Web Interface in Raspberry Pi Applications

Tushar B. Kute,
http://tusharkute.com

WiringPi

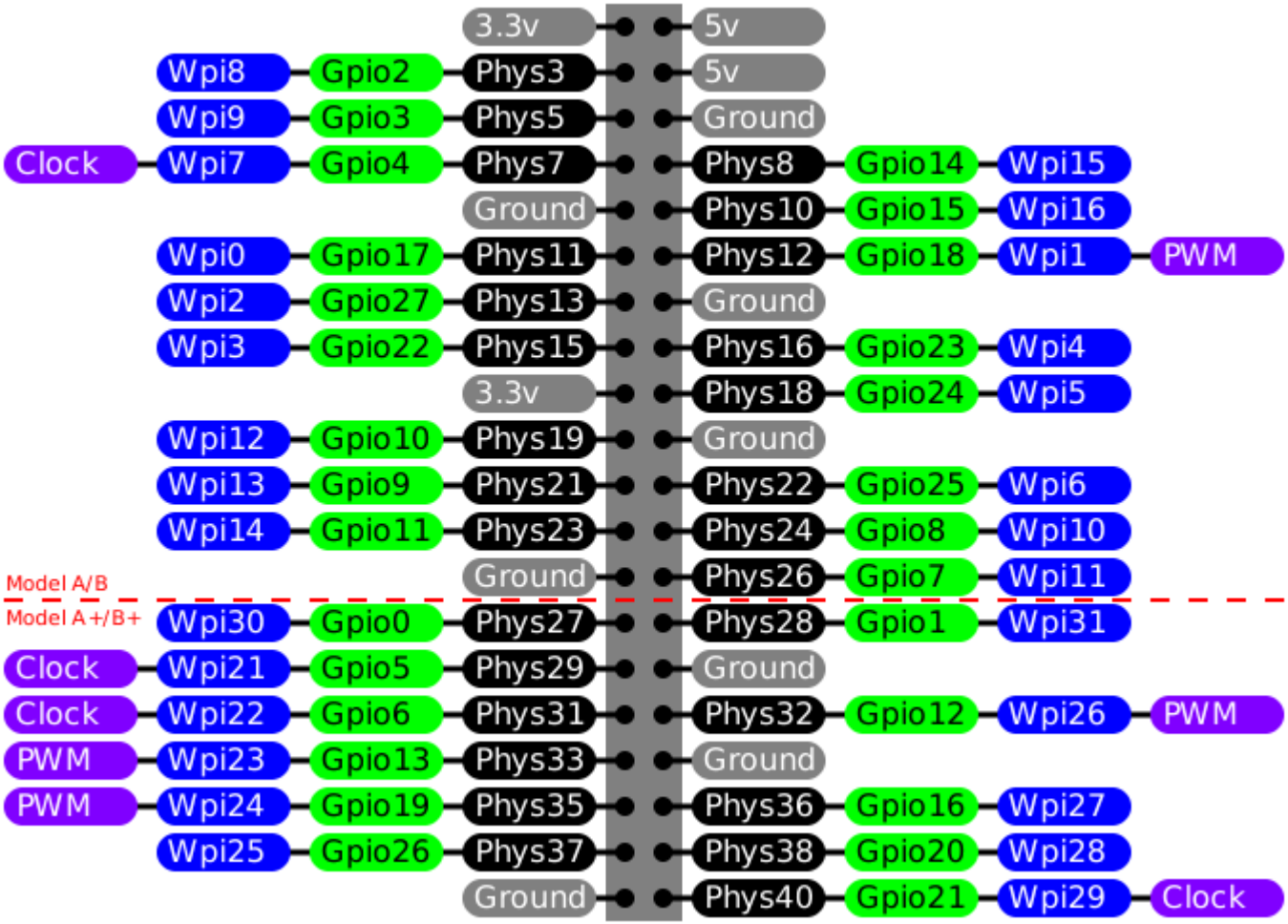
- WiringPi is a PIN based GPIO access library written in C for the BCM2835 used in the Raspberry Pi.
- It’s released under the GNU LGPLv3 license and is usable from C, C++ and RTB (BASIC) as well as many other languages with suitable wrappers

Install WiringPi

- WiringPi is not included with Raspbian, so, to begin, you'll need to download and install it. That means your Pi will need a connection to the Internet – either via Ethernet or WiFi.
- We highly recommend using Git to download the latest version. As long as you have Git installed, these commands should be all you need to download and install WiringPi:

```
pi@raspberrypi ~$ git clone
git://git.drogon.net/wiringPi
pi@raspberrypi ~$ cd wiringPi
pi@raspberrypi ~/wiringPi/wiringPi $ ./build
```

