**Option 1: Setup and Running With the Bash Script**

1. **Create a requirements.txt file** listing all dependencies:
   1. matplotlib
   2. numpy
   3. pyserial
2. **Run run\_app.sh Script**: The included run\_app.sh script will automatically create a virtual environment, install dependencies, and run app.py. To execute it:
   1. chmod +x run\_app.sh
   2. ./run\_app.sh

This script will:

* Check if a virtual environment named myvenv exists.
* Create myvenv if it doesn’t exist and activate it.
* Install all dependencies from requirements.txt.
* Run app.py.

**Option 2: Manual Setup and Running Without the Bash Script**

1. **Create a Virtual Environment**:
   * python3 -m venv myvenv
2. **Activate the Virtual Environment**:
   * source myvenv/bin/activate
3. **Install Dependencies**: Ensure you have a requirements.txt file with all necessary libraries listed:
   * matplotlib
   * numpy
   * pyserial

Then install dependencies:

* + pip install -r requirements.txt

1. **Run app.py**: Once dependencies are installed, you can run the application:
   * python navigation.py

**Setting Up the run\_app.sh Bash Script**

1. **Create the run\_app.sh Script File**:

In your project directory, create a new file named run\_app.sh:

* + touch run\_app.sh

1. **Edit the Script File**:

Open run\_app.sh in a text editor and paste the following code:

* + Code:

#!/bin/bash

# Step 1: Check if the virtual environment "myvenv" exists

if [ ! -d "myvenv" ]; then

echo "Virtual environment 'myvenv' does not exist. Creating it now..."

# Step 2: Create a virtual environment named "myvenv"

python3 -m venv myvenv

echo "Virtual environment 'myvenv' created successfully."

else

echo "Virtual environment 'myvenv' already exists."

fi

# Step 3: Activate the virtual environment

source myvenv/bin/activate

echo "Activated the virtual environment 'myvenv'."

# Step 4: Install required packages from requirements.txt

if [ -f "requirements.txt" ]; then

echo "Installing packages from requirements.txt..."

pip install -r requirements.txt

echo "Packages installed successfully."

else

echo "Error: requirements.txt file not found."

exit 1

fi

# Step 5: Run navigation.py

if [ -f "navigation.py" ]; then

echo "Running navigation.py..."

python navigation.py

else

echo "Error: navigation.py file not found."

exit 1

fi

1. **Make the Script Executable**:

Run the following command to give execute permissions to the script:

* + chmod +x run\_app.sh

1. **Run the run\_app.sh Script**:

Execute the script to set up the environment, install dependencies, and run app.py:

* + ./run\_app.sh