Taking HQ picture

1.Adjust camera focus

1)The HQ camera possess two adjustable parts, as shown below, inner ring 1 and outer ring 2.

Inner ring 1: Mainly adjust the brightness collected by the camera.

Outer ring 2: Mainly used to adjust the focal length of the camera.

2)After adjust the focal length of the camera is complete, then gently screw on the above screws to fix the focal length.

!Note: If the focal length of the camera is not adjusted manually, the effect of the captured picture will be unclear.

2.HQ camera takes pictures

raspistill ------ This command is to get the static image

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pi@raspberrypi:~ $ raspistill

"raspistill" Camera App (commit )

Runs camera for specific time, and take JPG capture at end if requested

usage: raspistill [options]

Image parameter commands

-q, --quality   : Set jpeg quality <0 to 100>
-r, --raw       : Add raw bayer data to jpeg metadata
-l, --latest    : Link latest complete image to filename <filename>
-t, --timeout   : Time (in ms) before takes picture and shuts down (if not specified, set to 5s)
-th, --thumb    : Set thumbnail parameters (x:y:quality) or none
-d, --demo      : Run a demo mode (cycle through range of camera options, no capture)
-e, --encoding  : Encoding to use for output file (jpg, bmp, gif, png)
-x, --exif      : EXIF tag to apply to captures (format as 'key=value') or none
-tl, --timelapse     : Timelapse mode. Takes a picture every <t>ms. %d == frame number (Try: -o img_%04d.jpg)
-fp, --fullpreview   : Run the preview using the still capture resolution (may reduce preview fps)
-k, --keypress  : Wait between captures for a ENTER, X then ENTER to exit
-s, --signal    : Wait between captures for a SIGUSR1 or SIGUSR2 from another process
-g, --gl        : Draw preview to texture instead of using video render component
-gc, --glcapture     : Capture the GL frame-buffer instead of the camera image
-bm, --burst    : Enable 'burst capture mode'
-dt, --datetime : Replace output pattern (%d) with DateTime (MonthDayHourMinSec)
-ts, --timestamp     : Replace output pattern (%d) with unix timestamp (seconds since 1970)
-fs, --framestart    : Starting frame number in output pattern(%d)
-rs, --restart  : JPEG Restart interval (default of 0 for none)

GL parameter commands

-gs, --glscene  : GL scene square,teapot,mirror,yuv,sobel,vcsm_square
-gw, --glwin    : GL window settings <'x,y,w,h'>

Common Settings commands

-?, --help      : This help information
-w, --width     : Set image width <size>
-h, --height    : Set image height <size>
-o, --output    : Output filename <filename> (to write to stdout, use '-o -'). If not specified, no file is saved
-v, --verbose   : Output verbose information during run
-cs, --camselect     : Select camera <number>. Default 0
-md, --mode     : Force sensor mode. 0=auto. See docs for other modes available
-gps, --gpsdexif     : Apply real-time GPS information to output (e.g. EXIF in JPG, annotation in video (requires libgps.so.22)

