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TENET TECHNETRONICS

Interfacing HC-05 with Raspberry Pi

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Introduction:

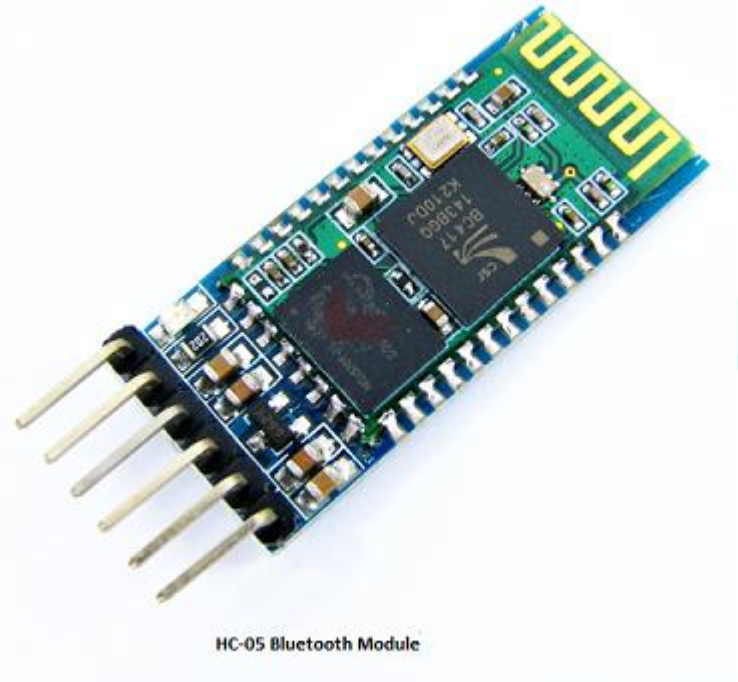
Raspberry Pi is a credit card sized computer that plugs into a computer monitor or TV, and uses standard keyboard and mouse. It's capable of doing everything you'd expect a desktop computer to do, from browsing the internet and playing high-definition video, to making spreadsheets, word-processing, and playing games. In this article I describe how to enable the Raspberry Pi's serial port to talk to other devices over Bluetooth using this module.

Hardware Requirements:

1. Raspberry Pi board.
2. Jumper wires.
3. HC-05 Bluetooth module.
4. Smartphone with Bluetooth terminal App.

HC-05 Bluetooth module:

Bluetooth is a wireless technology standard for exchanging data over short distances from fixed and mobile devices, and building personal area networks (PANs).HC-05 is a class-2 Bluetooth module with Serial Port Profile, which can configure as either Master or slave. It is replacement for wired serial connections, transparent usage.



HC-05 Bluetooth Module

Smartphone with Bluetooth Robot Remote control software:

Download the Bluetooth simple terminal app which is created by Tenet Tech from play store in your mobile.

App instructions:

- First make sure your HC-05 Bluetooth module is paired with your mobile. The default password for pairing is “1234” or “0000”.Check the manual of Bluetooth module.
- A simple Bluetooth communication app, using the SPP profile to transmit/receive data from the compatible paired device.
- Send ASCII or hex data direct to the connected device. Quick access custom function buttons to send any ASCII string.
- Perfect to use with real time, hyperterminal and Arduino.

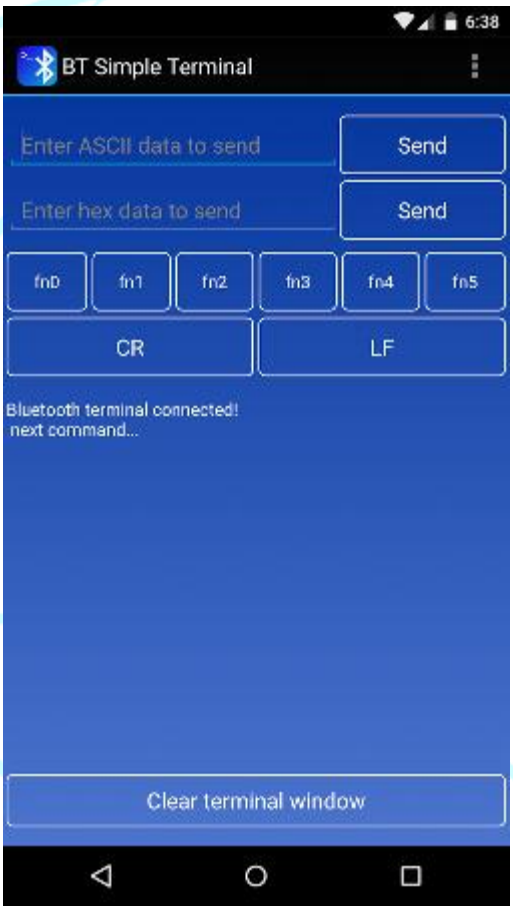


Figure 2

Direct serial port access:

Having a wireless serial connection into the RPi can be useful for regular applications, example for debugging or for remote control.

