CircuitPython Libraries

https://circuitpython.org/libraries

Hooray!

The CircuitPython community reached a big milestone together this past Thursday! There are now 350 CircuitPython Libraries!

Thank you to everyone who has contributed to CircuitPython Library Development over the years!

Why Libraries?

- Micro-controllers have very limited resources compared to traditional computers (storage and RAM).

- There isn't room to fit all of the code needed to interact with every possible type of electronic peripheral.

- Libraries allow us to make come code that can be included only when needed on the micro-controllers so we can make the best of the limited storage resources.

Library Bundles

Adafruit Library Bundle

- Libraries produced and supported by Adafruit team members.

- 2 high level types: Driver and Helper

https://github.com/adafruit/
Adafruit_CircuitPython_Bundle

Community Bundle

- Maintained by individual community members
https://github.com/adafruit/
CircuitPython_Community_Bundle

CircuitPython Org Bundle

- Maintained by multiple community members
https://github.com/circuitpython/
CircuitPython_Org_Bundle

Installing Libraries

- Download bundle, copy .mpy or .py files to your device

- Circup CLI tool similar to pip or npm. Run command with a terminal to install libraries on your device. Includes "auto" mode that scans code.py and installs all necessary libraries

https://learn.adafruit.com/keep-your-circuitpython-libraries-on-devices-up-to-date-with-circup

Compiled Libraries

- Libraries can be compiled into byte code using a tool called mpy-cross. The resulting .mpy are smaller so they require less storage space and RAM to load and use.

- For Adafruit Libraries this occurs automatically with GitHub Actions whenever a release is made.

- You can compile your own libraries either by using similar CI utilities, or manually by using the mpy-cross CLI.

- Compiled libraries go inside of the lib on your CIRCUITPY drive.

https://pypi.org/project/mpy-cross/

Frozen Libraries

- Some libraries are "frozen in" to certain builds of CircuitPython.

- Generally these will be drivers for hardware devices built-in to specific boards.

- You can make custom builds of CircuitPython and choose which libraries will be frozen in.

https://github.com/adafruit/circuitpython/tree/main/frozen

Contributing

- Learn Guide for Git + Github contributions

  https://learn.adafruit.com/contribute-to-circuitpython-with-git-and-github

- Reviewing

  https://learn.adafruit.com/contribute-to-circuitpython-with-git-and-github/giving-a-review

  https://github.com/adafruit/Adafruit_CircuitPython_VC0706/pull/27

- Good First Issues

  https://circuitpython.org/contributing/open-issues?label=good-first-issue

Creating & Sharing Libraries

- Learn Guide

  https://learn.adafruit.com/creating-and-sharing-a-circuitpython-library

- Cookiecutter

  https://github.com/adafruit/cookiecutter-adafruit-circuitpython