

STEP 1: Installing the Raspberry Pi

1. Put together the Raspberry Pi:

- Gather all of the necessary components:
 - A Raspberry Pi board (for example, the Raspberry Pi 4 Model B).
 - MicroSD card (at least 8GB suggested) and an SD card adapter (if necessary).
 - Micro USB power supply
 - HDMI cord
 - USB mouse and keyboard
 - HDMI-equipped monitor
- Connect the Raspberry Pi to the monitor by inserting one end of the HDMI cable into the Raspberry Pi board's HDMI port.
- Connect the other end of the HDMI cable to the monitor's
- Put in the microSD card:
 - On the Raspberry Pi board, locate the microSD card port.

- Insert the microSD card carefully into the slot until it clicks into place.

2. On the Raspberry Pi, install the operating system (e.g., Raspberry Pi OS):

- Get the Raspbian (called Raspberry Pi OS) operating system image: Download the latest version of Raspberry Pi OS (including desktop and recommended software) from the official Raspberry Pi website (<https://www.raspberrypi.org/downloads/>).
- Copy the Raspbian image to a microSD card:
- Plug the microSD card into a computer equipped with an SD card reader.
- Write the Raspbian image to the microSD card using the Etcher program (<https://www.balena.io/etcher/>).

- Choose the Raspbian image file that you downloaded and the destination microSD card.
- To begin writing the image on the card, click "Flash!"
Wait for the process to finish.
- Safely remove the microSD card: Once the writing procedure is complete, remove the microSD card from the computer.

3. Register the Raspberry Pi with the internet:

- Wired connection (Ethernet): If you have an Ethernet cable, connect one end to the Raspberry Pi board's Ethernet port and the other end to your router or network switch.
- Wi-Fi connection: On the Raspberry Pi desktop, click on the network icon in the upper-right corner.

- Choose your Wi-Fi network from the list and, if prompted, enter the password.

4. Initial Configuration:

- Turn on the Raspberry Pi: Connect the power supply's Micro USB end to the Raspberry Pi's power connector.
- To turn on the Raspberry Pi, plug the opposite end of the power supply into a power socket.
- Wait for the Raspberry Pi to start: - On the connected monitor, you should see the Raspberry Pi desktop environment.
- Raspberry Pi Configuration Wizard: When you boot into Raspberry Pi OS for the first time, a configuration wizard will appear.
- Set the timezone, expand the filesystem, change the

password, enable Wi-Fi (if not already enabled), and configure any other options as needed.

5: Update and Upgrade

- Open a terminal window: To open a terminal window, click the Terminal icon at the bottom of the taskbar.
- Update the package lists: Inside the terminal, type the following command and press Enter:



```
sudo apt update
```

- Upgrade the packages installed: Type in the following command and press Enter, once the update is complete.

6: Python Configuration

- Examine the Python version:
- To see if Python is installed, type the following command into the terminal and press Enter:



CSS

```
python3 --version
```

- If Python is not already installed:
- Python is normally pre-installed on Raspberry Pi OS. If it isn't available, you can install it with the following command:



```
sudo apt install python3
```

7: Installing Python Packages:

- Install the required Python packages:
- Install the essential Python packages for the project in the terminal by running the following commands:



```
pip3 install requests  
pip3 install pygame
```