To be able to use the serial port from a user application running in the Raspberry Pi we first Need to tell the system to not use it as a console. To do this we need to go back to the two SPI Interface configuration files. We recommend that we back up our config files before changing them, in case things don't work out well and you need to revert the changes.

Disable Boot Messages:

When the Pi is booting all the debug messages are sent to the serial port. This can be useful for some purposes but we need to turn this off to free the port for our own use.

To stop the messages being sent to the port we need to edit another system file. Run the following command to edit the cmdline.txt file:

sudo nano /boot/cmdline.txt

Use the cursor keys to find the line:

dwc_otg.lpm_enable=0 console=ttyAMA0,115200 kgdboc=ttyAMA0,115200 console=tty1 root=/dev/mmcblk0p2 rootfstype=ext4 elevator=deadline rootwait

And remove the block of console parameters in the middle to give you:

dwc_otg.lpm_enable=0 console=tty1 root=/dev/mmcblk0p2 rootfstype=ext4 elevator=deadline rootwait

Press “CTRL-X”, “Y” and finally “Enter” or “Return” to save. You should be returned to the command prompt.

Disable Login Via Serial Port:

To disable the login feature we can run the following command to edit the inittab system file:

sudo nano /etc/inittab

Use the cursor keys to find the line:

T0:23: respawn:/sbin/getty -L ttyAMA0 115200 vt100

And add **#** character at the beginning of the line to give:

#T0:23: respawn:/sbin/getty -L ttyAMA0 115200 vt100

Press “CTRL-X”, “Y” and finally “Enter” or “Return” to save the file.

Restart Pi

Now the changes have been made the Pi must be restarted for them to take effect.

Reboot using:

sudo reboot

Needed package for accessing serial port on Raspberry Pi:

Before going to write the code we need the pyserial python package which is used to access the serial port. In order to install the package type the command in the LX terminal. If something went wrong while installing pyserial package, Update and upgrade your OS by using bellow command

sudo apt-get update

sudo apt-get upgrade

sudo apt-get install python-serial

Circuit diagram:

