raspikidd

Internet Required

GETTING STARTED
WITH
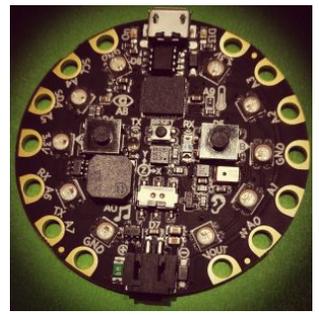# CIRCUIT PYTHON

@RaspiKidd
Raspikidd.com

WHAT IS CIRCUITPYTHON?

CircuitPython is designed to make it easier to program microcontroller boards while experimenting and learning.

Getting started with CircuitPython has never because there is not any additional software to be downloaded. Once you have set your Circuit playground Express (CPX) up, open your favourite text/coding editor and start coding!(If you don't have a favourite editor, you can find some recommended editors at the end of this guide)

CircuitPython is based on Python, which is a high-level programming language which is being taught in schools and universities. Python is designed to be easy to read, write and maintain. Python makes it easy to reuse code in other projects through modules and packages. Python is an open source programming language which means it is free for anyone to use or modify.

CircuitPython takes Python and adds hardware support. If you are already familiar with coding in Python, you can take that knowledge and apply it to CircuitPython.
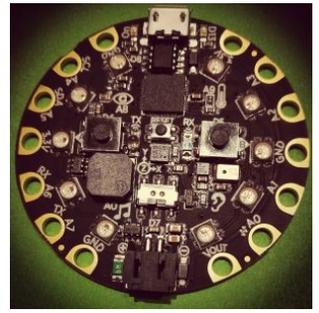
KEY FEATURES

- **Get up and running quickly** - create/edit a file. Save the file and it runs on the Circuit Playground Express immediately.

- **The code is easily updated** - code lives on the Circuit Playground Express making it easy to edit at any time.

- **Serial console and REPL** - allows live feedback from your code/makes it easy to debug your code.
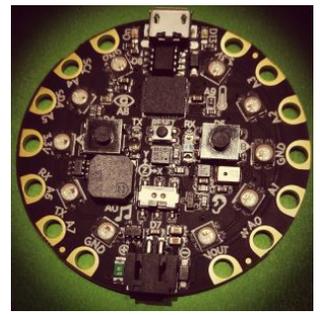
INSTALLING/UPDATING

1. Download the latest version of CircuitPython for the Circuit Playground Express:

   https://github.com/adafruit/circuitpython/releases

2. Locate the correct file. Should be named something like **adafruit-circuitpython-circuitplayground_express-2.x.x.uf2**

3. Click on the file to download it to your computer.

INSTALLING/UPDATING

4. Connect your Circuit Playground Express to your computer using a Micro USB cable.

5. Press the reset button twice to enter the bootloader mode. If pressing the reset button twice doesn't work press the reset button once. When you're in Bootloader mode all the neopixels turn green (see image below) and a new drive will appear in your file manager called "CPLAYBOOT".

6. Drag the file that was downloaded to the "CPLAYBOOT" drive. Once the file has finished loading on the Circuit Playground Express, the "CPLAYBOOT" drive will disappear and be replaced with a new drive called "CIRCUITPY".
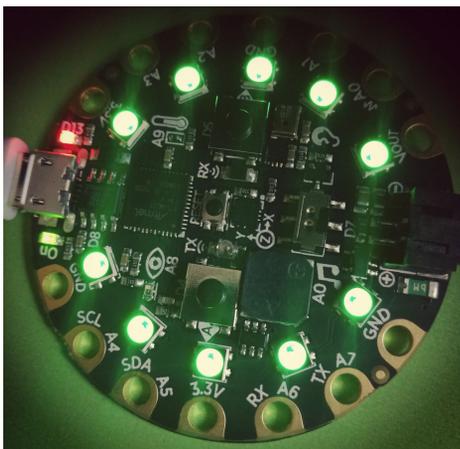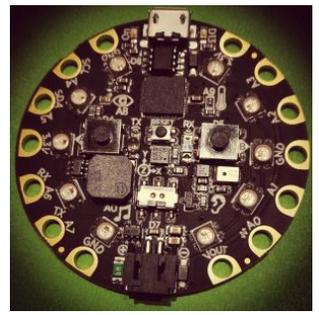
CREATING CODE

1. Open your favourite text/code editor. I recommend using Mu.
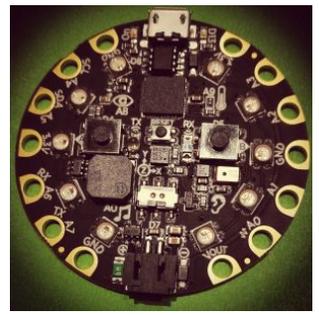
2. Create a new file.

3. Type the following code:

```
import board
import digitalio
import time
led = digitalio.DigitalInOut(board.D13)
led.direction=digitalio.Direction.OUTPUT

while True:
    led.value = True
    time.sleep(0.5)
    led.value = False
    time.sleep(0.5)
```

4. Save your code as **code.py** in the **"CIRCUITPY"** drive. You should now see a red LED blinking on and off once per second.

CREATING CODE

Everytime you edit and save your code the Circuit Playground Express detects this and automatically runs your updated code, without you having to reset or unplug the board. **NOTE: You must wait until the files have finished saving before disconnecting your board. This can take up to 30 seconds on Linux and up to 90 seconds on Windows. Mac does not seem to have this problem. Also, CircuitPython looks for certain code files on the board to run these are: code.txt, code.py, main.txt and main.py.**

RECOMMENDED EDITORS

- Mu - Available on Mac, Windows and Linux

- Emacs - Available on Mac, Windows and Linux

- vim/vi - Available on Mac and Linux

- Sublime Text - Available on Mac, Windows and Linux

- PyCharm IDE (with safe write turned on) - Available on Mac, Windows and Linux
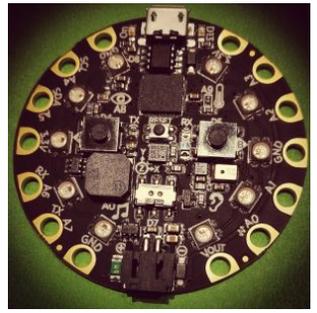
RECOMMENDED EDITORS

- Atom (with Circuit Playground force to drive package installed) - Available on Mac, Windows and Linux

- Visual Studio Code - Available on Mac, Windows and Linux

- gedit - Available on Linux

CHALLENGE

Why not try and change the time that the code pauses for.