

How to present an image in the SSD1306 display



tree.png



Assuming you have an image called tree.png and you want to display it on the ssd1306.

1. Edit this image in a graphic editor such as paint.
2. Resize the image to 128 x 64 pixels.
This will fill the entire screen which has a resolution of 128 x 64 pixels.
3. Save this edited file as, say, tree.png

Before we can display it, we need to convert the image into a bytearray

I ask Chatgpt
What is a bytearray?



You
what is a Python bytearray

< 2 / 2 >



ChatGPT

A Python bytearray is a mutable sequence of bytes. It's similar to Python's built-in `bytes` data type, but unlike `bytes`, which is immutable, `bytearray` allows you to modify its elements. You can create a `bytearray` from a string, iterable of integers, or even directly from another `bytearray` object. It provides methods to manipulate the bytes it contains, such as appending, extending, inserting, removing, and modifying individual elements. This makes it useful for scenarios where you need to work with mutable sequences of bytes, such as in networking, file I/O, or low-level data manipulation tasks.



What?

If you are as confused as I am it's ok. For the time being take it as just a representation of our image tree.png for our program

[illegible]

So that we can plunk it into a program like this.

[imageinssd1306.py] ×

```
1 from machine import Pin, I2C
2 import framebuf
3 #SSD1306 Library
4 from ssd1306 import SSD1306_I2C
5 #Set up ssd1306
6 WIDTH =128
7 HEIGHT= 64
8 i2c_bus=I2C(0,scl=Pin(17),sda=Pin(16),freq=200000)
9 oled = SSD1306_I2C(WIDTH,HEIGHT,i2c_bus)
10
11 tree=bytearray(b'\x00\x00\x00\x00\x00\x00\x00\x00')
12
```

This is the bytearray
representing the image
tree.png



How to convert an image into a bytearray?

We need to use this program to convert. `img2bytearray.py` (inside lesson folder)

Credit: This program is created by novaspirit. See this link for more info.

<https://www.youtube.com/watch?v=YR9v04qzJ5E&t=593s>

`img2bytearray.py` is also available via this github link

<https://github.com/novaspirit/img2bytearray>


To save you the trouble of downloading it I have a copy of this file in the lesson folder.

`img2bytearray.py` is a python3 program so we need to run it on the PC where python3 is installed and not on Thonny.

I will show you how this is done.

These are the steps you need to follow to create the bytearray

1. In your c drive root directory, create a folder. Name it images
2. Copy and paste `img2bytearray.py` to this folder
3. Copy and paste the image (tree.png) to this folder
4. Open the terminal / command prompt.
5. CD to this folder
6. `C:\images>`
7. We need to install an image processing library called pillow. To install do this.
8. `C:\images> pip install pillow` [enter]



```
C:\images>pip install pillow
Collecting pillow
  Downloading Pillow-9.5.0-cp37-cp37m-win_amd64.whl (2.5 MB)
    ----- 2.5/2.5 MB 10.8 MB/s eta 0:00:00
Installing collected packages: pillow
Successfully installed pillow-9.5.0

[notice] A new release of pip available: 22.2.2 -> 24.0
[notice] To update, run: C:\Users\iamss\AppData\Local\Microsoft\WindowsApps\PythonSoftwareFoundation.Python.3.7_qbz5n2kfra8p0\python.exe -m pip install --upgrad
C:\images>
```



You

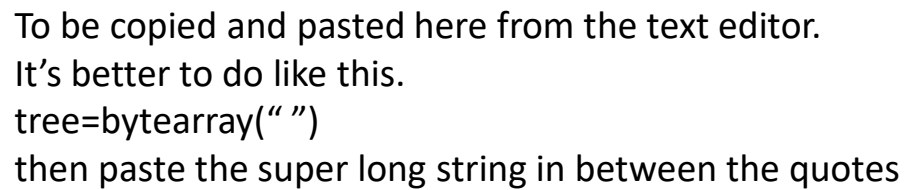
what is the pillow library in python used for?



ChatGPT

The Pillow library in Python is primarily used for image processing tasks. It's a powerful library that allows you to open, manipulate, and save many different image file formats. With Pillow, you can perform a wide range of operations on images, such as resizing, cropping, rotating, filtering, adjusting colors, adding text, and much more. It's widely used in various domains, including web development, computer vision, data analysis, and scientific computing, whenever there's a need to work with images programmatically.

