

Getting start guide for RPI

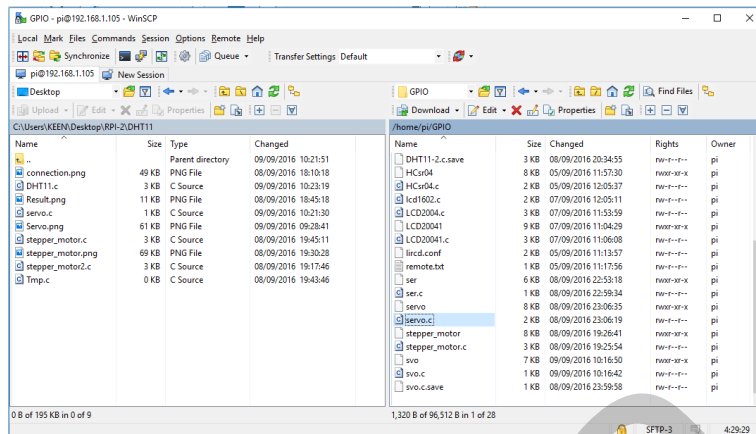
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Software

WinSCP :

It is easy to move files between PC and RPI.



Software Path : \ For Raspberry \Software\

WiringPi

Download and Install

WiringPi is maintained under GIT for ease of change tracking, however there is a *Plan B* if you're unable to use GIT for whatever reasons (usually your firewall will be blocking you, so do check that first!)

If you do not have GIT installed, then under any of the Debian releases (e.g. Raspbian), you can install it with:

```
sudo apt-get install git-core
```

If you get any errors here, make sure your Pi is up to date with the latest versions of Raspbian:

```
sudo apt-get update
```

```
sudo apt-get upgrade
```

To obtain WiringPi using GIT:

```
git clone git://git.drogon.net/wiringPi
```

If you have already used the clone operation for the first time, then

```
cd wiringPi
```

```
git pull origin
```

Will fetch an updated version then you can re-run the build script below.

To build/install there is a new simplified script:

```
cd wiringPi
```

```
./build
```

The new build script will compile and install it all for you – it does use the sudo command at one point, so you may wish to inspect the script before running it.

Plan B

Click on this URL: (it should open in a new page)

<https://git.drogon.net/?p=wiringPi;a=summary>

Then look for the link marked **snapshot** at the right-hand side. You want to click on the top one.

This will download a tar.gz file with a name *like* wiringPi-98bcb20.tar.gz. Note that the numbers and letters after **wiringPi** (98bcb20 in this case) will probably be different – they're a unique identifier for each release.

You then need to do this to install:

```
tar xzf wiringPi-98bcb20.tar.gz
```

```
cd wiringPi-98bcb20
```

```
./build
```

Note that the actual filename will be different – you will have to check the name and adjust accordingly.

Test wiringPi's installation

run the gpio command to check the installation:



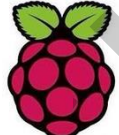
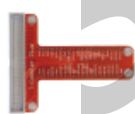



```
gpio -v

gpio readall
```

That should give you some confidence that it's working OK.

Test program:

Step 1: Hardware required

Material diagram	Material name	Number
	220/330Ω resistor	1
	LED	1
	Raspberry Pi Board	1
	T-Cobbler Plus	1
	40P GPIO Cable	1
	Jumper wires	Several
	Breadboard	1

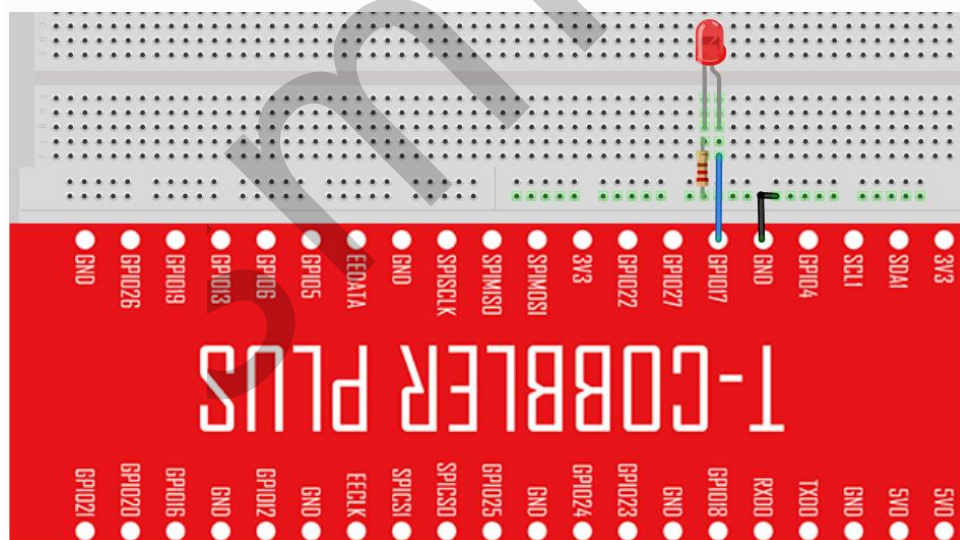
Step 2: Circuit connection

Because it is using the **wiringPi library**, the pins have been **re-layout**.

