IoT Practicals

Practical 6:

Aim: Capturing image and video with PiCamera and Raspberry Pi.

Hardware Requirements

1. Raspberry Pi
2. Picamera
3. MicroSD card with Raspberry Pi OS installed
4. Power supply for Raspberry Pi
5. Monitor, keyboard, mouse (for setup)

Software Requirements

1. Raspberry Pi OS installed and running
2. Python 3

Commands:

sudo raspi-config - # for configuring interface I2C

Interface -> enable Camera

reboot

sudo apt-get update

sudo apt-get upgrade

sudo apt install python3-picamera

Source Code For Image:

```
from picamera import PiCamera

import datetime

import os


# Create directory if not exists

image_folder = '/home/pi/images'

os.makedirs(image_folder, exist_ok=True)


camera = PiCamera()

camera.resolution = (1024, 768)  # Optional: Set resolution


timestamp = datetime.datetime.now().strftime("%Y%m%d_%H%M%S")

#image_path = f"{image_folder}/image_{timestamp}.jpg"

image_path = "{}/image_{}.jpg".format(image_folder, timestamp)


camera.start_preview()  # Optional: Shows camera preview

camera.capture(image_path)

camera.stop_preview()


#print(f"Image captured and saved to {image_path}")
```

```
print("Image captured and saved to {}".format(image_path))
```

Source Code For Video:

```
from picamera import PiCamera

from time import sleep

import datetime

import os


# Create directory if not exists

video_folder = '/home/pi/videos'

os.makedirs(video_folder, exist_ok=True)


camera = PiCamera()

camera.resolution = (1024, 768)  # Optional: Set resolution


timestamp = datetime.datetime.now().strftime("%Y%m%d_%H%M%S")

video_path = "{}/video_{}.h264".format(video_folder, timestamp)  # .h264 is raw video format


camera.start_preview()  # Optional: Shows camera preview

camera.start_recording(video_path)

sleep(10)  # Records for 10 seconds (change as needed)
```

```
camera.stop_recording()

camera.stop_preview()


print("Video recorded and saved to {}".format(video_path))
```

Output: Stick picture of the output captured during the session.