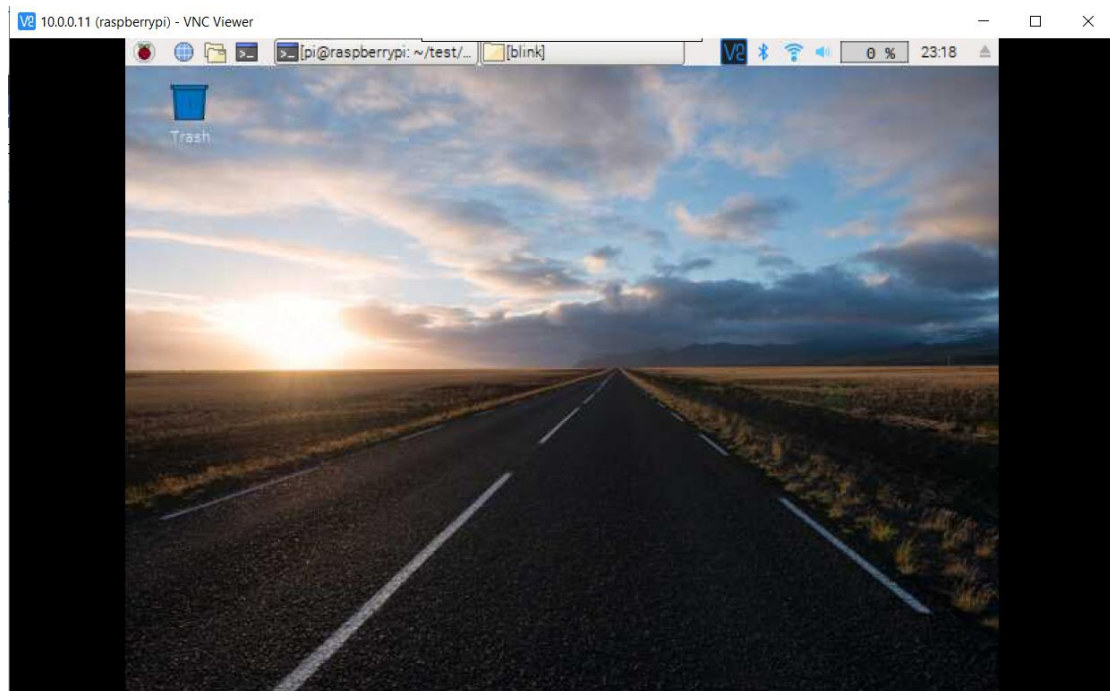


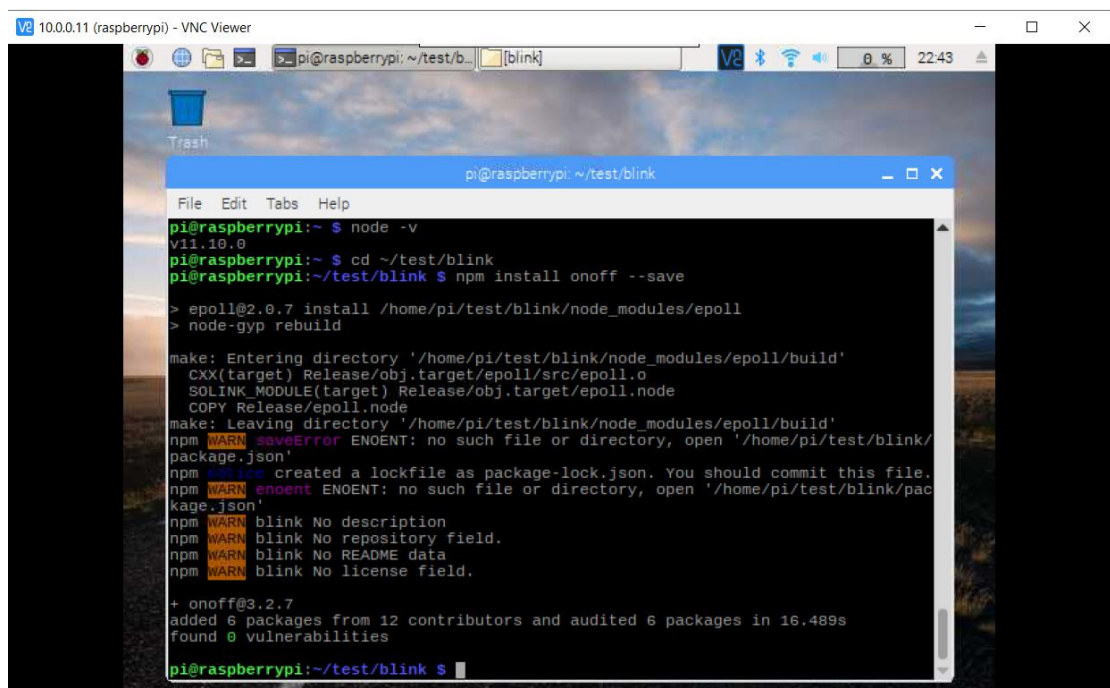
EE517 Internet of Things

Project: Controlling Led Blinking with Pushing Button by node.js

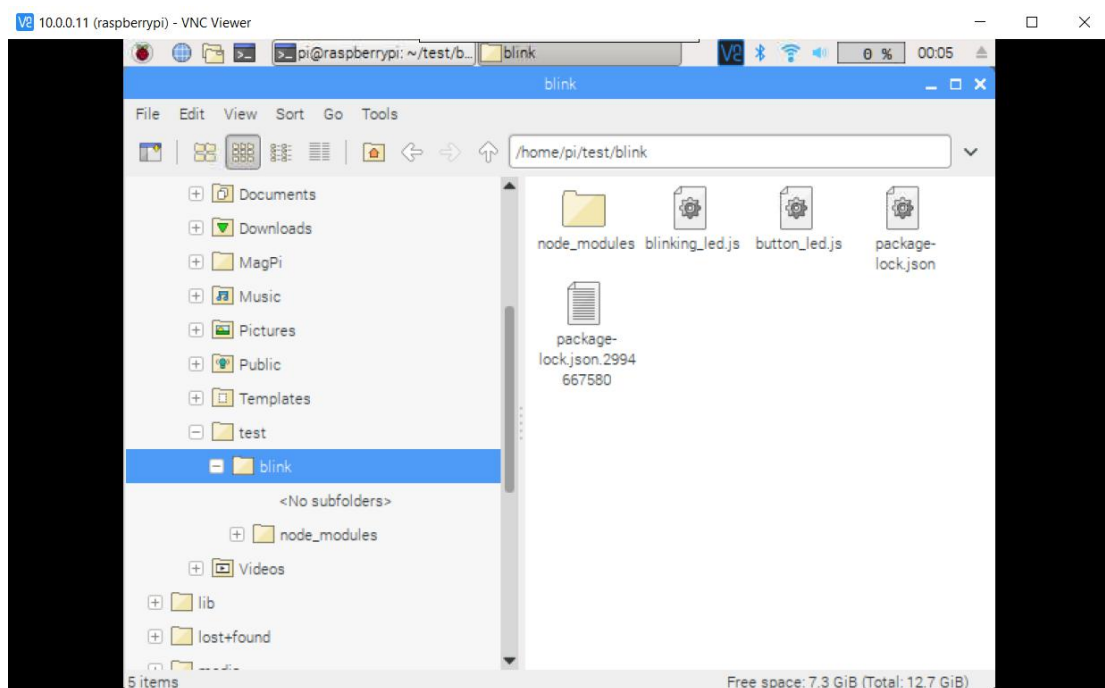
1. Access Raspberry Pi with your computer by using Putty or VNC. Here, I use VNC.



2. Install onoff packet under your direction



3. Create a button_led.js file under your folder



button_led.js

```
var Gpio = require('onoff').Gpio; //include onoff to interact with the GPIO
var LED = new Gpio(4, 'out'); //use GPIO pin 4 as output
var pushButton = new Gpio(17, 'in', 'both'); //use GPIO pin 17 as input, and 'both'
button presses, and releases should be handled
```

```
pushButton.watch(function (err, value) { //Watch for hardware interrupts on
pushButton GPIO, specify callback function
  if (err) { //if an error
    console.error('There was an error', err); //output error message to console
    return;
  }
  LED.writeSync(value); //turn LED on or off depending on the button state (0 or
1)
});
```

```
function unexportOnClose() { //function to run when exiting program
  LED.writeSync(0); // Turn LED off
  LED.unexport(); // Unexport LED GPIO to free resources
  pushButton.unexport(); // Unexport Button GPIO to free resources
};
```

```
process.on('SIGINT', unexportOnClose); //function to run when user closes using
ctrl+c
```

