Practical no: 5

Title: Understanding and connectivity of Raspberry-Pi /Beagle board with camera. Write an application to capture and store the image

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Practical 5

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Aim:

Understanding & connectivity of Raspberry-Pi/ Beagle board with camera. Write an application to capture & store the image.

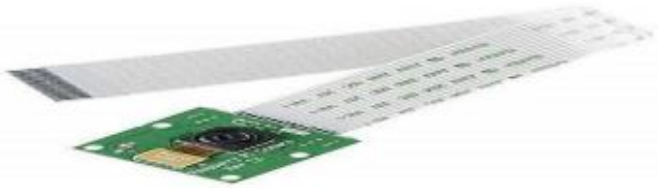
Theory:

Raspberry Camera Module: The Raspberry Pi Camera Module v2 replaced the original Camera Module in April 2016. The camera module can be used to take high-definition video, as well as stills photographs.

It supports 1080p30, 720p60 & VGA90 video modes as well as still capture. It attaches via a 15cm ribbon cable to CSI port on the Raspberry Pi. The camera works with all models of Raspberry Pi 1, 2, 3. It can be accessed through MMAL & V4L, APIs & there are numerous third-party libraries built for it, including the Pi camera Python library.

Pi camera:

Pi Camera

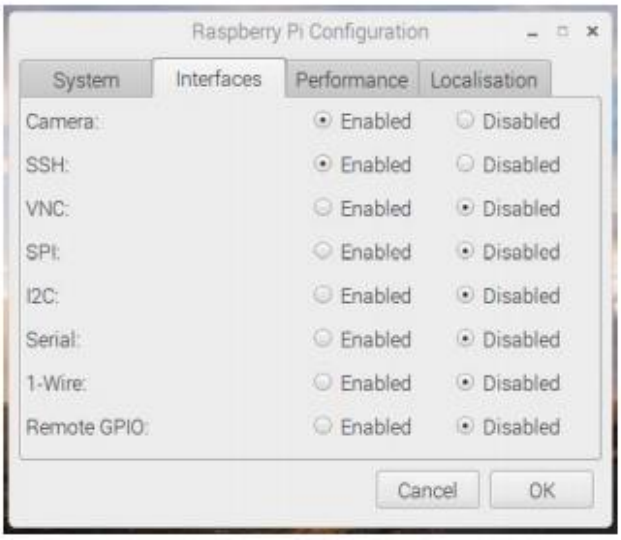


Open Raspberry Pi configuration & Enable the camera.

*Camera Preview.

```
from picamera import PiCamera
from time import sleep
camera = PiCamera()
camera.start_preview()
sleep(10)
```

Open Raspberry Pi Configuration and Enable the Camera




```
camera.stop-preview()
```

*Rotating the Camera

```
camera.rotation = 180
camera.start-preview()
sleep(10)
camera.stop-preview()
```

*Storing the image

```
from piccamera import PiCamera
from time import sleep
camera = PiCamera()
camera.stact-preview()
sleep(10) eam
camera.capture('/home/pi/Desktop/image1.jpg')
camera.stop-preview()
```

* Recording the video.

```
from picamera import PiCamera
from time import sleep
camera = PiCamera()
camera.stact-preview()
camera.stact-recording('/home/pi/vide.h264')
sleep(10)
camera.stop-recording()
camera.stop-preview()
```

* Converting & Playing Video

The video format need to get converted to MP4. So install gpac.

Now convert it into MP4:

```
MP4Box -fps 30 -addvideo h264 video.mp4
```

Conclusion:

Thus, we have studied Pi Camera & also stored the images & videos using Pi Camera.