# User Instructions

## System Requirements:

- Ubuntu 20.04
- ROS2 Galactic

## AOS System Installation Guide

## Installation Steps:

**1. Run Bash Script:**
- Download and run the installation bash script: `AOS_ubuntu20_install_v7.bash`.
- You can find it on GitHub:https://github.com/orhaimwerthaim/AOS-WebAPI

**2.YouTube Tutorial Links:**
These links provide detailed visual guides on the installation and usage of AOS:
1. [AOS Installation]
   https://www.youtube.com/watch?v=LtvghBdEWNg&ab_channel=AOSBGU

2. [Additional Installation Steps]
   https://www.youtube.com/watch?v=Zm-KTZV180g&ab_channel=AOSBGU

3. [Model Verification Using AOS GUI]
   https://www.youtube.com/watch?v=wyLWg-b7Rww&ab_channel=AOSBGU

4. [Advanced Configuration]
   https://www.youtube.com/watch?v=FE91GuK-O4A&ab_channel=AOSBGU

**Debug and Run the Solver:**

- After installing AOS, follow the instructions in the videos to debug the system and run the solver.

**Download Postman:**

- Use Postman to send HTTP requests as shown in the videos. The videos explain how to connect to the AOS system.

**4.Installing ROS 2, Gazebo, RViz, and Navigation 2:**

**1.Install ROS 2:**
- Follow the ROS 2 installation guide for your OS:
https://docs.ros.org/en/galactic/Installation.html

**2. Install Gazebo:**
- Use the command: `sudo apt-get install gazebo`.

**3.Install RViz:**
- Use the command: `sudo apt-get install ros-foxy-rviz2`.

**4.Install Navigation 2:**
- Use the command: `sudo apt-get install ros-galactic-navigation2.

**5. install the workspace of ros2 from github:**
https://github.com/michel1912/ros2_Workspace

**6.Set Up ROS2 Environment by .bashrc:**

**1.Source ROS 2:**
- Add the following line to your `.bashrc` file:
source /opt/ros/Galactic/setup.bash

**2. Setup Modelburger for Gazebo:**
- Add the following line to your `.bashrc` file:
export TURTLEBOT3_MODEL=burger

After editing `.bashrc`, remember to source it:
“source ~/.bashrc”
https://github.com/michel1912/ros2_Workspace
The bashrc should include at the end this :
“export TURTLEBOT3_MODEL=burger
source ~/workspace_ros2/install/local_setup.bash

source /opt/ros/workspace_ros2/setup.bash source /usr/share/colcon_argcomplete/hook/colcon-argcomplete.bash “

7. **Install turtlebot3** :
   Install TurtleBot3 Packages:
   sudo apt install ros-galactic-turtlebot3-*

8. **put the map.pgm and map.yaml on the home directory.**

## Updating the AOS System -Ros2

To update your AOS system and integrate ROS 2, follow these steps:

1. Download the Updated AOS System:

   - Visit the GitHub repository for the:
     https://github.com/michel1912/final/tree/micBranch

   - Download the updated AOS system that implements ROS 2.

2. Replace the Current AOS-WebAPI:

   - Navigate to the GitHub repository provided and download the AOS-WebAPI project.

   - Replace your existing AOS-WebAPI with the downloaded files from the new repository.

3. Update the AM File:

Replace the old AM file with the new one included in the updated AOS system. The AM file defines the actions and behaviors of the AOS system. from : https://github.com/michel1912/ros2_Workspace

4. Update Services:

- Ensure that all services and dependencies in your AOS system are updated to be compatible with ROS 2. This includes checking and modifying configurations as necessary to support the new ROS 2 environment.