardware > Device Manager > Ports**)

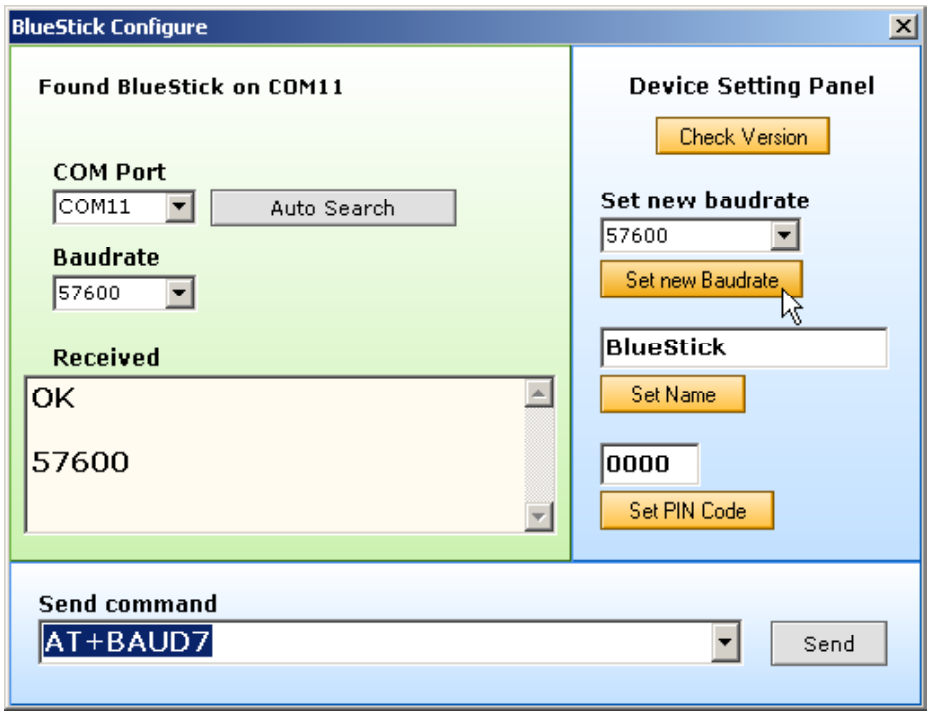
(6.5) Select the connection COM port at **COM port** box. Set **Baudrate** to 9600. Click on the **Auto Search** button. The left window background color is changed to GREEN and displays message "***Found Hardware on COMxx***"



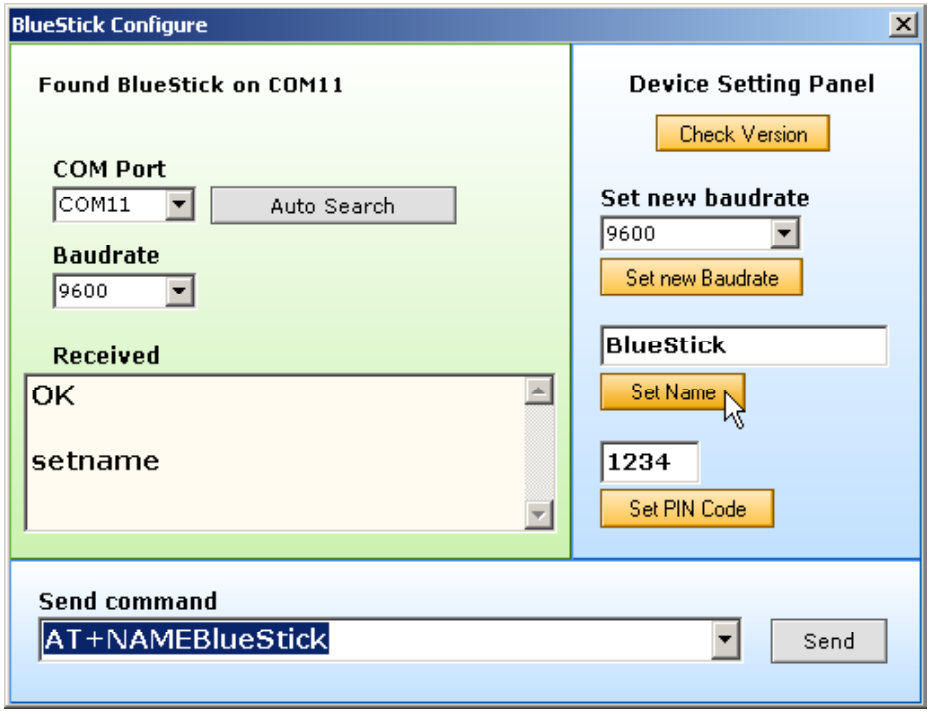
(6.6) Click on the **Check Version** button. The **Received space** displays ***OK*** following ***the version name.***