Preview parameter commands

-p, --preview   : Preview window settings <'x,y,w,h'>
-f, --fullscreen     : Fullscreen preview mode
-op, --opacity  : Preview window opacity (0-255)
-n, --nopreview : Do not display a preview window
-dn, --dispnum  : Display on which to display the preview window (dispmanx/tvservice numbering)
```

a. Set preview window parameters

1)Display the screen captured by the camera for 10 seconds on the display screen. This command will not save the picture to the local. -t indicates the displayed time, unit is milliseconds;
raspistill -t 10000

2)Set the preview window, the time is 5 seconds, set (100,100) to start point on the display interface, and set its size to (320 * 240).
The -p x, y, w, h parameters are used to set the size and position of the preview window, x and y represent the pixels corresponding to the upper left corner, w represents the horizontal size, h represents the vertical size.
raspistill -t 5000 -p 100,100,320,240

3. Set the transparency to 100, -op a parameter is to set the transparency, the range of a (0 ~ 255), a = 0 is full transparency (invisible), a = 255 is opaque.
raspistill -t 5000 -op 100

4. Set the preview window to be invisible, -n means that the preview window is not displayed.
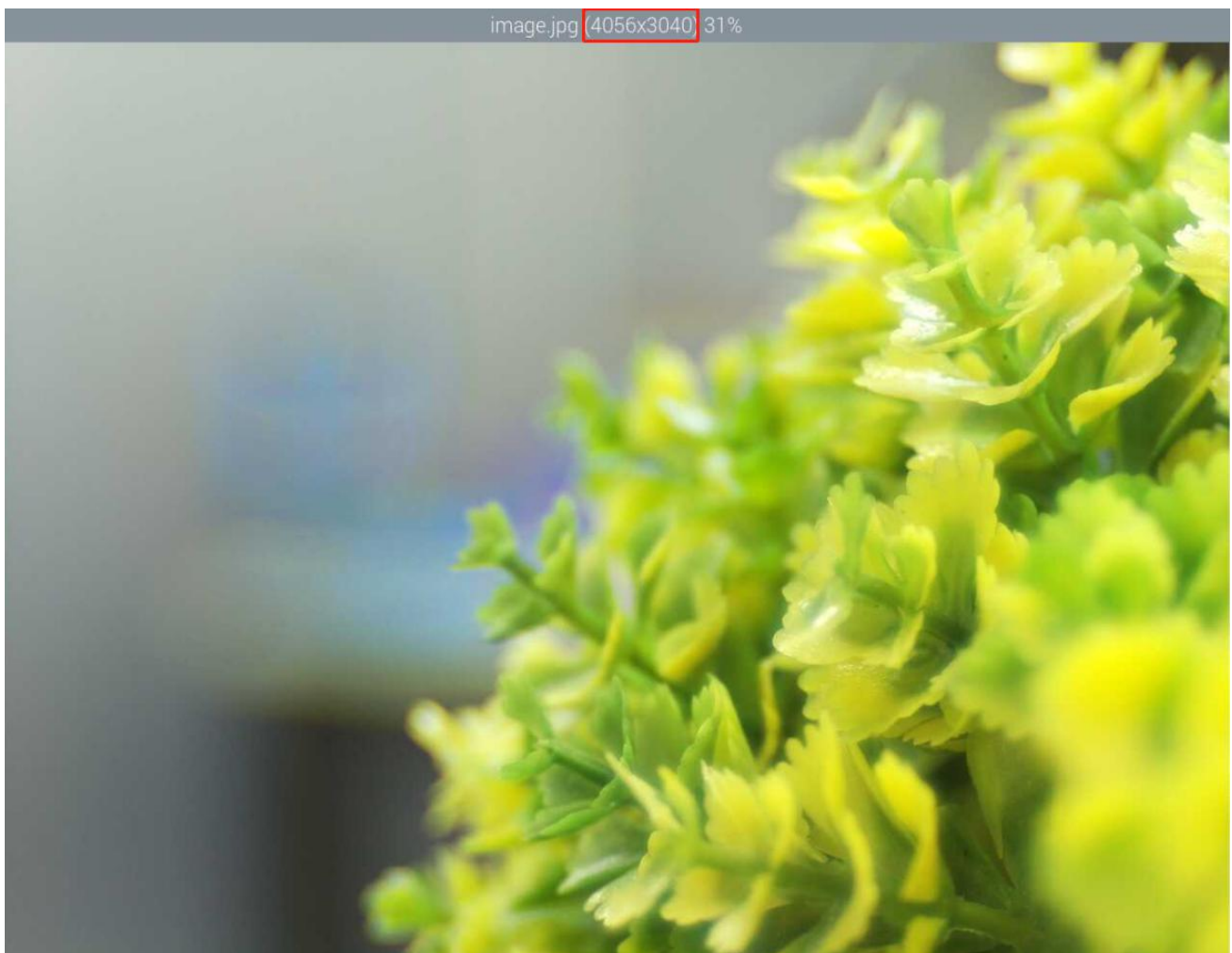
raspistill -t 5000 -n

b.Set picture parameters

1) After the Raspberry Pi desktop displays 1 second, camera take a picture, save it to the current directory, and name it image.jpg
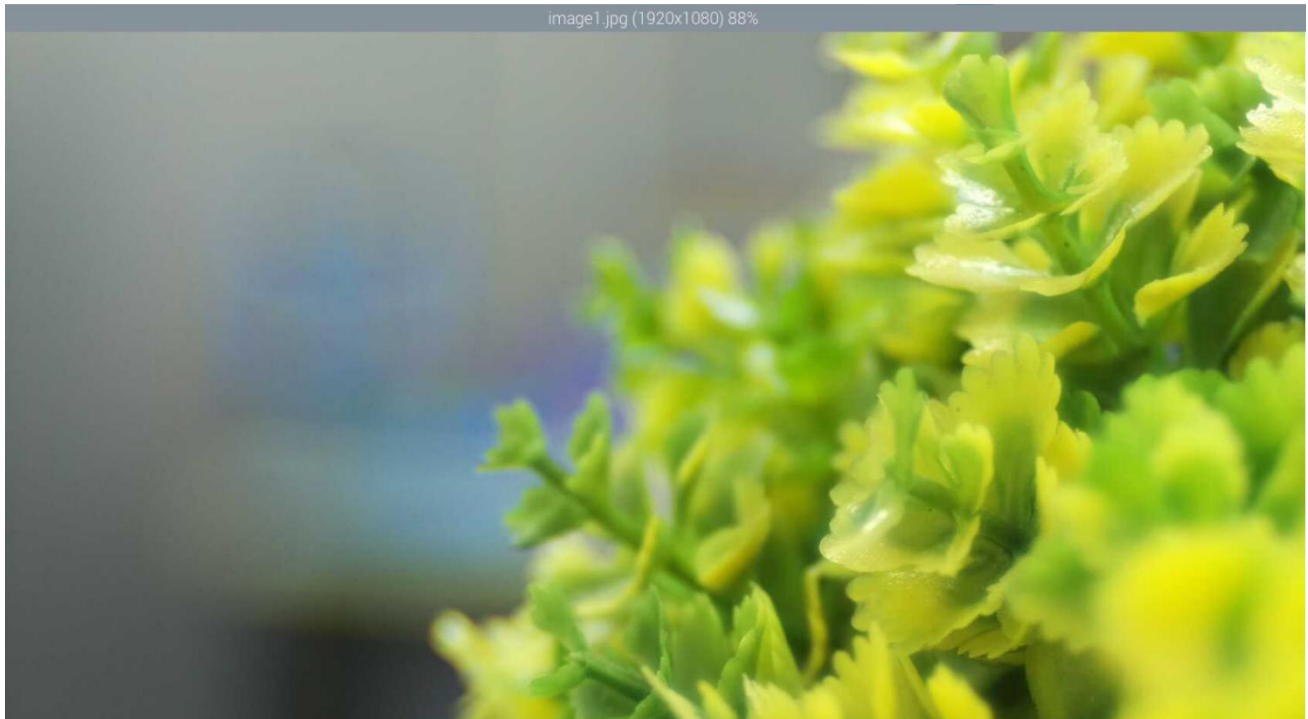
raspistill -t 1000 -o image.jpg

You can open the file manager to view image.jpg, the maximum resolution is 4056 * 3040 by default.