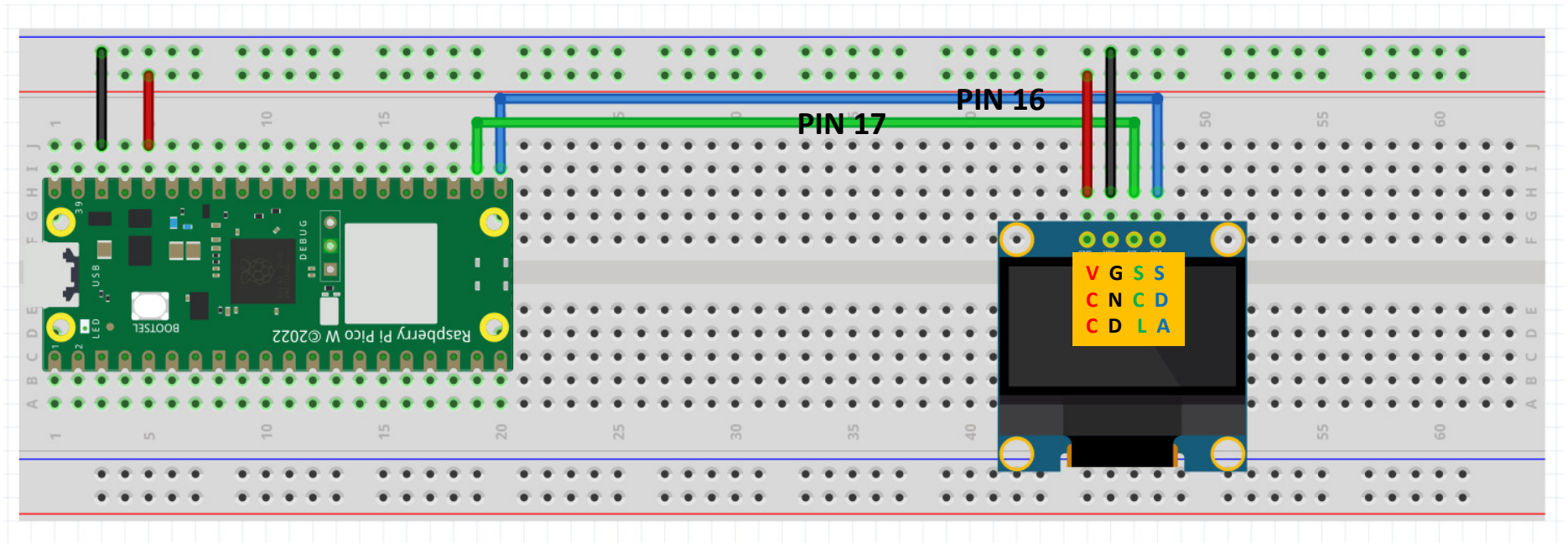


[illegible]

It's better to do like this.

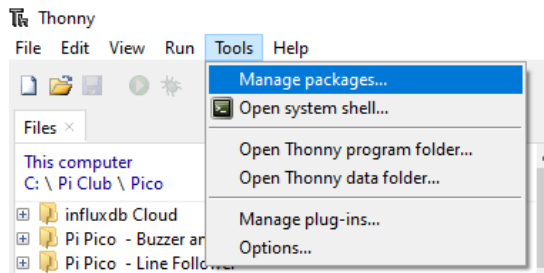
then paste the super long string in between the quotes

Wiring of SSD1306

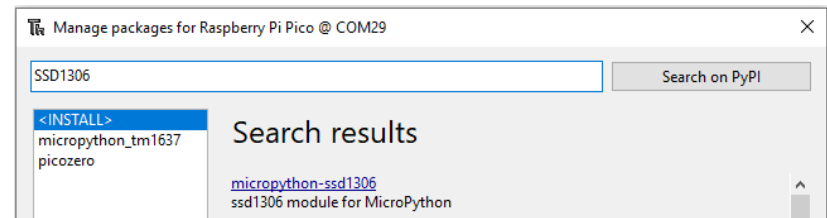


You will need to install the `ssd1306` library.
Installation step is available in next slide

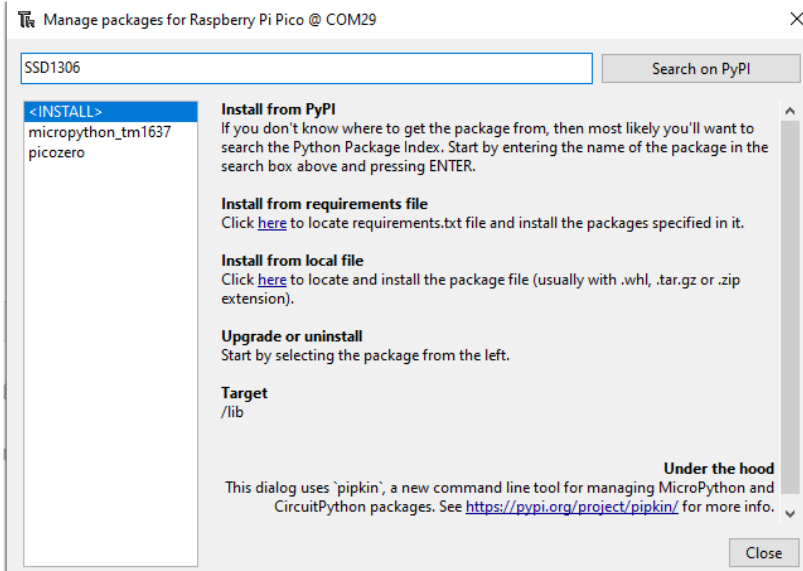
Step 1 – Go to Tools and Manage packages



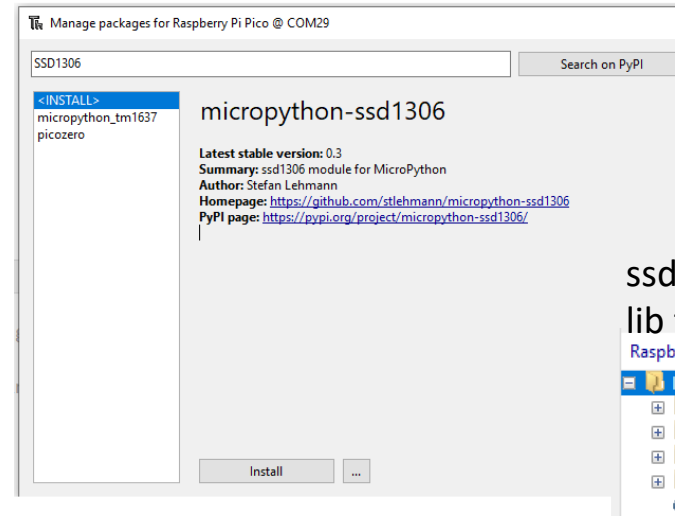
Step 3 – Select micropython-ssd1306



Step 2 – Type SSD1306 in search box, click search



Step 4 – Click Install.



ssd1306 will show up in your lib folder

