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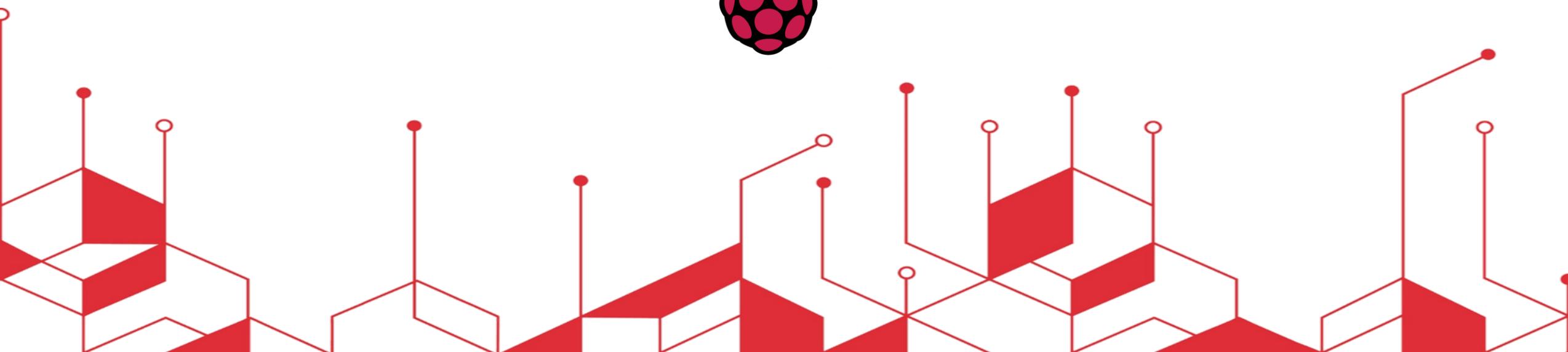
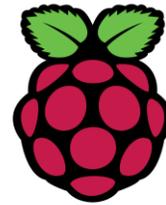


Remote Lab For Engineering Project
Erasmus+ Program

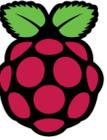
Raspberry Pi -Take Home Lab

Lab Experiment # 10

Raspberry Pi Camera Module



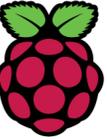
5MP Camera Module Rev 1.3 with 15Cm Cable



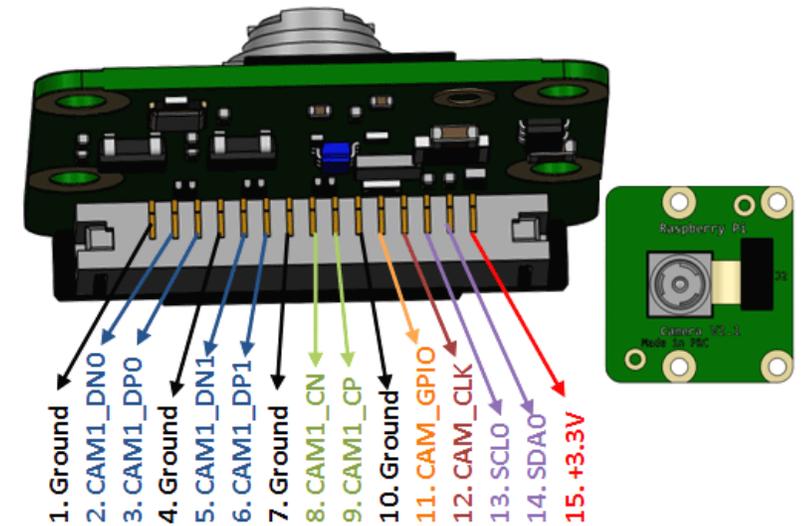
- The Camera Module can be used to take highdefinition video, as well as stills photographs. It's easy to use for beginners but has plenty to offer advanced users if you're looking to expand your knowledge.
- You can also use the libraries we bundle with the camera to create effects.
- It supports 1080p30, 720p60 and VGA90 video modes, as well as still capture. It attaches via a 15cm ribbon cable to the CSI port on the Raspberry Pi.
- The camera works with all models of Raspberry Pi 1, 2, and 3.
- It can be accessed through the MMAL and V4L APIs, and there are numerous thirdparty libraries built for it, including the Picamera Python library.



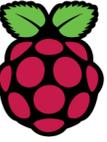
5MP Camera Module PINOUT



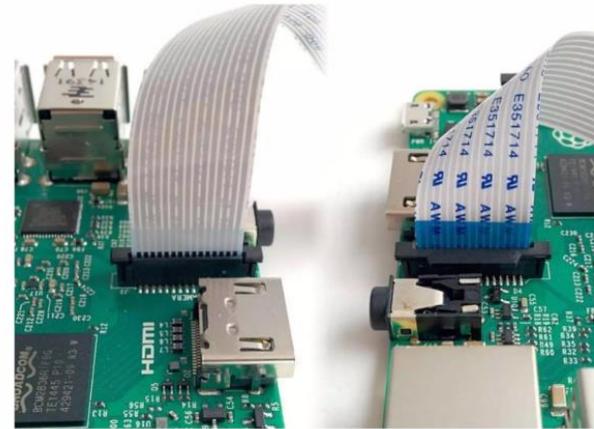
Pin Number	Pin Name	Description
1	Ground	System Ground
2,3	CAM1_DN0, CAM1_DP0	MIPI Data Positive and MIPI Data Negative for data lane 0
4	Ground	System Ground
5,6	CAM1_DN1, CAM1_DP1	MIPI Data Positive and MIPI Data Negative for data lane 1
7	Ground	System Ground
8,9	CAM1_CN, CAM1_CP	These pins provide the clock pulses for MIPI data lanes
10	Ground	System Ground
11	CAM_GPIO	GPIO pin used optionally
12	CAM_CLK	Optional clock pin
13,14	SCL0, SDA0	Used for I2C communication
15	+3.3V	Power pin



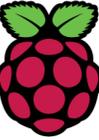
5MP Camera Module - Wiring Diagram



**Right
Connection**



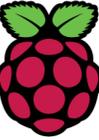
5MP Camera Module - Code



- Please chat gpyte give here information please add here this code will feed live as fire our example

```
import subprocess
# Command to display live video
command = [
    "libcamera-vid",
    "--preview",
    "--width", "1280", # Set width of video
    "--height", "720", # Set height of video
    "--framerate", "30" # Set framerate
]
try:
    print("Starting live video...")
    subprocess.run(command)
except KeyboardInterrupt:
    print("\nLive video stopped.")
```

Take-Home Practice



Using the libcamera-vid library to take pictures and record videos. Step-by-step guide:

1. Install libcamera-vid if not installed.
2. Record a 10-second video with the command: `libcamera-vid -t 10000 -o video.h264`
3. 2-second delay between them using : `libcamera-still -o image1.jpg; sleep 2; libcamera-still -o image2.jpg; sleep 2; libcamera-still -o image3.jpg`