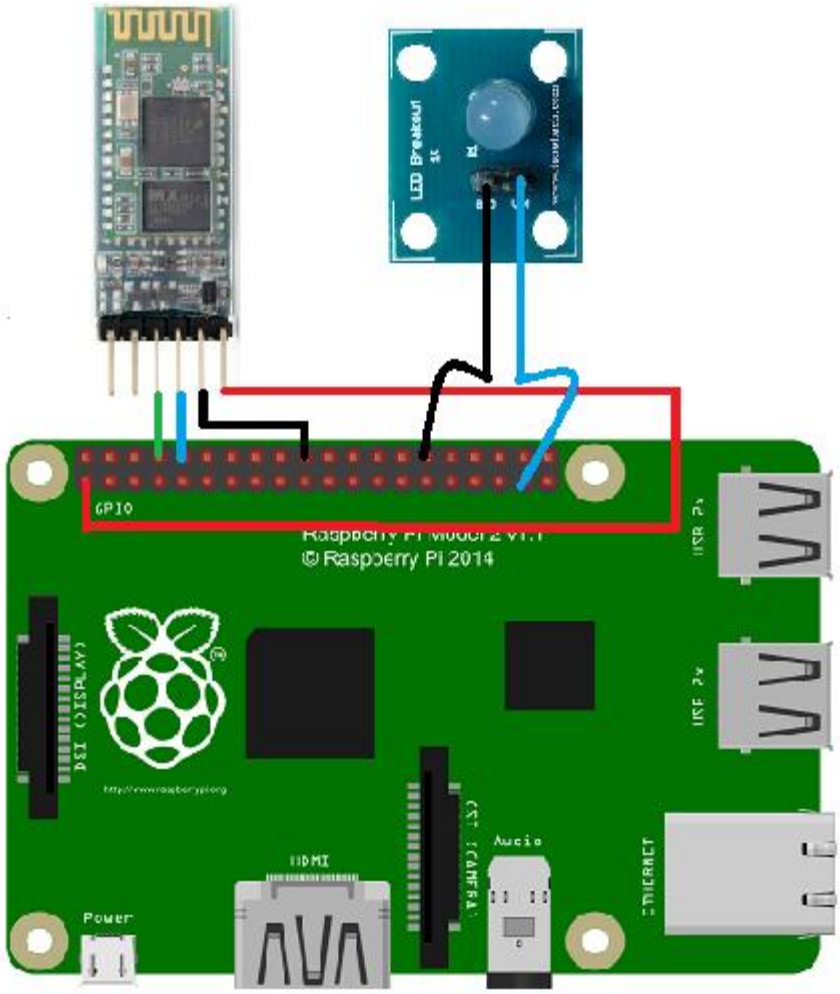


Figure 3

Coding:

```
import serial port
Ser=serial. Serial ('/dev/ttyAMA0', 9600)
GPIO.setwarnings (False)
GPIO.setmode (GPIO.BOARD)
GPIO.setup (37, GPIO.OUT)
while 1:
        try:
                data=ser.read()
                print data
                if(data=='A'):
                        GPIO.output(37,GPIO.HIGH)
                else:
                        GPIO.output(37,GPIO.LOW)
        except KeyboardInterrupt:
                ser.close()
                quit()
```

Output:

Figure 4

Output on the screen:

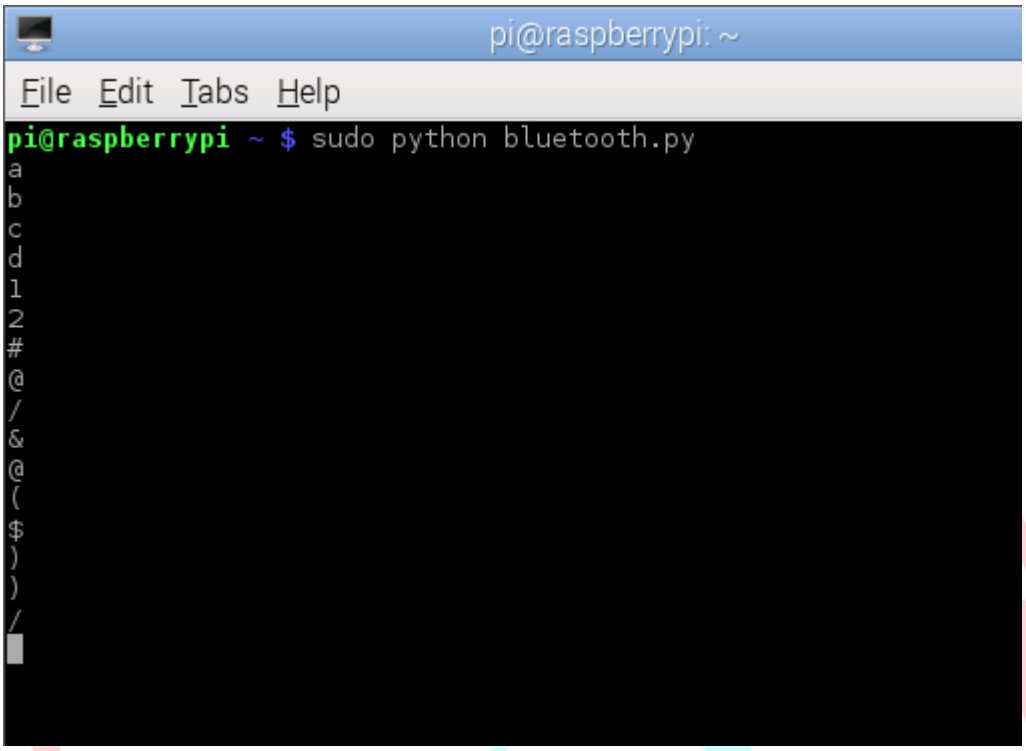


Figure 4

For product link:

1. http://tenettech.com/product/7021/raspberry-pi-2-model-b-basic-kit-tt-sp-19022015
2. http://www.tenettech.com/product/6068/power-supply-breakout-board.
3. http://www.tenettech.com/product/7287/hc-05-wireless-bluetooth-serial-pass-through-module

For more information please visit: www.tenettech.com

For technical query please send an e-mail: info@tenettech.com