Experiment No-05

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AIM: Understanding and connectivity of Rasberry Pi Beagle board with camera write an application to capture and store the image.

Theory: Raspberry Pi Camera module V2 replaced the original camera module in April 2016. The V2 camera module has a sony IMX219 8-mp Sensor. The camera module can be used to take high definition video and photographs. Its easy to use for begineers, but has plenty to offer advanced users if you're looking to expand your knowledge we can use the libraries we bundle with camera to create effects its leap forward in image quality color fidelity and low light performance It support 1080p30 720p 60 and VGA90 video modes as well as still captures. It attaches via a 15 cm ribbon cable to the CSI port on the Raspberry Pi The camera works with all models of Raspberry Pi It can be accessed through MMAL and V4LAPIS and there are numerous third-party libraries built for it including the Pi Camera Python Library.

Pi camera

Open Raspberry Pi configuration and enable

the camera.

Camera Preview

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

Rotating the camera

```
camera.rotation = 180
camera.start_preview()
sleep(10)
camera.stop_preview()
```

Storing the image

```
from picamera import PiCamera
from time import sleep
camera = PiCamera()
camera.start_preview()
sleep(10)
camera.capture('/home/pi/Desktop/image.jpg')
camera.stop_preview()
```

Recording the video

```
from picamera import PiCamera
from time import sleep
camera = PiCamera()
```

```
camera.start_preview()
camera.start_recording('/home/pi/video
.h264')
sleep(10)
camera.stop_recording()
camera.stop_preview()
```

Converting and playing video

The video format need to get converted to MP4

So install gpac

sudo apt-get install gpac

Now convert the video to MP4

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

Conclusion : Thus we have studied Pi camera and also stored the images and videos using Pi camera.