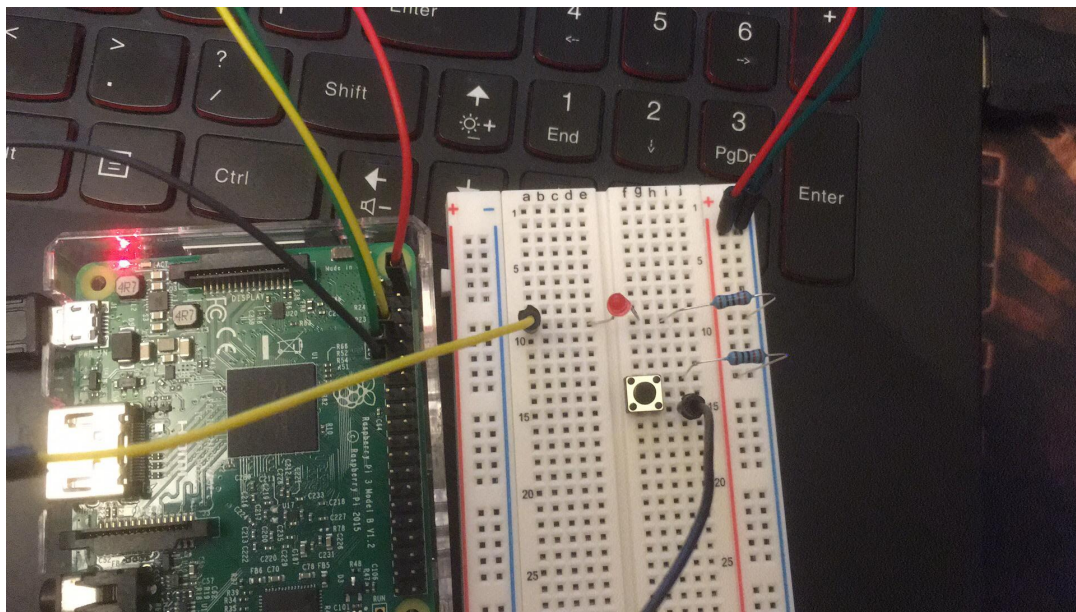
4. Hardware connection

Pin 2 (5V, which is the red wire) connects to power bus (the red line on right side of the breadboard).

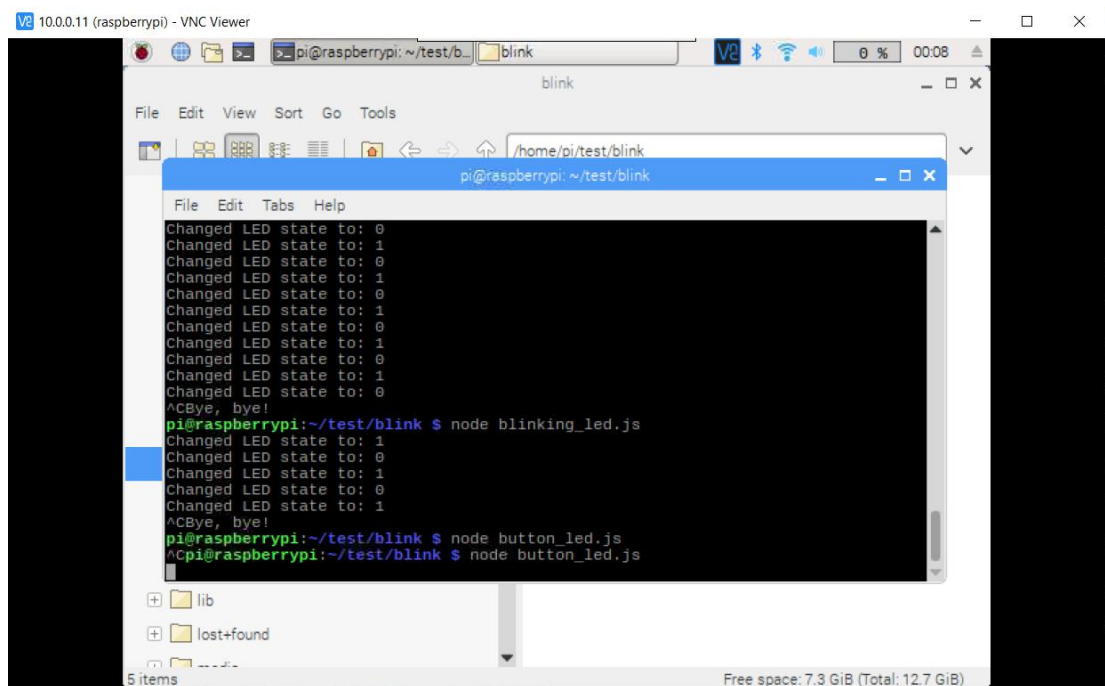
Pin 7 (GPIO4, which is the yellow wire) connects with the anode of LED (which is the long leg), and the cathode of LED (which is the short leg) connects with a 220Ω resistor, then connects to ground bus (which is blue line on right side of the breadboard).

Pin 9 (GND, which is the green wire) connects to ground bus of breadboard.

Pin 11 (GPIO17, which is the black wire) connects with the button and a 220Ω resistor, then connects to ground bus.



5. Run node button_led.js



```
10.0.0.11 (raspberrypi) - VNC Viewer
pi@raspberrypi: ~/test/b... blink
File Edit View Sort Go Tools
/home/pi/test/blink
pi@raspberrypi: ~/test/blink
File Edit Tabs Help
Changed LED state to: 0
Changed LED state to: 1
Changed LED state to: 0
Changed LED state to: 1
Changed LED state to: 0
Changed LED state to: 1
Changed LED state to: 0
Changed LED state to: 1
Changed LED state to: 0
Changed LED state to: 1
Changed LED state to: 0
^Cbye, bye!
pi@raspberrypi:~/test/blink $ node blinking_led.js
Changed LED state to: 1
Changed LED state to: 0
Changed LED state to: 1
Changed LED state to: 0
Changed LED state to: 1
^Cbye, bye!
pi@raspberrypi:~/test/blink $ node button_led.js
^Cpi@raspberrypi:~/test/blink $ node button_led.js
```

6. Simulation:

When the button is pressed, the led is on; when the button is released, the led is off.