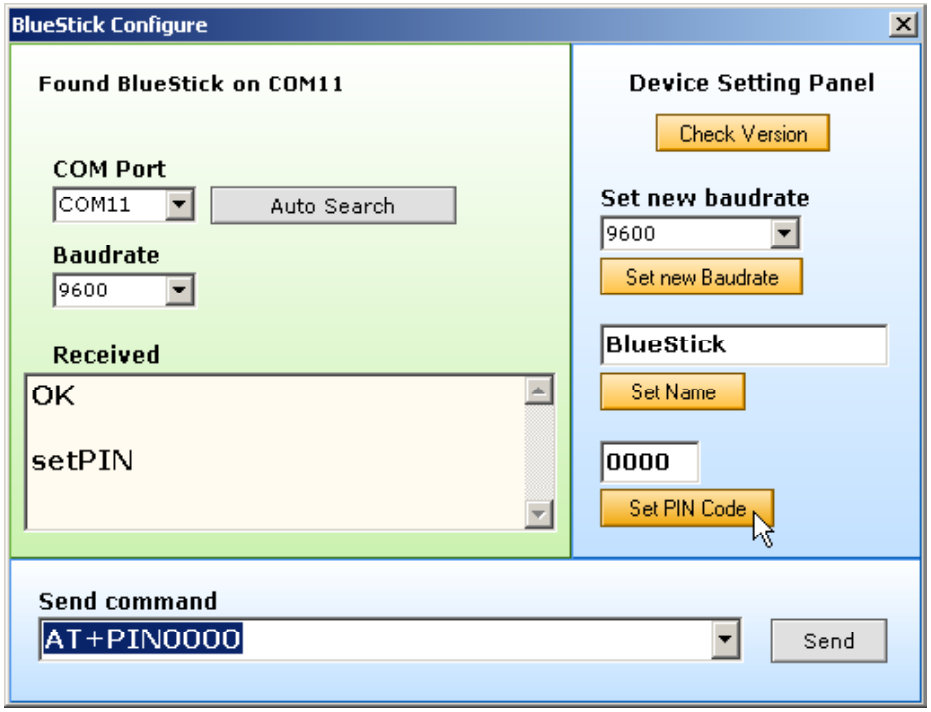
(6.7) If user require to set the new baudrate, click to select the new baudrate at the **Set new baudrate** combobox. After that, click on the **Set new baudrate** buttton.



(6.8) For easy remembering and searching of the BlueStick, suggest to set the name for it. Put the suitable name into the **Set Name** block following click on the **Set Name** button.



(6.9) Set the pairing code. The default code is ***1234***. Put the pairing code into **Set PIN Code** followong click on the **Set PIN Code** to confirm.



7. Checking the connection

After setting the configuration, BlueStick is ready to use. The easy way to check the operation is using the mobile phone that supported the Bluetooth communication.

(7.1) Connect the UCON-2200 board that plug the BlueStick with USB of computer.

(7.2) Turn on the bluetooth function on the mobile phone.

(7.3) Search for a bluetooth device. If no setting has been done for the bluetooth name, mobile phone will found the custom 6 sets of code. One set includes 2 digits. Total the codename of BlueStick is 12 digits of numbers.

8. ADX-BTstick board (optional board - not include)

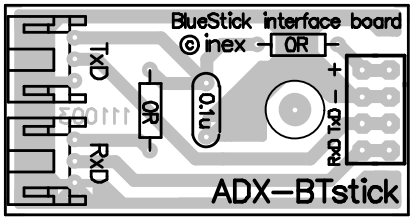
This is the interface board of BlueStick module with the external devices such as microcontroller. Figure 2 shows details of the ADX-BTstick board and schematic diagram in the figure 3. The features of ADX-BTstick is as follows :

● Prepare the BlueStick connector

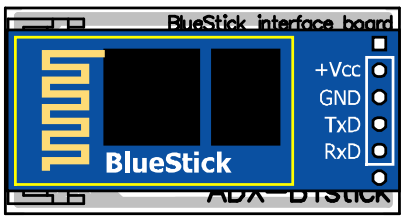
● TxD and RxD pins are assigned to 3-pin of JST connectors and 2.54mm. female header to support the communications.

● The supply voltage is +5V.

Figure 4 shows the connection of BlueStick, ADX-BTstick and any microcontroller.



