

Cambridge Raspberry Jam

Name

Age

Parent

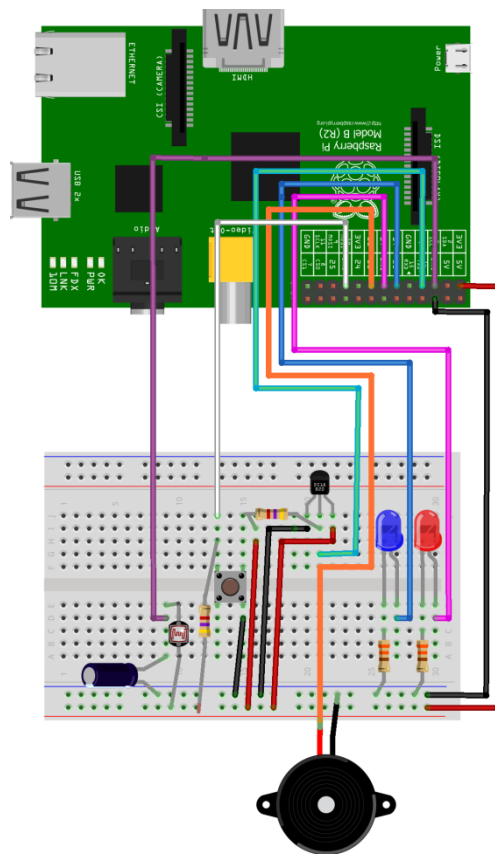
Beginners worksheet #8

Project Light Sensor

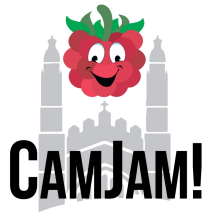
Description In this project you will learn how to wire and program a light sensor and see how bright it is in your room.

Tools required

- | | | |
|---|---|---|
| <input type="checkbox"/> Raspberry Pi SD card | <input type="checkbox"/> 1 X Red LED | <input type="checkbox"/> 8 x m/f jumper wires |
| <input type="checkbox"/> Keyboard | <input type="checkbox"/> 1 X Blue LED | <input type="checkbox"/> 5 m/m jumper wire |
| <input type="checkbox"/> Monitor + Cable | <input type="checkbox"/> 2 x 330 Ω resistors | <input type="checkbox"/> Temperature sensor (DS18B20) |
| <input type="checkbox"/> Power supply | <input type="checkbox"/> 2 4.7k Ω resistors | <input type="checkbox"/> LDR Light Dependent resistor |
| <input type="checkbox"/> Breadboard | <input type="checkbox"/> Buzzer <input type="checkbox"/> Button | <input type="checkbox"/> 1uf resistor |
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fritzing



Code

TURN ON THE LEDS "8_ldr.py"

```
#!/usr/bin/env python
import os
import datetime
import time
import RPi.GPIO as GPIO
GPIO.setwarnings(False)

DEBUG = 1
GPIO.setmode(GPIO.BCM)

def Rctime (RCpin):
    reading = 0
    GPIO.setup(RCpin, GPIO.OUT)
    GPIO.output(RCpin, GPIO.LOW)
    time.sleep(.1)

    GPIO.setup(RCpin, GPIO.IN)
    # This takes about 1 millisecond per loop cycle
    while (GPIO.input(RCpin) == GPIO.LOW):
        reading += 1
    return reading

while True:
    GetDateTime = datetime.datetime.now().strftime("%Y-%m-%d
%H:%M:%S")
    LDRReading = Rctime(3)
    print Rctime(3)

    # Open a file
    fo = open("/home/pi/10x10/foo.txt", "wb")
    fo.write (GetDateTime)
    LDRReading = str(LDRReading)
    fo.write ("\n")
    fo.write (LDRReading)

    # Close opened file
    fo.close()
    time.sleep(1)
```

1. Change directory "cd Desktop/gpio_python_code/"
2. Create file "touch 8_ldr.py" then "touch foo.txt"
3. Enter the code above code
Once complete "Ctrl + x" then "y" then "enter"
4. To run the python code "sudo python 8_ldr.py" << See what the light levels in the room are.
5. The check the file "more foo.txt" you can see your results.