CamJam EduKit Worksheet Three

Project Making LEDs blink with Python

Description In this project, you will learn how to make LEDs blink.

This worksheet uses the same LED circuit that was built in Worksheet Two.

Equipment Required

The circuit built in CamJam EduKit Worksheet Two.

Code – Blink Twice

Create a new file in IDLE3 and type in the following code:

```
# CamJam EduKit 1 - Basics
# Worksheet 3 - Blinking LED

# Import Libraries
import time  # A collection of time related commands
import RPi.GPIO as GPIO  # The GPIO commands

# Set the GPIO pin naming mode
GPIO.setmode(GPIO.BCM)
GPIO.setwarnings(False)

# Set pins 18, 23 and 24 to be output
GPIO.setup(18, GPIO.OUT)
GPIO.setup(23, GPIO.OUT)
GPIO.setup(24, GPIO.OUT)

# Turn LEDs on
GPIO.output(18, GPIO.HIGH)
GPIO.output(23, GPIO.HIGH)
GPIO.output(24, GPIO.HIGH)

time.sleep(1)  # Pause for 1 second

# Turn LEDs off
GPIO.output(18, GPIO.LOW)
GPIO.output(23, GPIO.LOW)
GPIO.output(24, GPIO.LOW)

time.sleep(1)  # Pause for 1 second

# Turn LEDs on
GPIO.output(18, GPIO.HIGH)
GPIO.output(23, GPIO.HIGH)
GPIO.output(24, GPIO.HIGH)
```

```
time.sleep(1)  # Pause for 1 second

# Turn LEDs off
GPIO.output(18, GPIO.LOW)
GPIO.output(23, GPIO.LOW)
GPIO.output(24, GPIO.LOW)

# Clean up the GPIO pins
GPIO.cleanup()
```

Once complete, save the file as `3-blink.py` in the EduKit directory.

Running the Code

Run the code by selecting the Run Module menu option, under the Run menu item, or you can just press the F5 key. You will see the three LEDs turn on then turn off twice, with one second in between each change.

If your code does not run and an error is reported, edit the code again.

Code – Blink Forever

Our next piece of code will flash the lights on and off forever (or until you press "Ctrl + c").

Create the new file and type in the following code:

```
# CamJam EduKit 1 - Basics
# Worksheet 3 - Blink LED Forever

# Import Libraries
import time  # A collection of time related commands
import RPi.GPIO as GPIO  # The GPIO commands

# Set the GPIO pin naming mode
GPIO.setmode(GPIO.BCM)
GPIO.setwarnings(False)

# Set pins 18, 23 and 24 to be output
GPIO.setup(18, GPIO.OUT)
GPIO.setup(23, GPIO.OUT)
GPIO.setup(24, GPIO.OUT)

# Loop forever (as true is always true)
while True:
    # Turn LEDs on
    GPIO.output(18, GPIO.HIGH)
    GPIO.output(23, GPIO.HIGH)
    GPIO.output(24, GPIO.HIGH)

    # Wait one second
    time.sleep(1)
```

```
    # Turn LEDs off
    GPIO.output(18, GPIO.LOW)
    GPIO.output(23, GPIO.LOW)
    GPIO.output(24, GPIO.LOW)

    # Wait one second
    time.sleep(1)
```

Save the file as `3-blink-forever.py`.

Running the Code

Run the code by selecting the Run Module menu option, under the Run menu item, or you can just press the F5 key. You will see the three LEDs turn on then turn off forever, or until you press “Ctrl+c”.

If there is an error in the code, change the code and resave it. Re-run to check that you have corrected the error.