The pins on the “T- Cobbler Plus” number are different, please refer the “wPi” number. (Refer the following picture)

```
pi@raspberrypi:~$ gpio readall
```

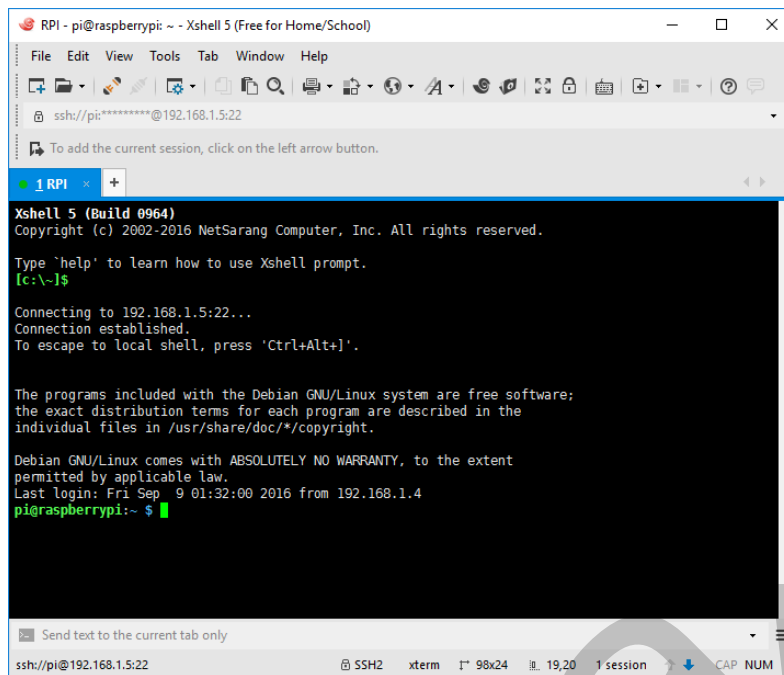
Pi 3										
BCM	wPi	Name	Mode	V	Physical	V	Mode	Name	wPi	BCM
		3.3v			1	2		5v		
2	8	SDA.1	ALT0	1	3	4		5V		
3	9	SCL.1	ALT0	1	5	6		0v		
4	7	GPIO. 7	IN	1	7	8	1	ALT5	TxD	15
		0v			9	10	1	ALT5	RxD	16
17	0	GPIO. 0	OUT	0	11	12	0	ALT5	GPIO. 1	1
27	2	GPIO. 2	IN	0	13	14		0v		
22	3	GPIO. 3	IN	0	15	16	0	IN	GPIO. 4	4
		3.3v			17	18	0	IN	GPIO. 5	5
10	12	MOSI	ALT0	0	19	20		0v		
9	13	MISO	ALT0	0	21	22	0	IN	GPIO. 6	6
11	14	SCLK	ALT0	0	23	24	1	OUT	CE0	10
		0v			25	26	1	OUT	CE1	11
0	30	SDA.0	IN	1	27	28	1	IN	SCL.0	31
5	21	GPIO.21	IN	1	29	30		0v		
6	22	GPIO.22	IN	1	31	32	0	IN	GPIO.26	26
13	23	GPIO.23	IN	0	33	34		0v		
19	24	GPIO.24	IN	0	35	36	0	IN	GPIO.27	27
26	25	GPIO.25	IN	0	37	38	0	IN	GPIO.28	28
		0v			39	40	0	IN	GPIO.29	29



Connection:

RPI	LED
GPIO17	Long pin
GND	Short pin

Step 3: Open command window



```
RPI - pi@raspberrypi: ~ - Xshell 5 (Free for Home/School)
File Edit View Tools Tab Window Help
ssh://pi:*****@192.168.1.5:22
To add the current session, click on the left arrow button.
1 RPI *
Xshell 5 (Build 0964)
Copyright (c) 2002-2016 NetSarang Computer, Inc. All rights reserved.
Type 'help' to learn how to use Xshell prompt.
[c:\~]>
Connecting to 192.168.1.5:22...
Connection established.
To escape to local shell, press 'Ctrl+Alt+I'.

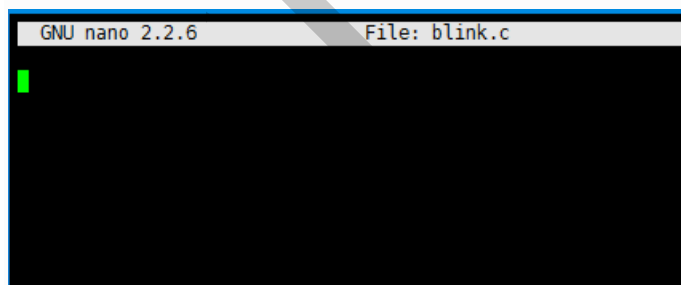
The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Fri Sep  9 01:32:00 2016 from 192.168.1.4
pi@raspberrypi:~$
```

Step 4: Create blink.c

```
pi@raspberrypi:~$ nano blink.c
```

\$nano blink.c



```
GNU nano 2.2.6 File: blink.c

```

```
GNU nano 2.2.6 File: blink.c

#include <wiringPi.h>
#include <stdio.h>
int main(void)
{
    printf( "Welcome to Smraza\n");
    printf( "Raspberry Pi blink program\n" );
    wiringPiSetup() ;
    pinMode (0, OUTPUT) ;
    for(;;)
    {
        digitalWrite(0, HIGH) ; delay (500) ;
        digitalWrite(0, LOW) ; delay (500) ;
    }
}
```

Code:

```
#include <wiringPi.h>
```

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    printf( "Welcome to Smraza\n");
```

```
    printf( "Raspberry Pi blink program\n" );
```

```
    wiringPiSetup() ;
```

```
    pinMode (0, OUTPUT) ;
```

```
    for(;;)
```

```
    {
```

```
        digitalWrite(0, HIGH) ; delay (500) ;
```

```
        digitalWrite(0, LOW) ; delay (500) ;
```

```
}  
  
}
```

Step 5: Exit and save

“Ctrl+X”

Step 6: Compiling

```
pi@raspberrypi:~$ gcc -Wall -o blink blink.c -lwiringPi  
pi@raspberrypi:~$
```

\$ gcc -Wall -o blink blink.c -lwiringPi

Or \$ g++ -o blink blink.c -lwiringPi

Note :if you want to compile “xxx.c” and you need you to input

\$ gcc -Wall -o xxx xxx.c -lwiringPi

Or \$ g++ -o xxx xxx.c -lwiringPi












Step 7: Run

\$ sudo ./blink

```
pi@raspberrypi:~$ sudo ./blink  
Welcome to Smraza  
Raspberry Pi blink program  
█
```

Tips: stop-> Ctrl+c

Learning materials

 Lesson1-Blink	21/10/2016 15:04	File folder
 Lesson2-Button	21/10/2016 15:05	File folder
 Lesson3-Ball Switch	21/10/2016 15:06	File folder
 Lesson4-Active buzzer	21/10/2016 15:13	File folder
 Lesson5-Passive buzzer	21/10/2016 15:24	File folder
 Lesson6-Relay module experiment	21/10/2016 15:24	File folder
 Lesson7-RGB LED	21/10/2016 15:23	File folder
 Lesson8-Servo	21/10/2016 15:22	File folder
 Lesson9-Stepper motor	21/10/2016 15:21	File folder
 Lesson10-Ultrasonic ranging	21/10/2016 15:20	File folder
 Lesson11-LCD1602	21/10/2016 15:18	File folder

Learning Websites

<http://www.circuitbasics.com/raspberry-pi/>

<http://wiringpi.com/>

<http://www.mikronauts.com/raspberry-pi/>

<https://learn.adafruit.com/category/raspberry-pi>

<http://www.toptechboy.com/raspberry-pi-with-linux-lessons/>

Python

If you want to learn Python GPIO, please refer to the following link:

<https://www.raspberrypi.org/learning/physical-computing-with-python/>

<https://sourceforge.net/p/raspberry-gpio-python/wiki/install/>

Tips

We will continue to update our resources, please always pay attention to the following links:

<https://github.com/SmrazaKeen/Project-for-RPI>

<https://mega.nz/#F!BxY3RAqJ!GOB3syxhDVYa6z-vsKabOg>

* About Smraza:

* We are a leading manufacturer of electronic components for Arduino and Raspberry Pi.

* We have a professional engineering team dedicated to providing tutorials and support to help you get started.

* If you have any technical questions or suggestions, please feel free to contact our support staff via email at support@smraza.com

* We truly hope you enjoy the product, for more great products please visit our Amazon store: www.amazon.com/shops/smraza