2) After the Raspberry Pi desktop displays 1 second, camera take a picture with custom size, save it to the current directory, and name it image.jpg.
-w is horizontal pixels, -h is vertical pixels
**raspistill -t 1000 -o image1.jpg -w 1920 -h 1080**

3) After the Raspberry Pi desktop displays 1 second, Take pictures with embossed style special effects, save it to the current directory, and name it image2.jpg.
-ifx em boss means the shooting effect is in embossed style.
Parameters: none, negative, solarise, posterise, sketch, denoise, emboss, oilpaint, hatch, gpen (graphite sketch effect), pastel, watercolour, film, blur, saturation (colour saturate the image), colourswap, washedout, colourpoint, colourbalance, cartoon

raspistill -t 1000 -o image2.jpg -ifx emboss
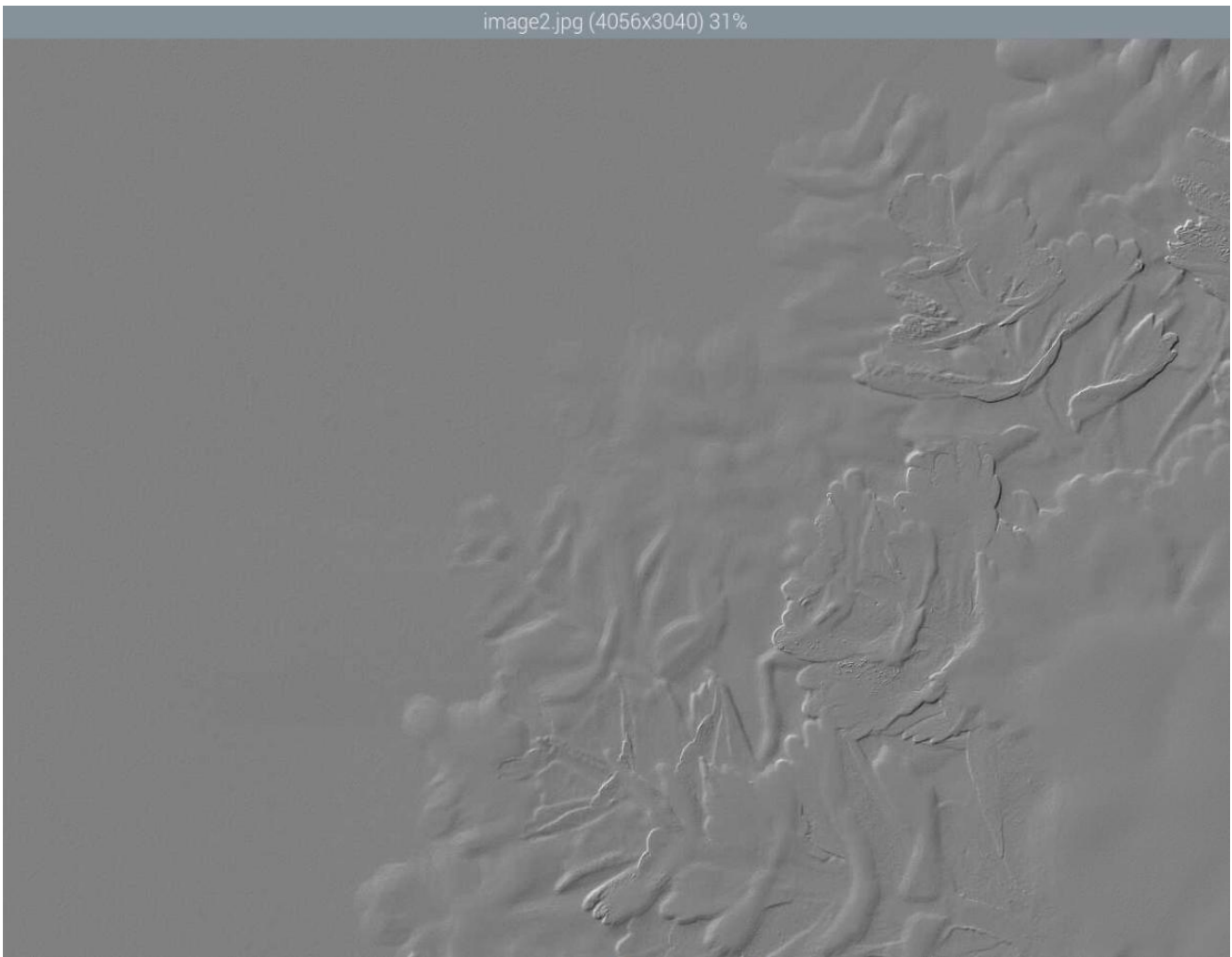
4) Take multiple pictures. Press enter to save one picture each time.
