

How to Display Animation on Waveshare E-Paper Display

How to use Waveshare E-Paper Display?

Please follow the previous [**tutorial**](#) for setting up the basic. This tutorial assumes you already have an animation ready to use.

What type of animation will be suitable to display on E-Paper

1. **Black and White**, as the display we have in stock is Black and White only
2. **Low framerate animation**, such as hand-drawn animation, as the display is not refreshing very fast.
3. **Short animation**, depends on the Pi you use, Pi 3 may not be powerful enough to drive and store long animation.

File Preparation - Adobe Premiere Pro

1. Resize the resolution to fit the display - **800x480** pixels
2. Lower the framerate to **10 or 12 fps**
3. Export the video to **jpg** sequences from Premier and save them in a folder called **'animation'**
4. Rename all **jpg** to `1.jpg` to `#.jpg` using **Terminal**, if they are not already

```
cd /path/to/your/folder

a=1
for file in Sequence*.jpg; do
  mv "$file" "$a.jpg"
  ((a++))
done
```

5. Now you can transfer the folder to the Raspberry Pi, you can use a USB stick or via SSH. Place the folder `animation` inside the folder `e-Paper`.

File Preparation - Raspberry Pi

We will need to convert jpg to bmp in Pi using ffmpeg.

1. Install ffmpeg, `sudo apt install ffmpeg -y`
2. Make sure you are at the `/animation` directory
3. Start conversion, `for f in *.jpg; do ffmpeg -i "$f" "${f%.jpg}.bmp"; done`
4. Remove old jpg files, `rm *.jpg`
5. Now all images in the animation folder should look like `1.bmp to #.bmp`

Code

The below code will display the animation from frame 1 to the end frame.

```
#!/usr/bin/python
# -*- coding:utf-8 -*-
# Display Width: 800, Display height: 480

import sys
import os

libdir = os.path.join(os.path.dirname(os.path.dirname(os.path.realpath(__file__))), 'lib')
if os.path.exists(libdir):
    sys.path.append(libdir)

import logging
import random
from waveshare_epd import epd7in5_V2
import time
from PIL import Image, ImageDraw, ImageFont
import traceback

logging.basicConfig(level=logging.DEBUG)

try:
    logging.info("epd7in5_V2 Animation")
    epd = epd7in5_V2.EPD()

    logging.info("init and Clear")
    epd.init_fast()
    epd.Clear()

    animation_dir = os.path.join(os.path.dirname(os.path.dirname(os.path.realpath(__file__))), 'animation')
    image_files = sorted(
        [f for f in os.listdir(animation_dir) if f.endswith('.bmp')],
```

```
key=lambda x: int(os.path.splitext(x)[0]))

if not image_files:
    logging.info(e)
    epd.sleep()
    exit()

logging.info("switch to partial refresh")
epd.init_part()

while True:
    for image_file in image_files:
        image_path = os.path.join(animation_dir, image_file)
        logging.info(f"Displaying: {image_file}")
        Himage = Image.open(image_path).convert('1')
        epd.display_Partial(epd.getbuffer(Himage), 0, 0, epd.width, epd.height)
#         time.sleep(0.1)

except IOError as e:
    logging.info(e)

except KeyboardInterrupt:
    logging.info("ctrl + c:")
    epd7in5_V2.epdconfig.module_exit(cleanup=True)
    exit()
```

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