Instructions

To install **WSL 2** (Windows Subsystem for Linux 2) on **Windows 11**, follow these steps:

Step 1: Enable the Windows Subsystem for Linux (WSL) Feature

1. **Open PowerShell as Administrator**:
    - Right-click the **Start** button, select **Windows Terminal (Admin)** or **PowerShell (Admin)**.
2. **Install the WSL Feature**: In the PowerShell window, enter the following command to install the required features for WSL:

```
wsl --install -d Ubuntu-22.04
```

This command installs:

- WSL 2
- The latest Linux kernel
- A default Ubuntu 22.04 distribution

3. **Restart Your Computer**: After the installation is complete, you'll be prompted to restart your computer.
4. **Run Ubuntu 22.04**: Run Ubuntu 22.04 from start menu. It will open Ubuntu 22.04 shell. When you will run for the first time, it will ask to enter a username and password. Set your username and password.

Step 2: Set WSL 2 as the Default Version

If you've already installed WSL but it's defaulting to WSL 1, follow these steps to ensure WSL 2 is the default version:

1. **Open PowerShell as Administrator** again.
2. **Set WSL 2 as the Default Version**: Run the following command:

```
wsl --set-default-version 2
```

3. **Check the version**:

```
wsl --list --verbose
```

4. **(Optional) You can install any distributions from Microsoft store now**. Search distribution, install and launch.
5. To check linux distributions run command:

```
wsl -l
```

6. To set a default distribution run command:

```
wsl --setdefault Ubuntu-22.04
```

Step 4: Complete the Linux Distribution Setup

1. **Set Up Your Linux User**: When you launch your Linux distribution for the first time, you'll be prompted to create a new user account and set a password for it.
2. **Update Your Linux Distribution** (Optional but recommended): Run the following commands in Ubuntu 22.04 terminal to update your system:

```
sudo apt update
```

```
sudo apt upgrade
```

Step 5: Install ROS2 Humble in Ubuntu 22.04

1. **Open Ubuntu 22.04 Terminal**: Open Ubuntu 22.04 terminal in windows by searching Ubuntu 22.04 in windows search.
2. **Follow the instructions on this link to install ROS2 Humble**: Install deb package. (https://docs.ros.org/en/humble/Installation/Ubuntu-Install-Debs.html)
3. Run talker and listener example to verify the installation and working from previous link.
4. Add sourcing to your shell startup script

```
echo “source /opt/ros/humble/setup.bash” >> ~/.bashrc
```

Step 6: Creating a ROS2 workspace

1. **Follow the instructions on this link to create workspace**: (https://docs.ros.org/en/humble/Tutorials/Beginner-Client-Libraries/Creating-A-Workspace/Creating-A-Workspace.html)
2. **Run Turtlesim**: Follow the instructions from previous link to run Turtlesim example.

Step 7: Install YASMIN

1. **Follow the instructions on this link to install YASMIN**: (https://github.com/uleroboticsgroup/yasmin?tab=readme-ov-file)
2. **Run Demos**: Follow the instructions from previous link to run Demos.

Step 8: Install Turtlebot3

1. **Install and test TB3**: (https://ros2-industrial-workshop.readthedocs.io/en/latest/_source/navigation/ROS2-Turtlebot.html)

```
sudo apt install ros-humble-turtlebot3*
```

```
ros2 run turtlesim turtlesim_node
```

2. **Run Demos**: Follow the instructions from previous link to run Demos.

```
export TURTLEBOT3_MODEL=burger
```

```
export GAZEBO_MODEL_PATH=$GAZEBO_MODEL_PATH:`ros2 pkg \
prefix turtlebot3_gazebo \
`/share/turtlebot3_gazebo/models/
```

```
ros2 launch turtlebot3_gazebo empty_world.launch.py
```

3. **Keyboard Control:** Open new terminal.

```
export TURTLEBOT3_MODEL=burger
```

```
ros2 run turtlebot3_teleop teleop_keyboard
```

4. **Custom FSM:**

```
chmod +x complex_teleop_fsm.py
```

```
python3 complex_teleop_fsm.py
```

```
ros2 run yasmin_viewer yasmin_viewer_node
```