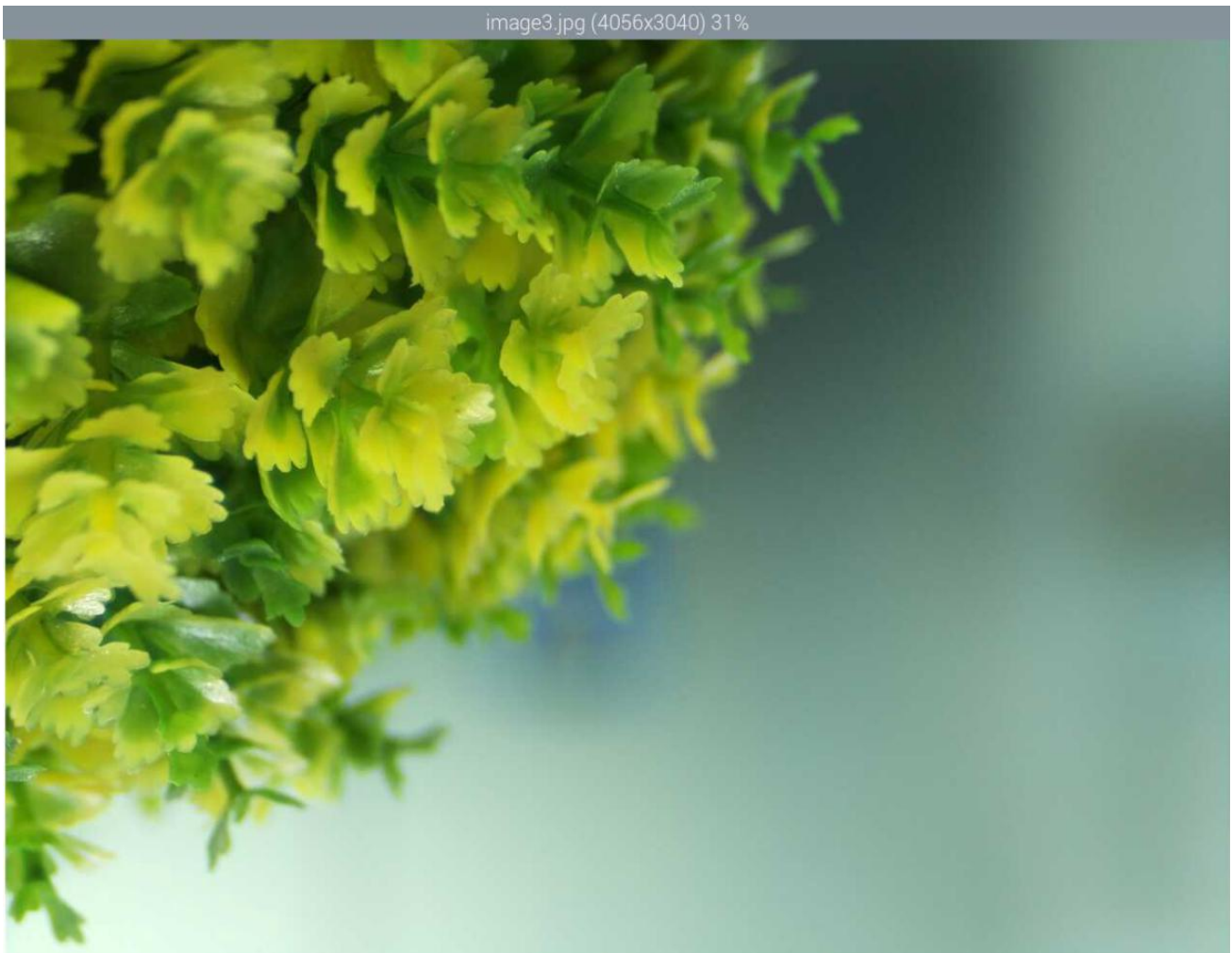
raspistill -o keypress%04d.jpg -k

5) After delay 1 second, take a picture that flips 180 degrees, and name it image3.jpg. The parameter -rot a is to set the rollover angle, and support 0,90,180,270.

raspistill -t 1000 -o image3.jpg -rot 180

6) After the delay 1 second, take pictures of horizontal flips, and name it image4.jpg. hf parameter is set to horizontal flips.
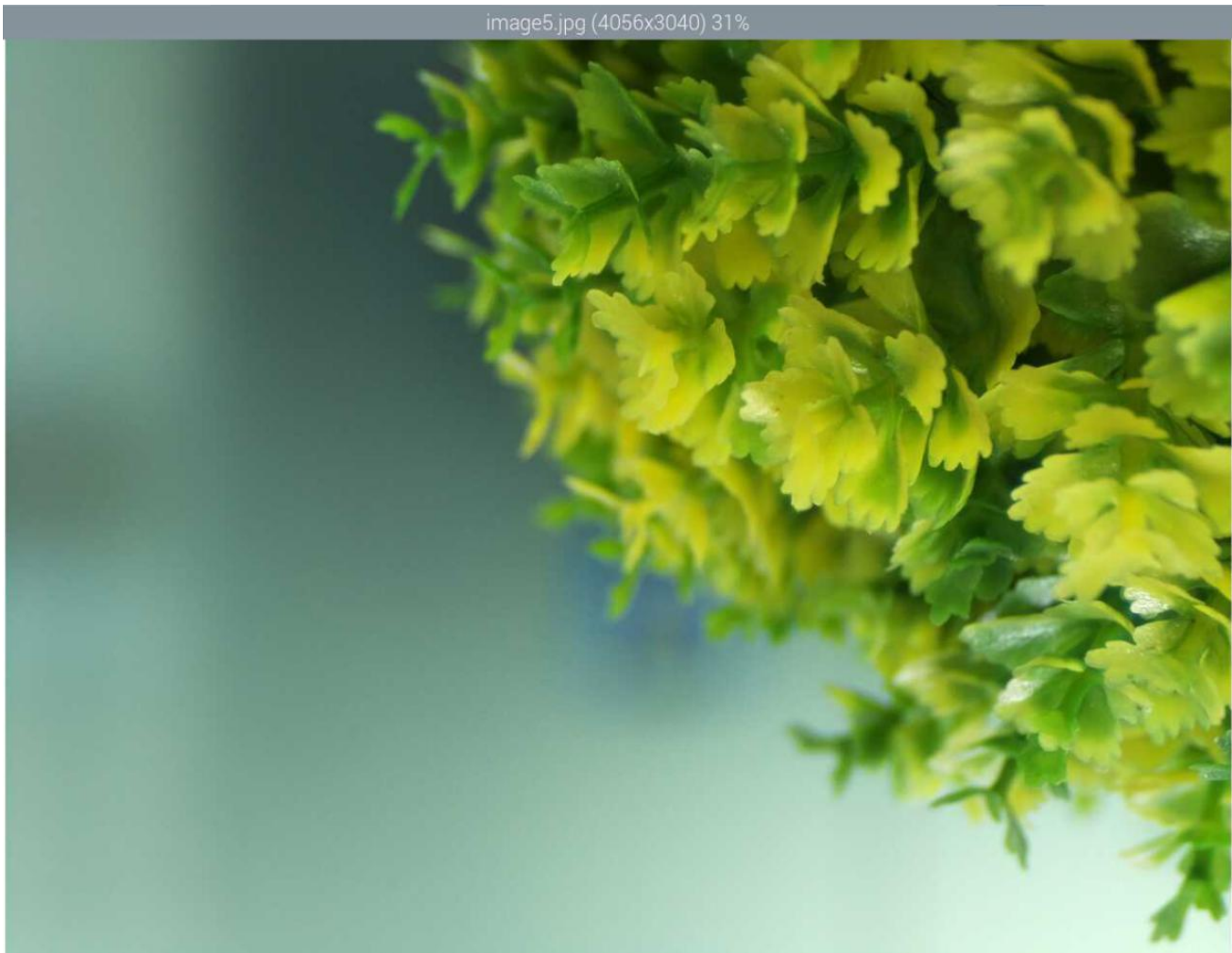
raspistill -t 1000 -o image4.jpg -hf

Filled in below

7)After the delay 1 second, take pictures of vertical flips, and name it image5.jpg.

vf parameter is set to vertical flips.

raspistill -t 1000 -o image5.jpg -vf

image5.jpg (4056x3040) 31%

8) The Raspberry Pi monitor displays screen for 1 second and prints out the current debug information.

raspistill -t 1000 -v


