Padmanabh Khunt (20CE044)

Internet of Things Practical Assessment

Module - II Internet of Things

Practical Assessment

Question-1 Write down steps to load Raspberry OS into SDCard

Ans:

To load Raspberry OS onto an SD card, you will need a computer with an SD card reader and an SD card that is at least 8GB in size. Follow these steps:

- Download the Raspberry OS image file from the Raspberry Pi website
- Insert the SD card into the SD card reader on your computer.
- Download and install Etcher. Etcher is a tool for writing image files to SD cards and USB drives.
- Open Etcher and select the Raspberry OS image file that you downloaded.
- Select the SD card as the destination for the image file.
- Click "Flash!" to begin writing the image file to the SD card.
- Wait for the flashing process to complete. This may take a few minutes.
- Once the flashing process is complete, remove the SD card from the card reader and insert it into your Raspberry Pi.
- Connect the Raspberry Pi to a monitor, keyboard, and power source, then turn it on. The Raspberry Pi should boot up and display the Raspberry OS desktop.

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Ouestion-3 Write a Program to measure the distance from the ultrasonic sensor.

Ans:

```
import RPi.GPIO as GPIO
import time

GPIO.setmode(GPIO.BCM)

GPIO_TRIG = 11
GPIO_ECHO = 18

GPIO.setup(GPIO_TRIG, GPIO.OUT)
GPIO.setup(GPIO_ECHO, GPIO.IN)

GPIO.output(GPIO_TRIG, GPIO.LOW)

time.sleep(2)

GPIO.output(GPIO_TRIG, GPIO.HIGH)

time.sleep(0.00001)

GPIO.output(GPIO_TRIG, GPIO.LOW)

while GPIO.input(GPIO_ECHO) == 0:

   start_time = time.time()
   print (start_time)

while GPIO.input(GPIO_ECHO) == 1:

   Bounce_back_time = time.time()
```

```
    print(Bounce_back_time)

pulse_duration = Bounce_back_time - start_time

distance = round(pulse_duration * 17150, 2)

print(f"Distance: {distance} cm")

GPIO.cleanup()
```