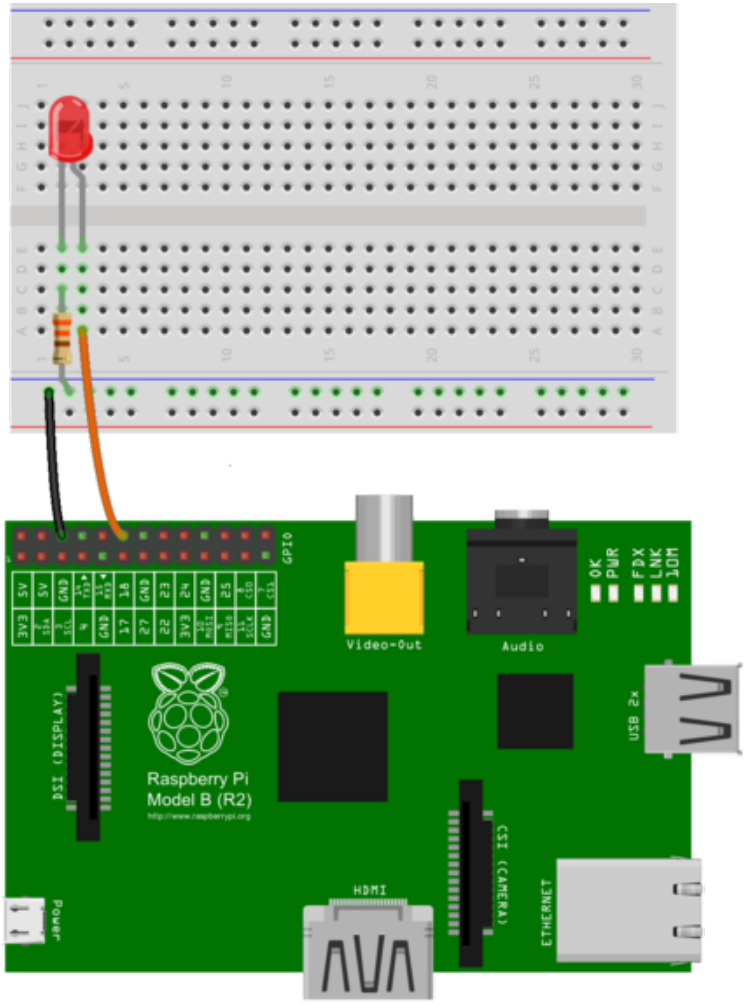
WiringPi PINs



GPIO Command Line utility

- Task: Connect the LED
  GND to Short Pin
  GPIO18 to Long Pin

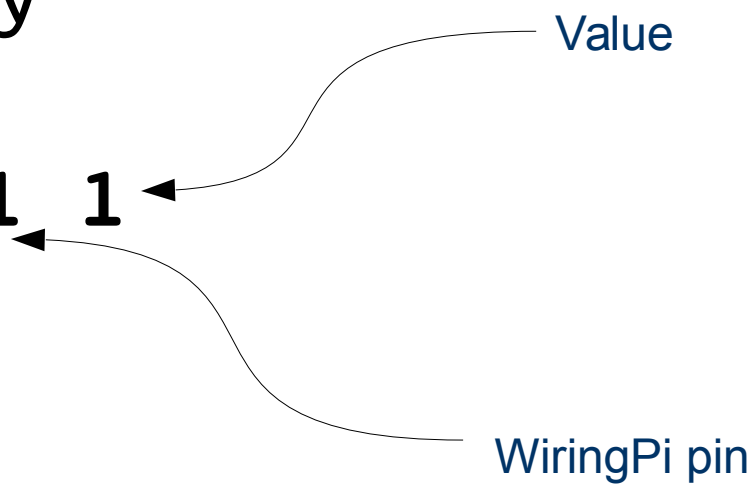
- Remember:
  GPIO18 is **PIN 1** in
  WiringPI



GPIO Command Line utility

- Glow the LED by

```
gpio write 1 1
```



- Off the LED by

```
gpio write 1 0
```

Blink LED using C

```
#include <wiringPi.h>
int main (void)
{
  wiringPiSetup () ;
  pinMode (0, OUTPUT) ;
  while (1)
  {
    digitalWrite (0, HIGH) ; delay (500) ;
    digitalWrite (0,  LOW) ; delay (500) ;
  }
  return 0 ;
}
```

Blink LED using C – Running Code

```
gcc -o blink blink.c -lwiringPi

sudo ./blink
```

Communicating using PHP

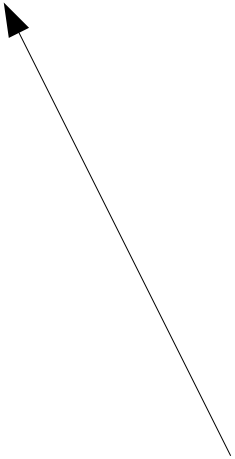
- In order the control the LED using PHP, you must install the php and apache2 web server.

```
sudo apt-get install php apache2
```

- Your programs of PHP on Linux are always saved in the **`/var/www/html`** folder.