```
pi@raspberrypi:~ $ raspistill -t 1000 -v

"raspistill" Camera App (commit )

Camera Name testc
Width 4056, Height 3040, filename (null)
Using camera 0, sensor mode 0

GPS output Disabled

Quality 85, Raw no
Thumbnail enabled Yes, width 64, height 48, quality 35
Time delay 1000, Timelapse 0
Link to latest frame enabled  no
Full resolution preview No
Capture method : Single capture
```

9) Take a picture every 1 second, the duration is 60 seconds, and set it's name is autoImageXXXX.jpg. Where -tl is the interval time.
raspistill -t 60000 -tl 1000 -o autoImage%04d.jpg

10) Sets the quality of JPEG images. -q is setting quality, and the range is (0~100).
raspistill -t 1000 -o image6.jpg -q 50

11) Take a. PNG image and save it as image.png
raspistill -o image.png

```
pi@raspberrypi:~ $ raspistill -o image.png
pi@raspberrypi:~ $ ls
audio.mp3    image2.jpg   Music         NetworkService   Templates
Desktop      image.jpg    myvideo1.h264 Notebook         Videos
Documents    image.png    myvideo2.h264 opencv-4.1.2     Yahboom Project
Downloads    MagPi        myvideo.h264  Pictures         yahboom-raspblock
image1.jpg   mu_code      myvideo.mp4   Public
```