(2.1) pin assignment



(2.2) BlueStick is plugged

figure 2 : The ADX-BTstick board

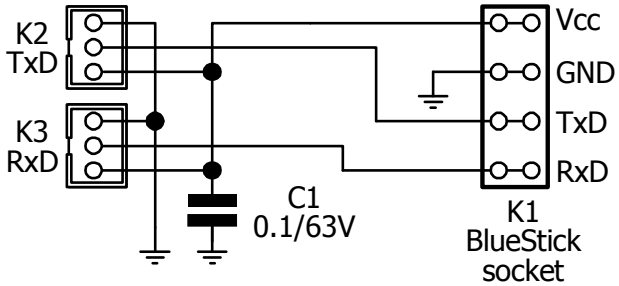


Figure 3 : ADX-BTstick schematic diagram

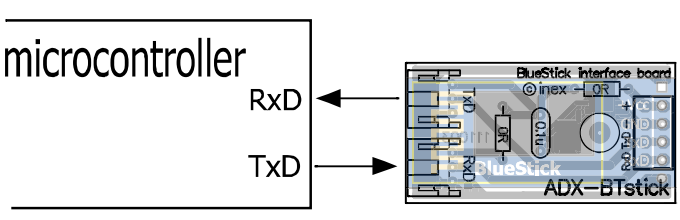


figure 4 : Connect with microcontroller

8. BlueStick operation when used with a microcontroller.

The figure 5 shows the diagram of BlueStick module operation when connect with the microcontroller to work. There are 2 main approaches.

1. Make an embedded system or device that interacts with the primary tools such as a computer or smartphone via bluetooth. Also cover to the Android phone and iOS devices (iPhone, iPOD and iPAD). In this approache, the BlueStick that is slave device could be used immediately.[figure5a]

2. Make the two way wireless communications for the embedded system with bluetooh devices. In this approche, one system must act to master. Another is slave. At the master side, it requires the master mode bluetooth device (ESD-200 is recommended - see more information at www.inexglobal.com). The BlueStick do not work in master mode. It can work in slave system side.

However, that will work in any way. The connection between the BlueStick module and simple microcontrollers use only 3 lines. It consist of the receiving data line, transimitting data line and ground. The connection wires are connected by a cross. Connect the BlueStick's receiving data (RxD) with TxD (transmitting data) of the microcontroller and connect the BlueStick's transmitting data to RxD (receiving data) of the microcontroller [figure5b]

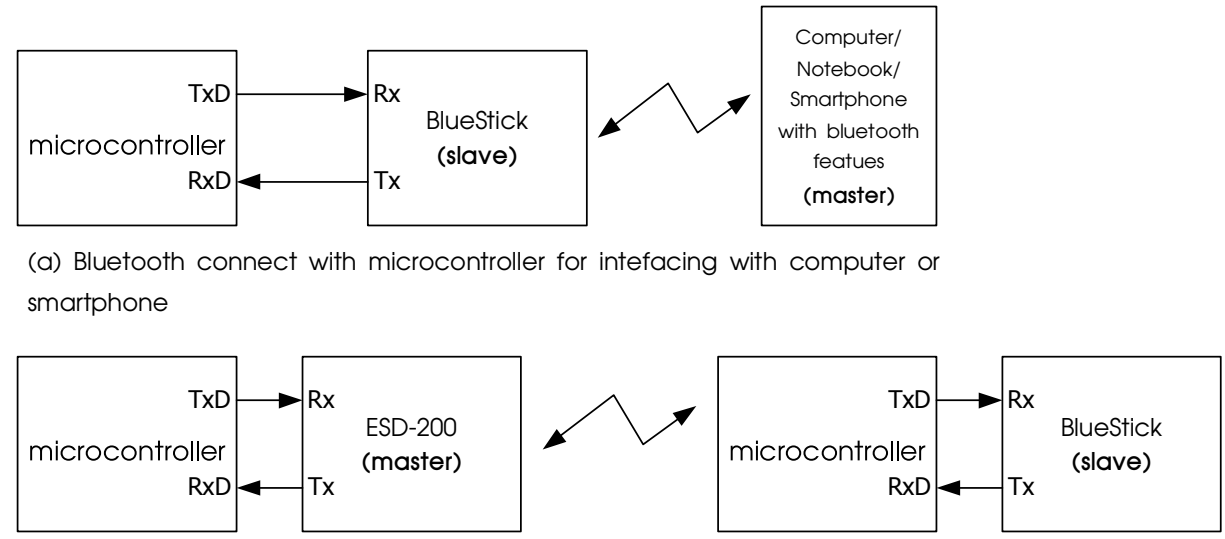


figure 5 : Real world application idea for using the BlueStick