Control LED using PHP

```
<?php
        system ('gpio write 1 0');
}
?>
```



Executes the Shell command in PHP

Web Interface to LED

- Create the front page using HTML which contains two buttons to put the LED in ON or OFF state.
- Control the data input from buttons using PHP page.
- Lets code it...

HTML Page

```
<html>
<head>
    <title> LED CONTROL </title>
</head>
<body>
<h1 align="center"> Control Your LED  </h1>
<form method="post">
    <table align="center">
        <tr align="center">
        <th align="center"><input type="submit" name="on" value="ON"></th>
        <th align="center"><input type="submit" name="off" value="OFF"></th>
        </tr>
    </table>
</form>
```

Method: Get/Post

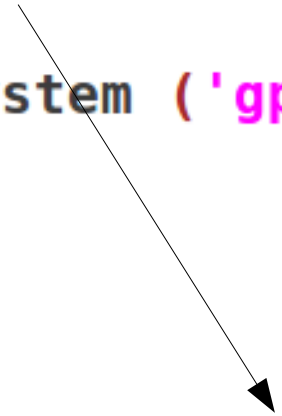
Button Label

Action Generator

Variable name

PHP Code

```php
<?php
if(isset($_POST['on']))
{
        system ('gpio write 1 1');
}
if(isset($_POST['off']))
{
        system ('gpio write 1 0');
}
?>
```



Associative array contains HTML variables

Combine Both – Final Code

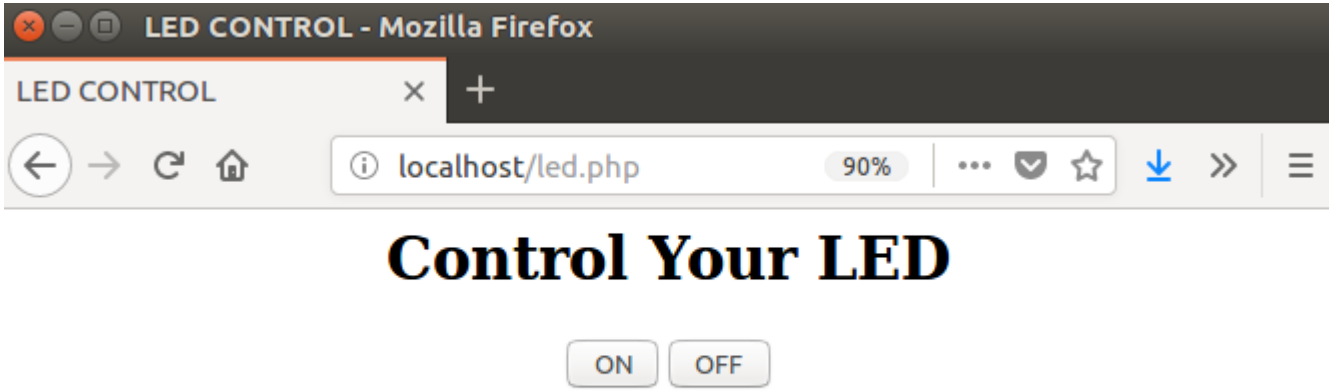
```
<html>
<head>
    <title> LED CONTROL </title>
</head>
<body>
<h1 align="center"> Control Your LED  </h1>
<form method="post">
    <table align="center">
        <tr align="center">
        <th align="center"><input type="submit" name="on" value="ON"></th>
        <th align="center"><input type="submit" name="off" value="OFF"></th>
        </tr>
    </table>
</form>
<?php
if(isset($_POST['on']))
{
        system ('gpio write 1 1');
}
if(isset($_POST['off']))
{
         system ('gpio write 1 0');
}
?>
```

How to Access?

- Open web browser in any PC/Laptop/Mobile in the same network. Type:

`http://192.168.43.164/led.php`

IP Address of RPi



Thank you

This presentation is created using LibreOffice Impress 4.2.8.2, can be used freely as per GNU General Public License

@mitu_skillologies

/mITuSkillologies

@mitu_group

Web Resources
http://mitu.co.in
http://tusharkute.com

Blogs
http://digitallocha.blogspot.in
http://kyamputar.blogspot.in

tushar@tusharkute.com