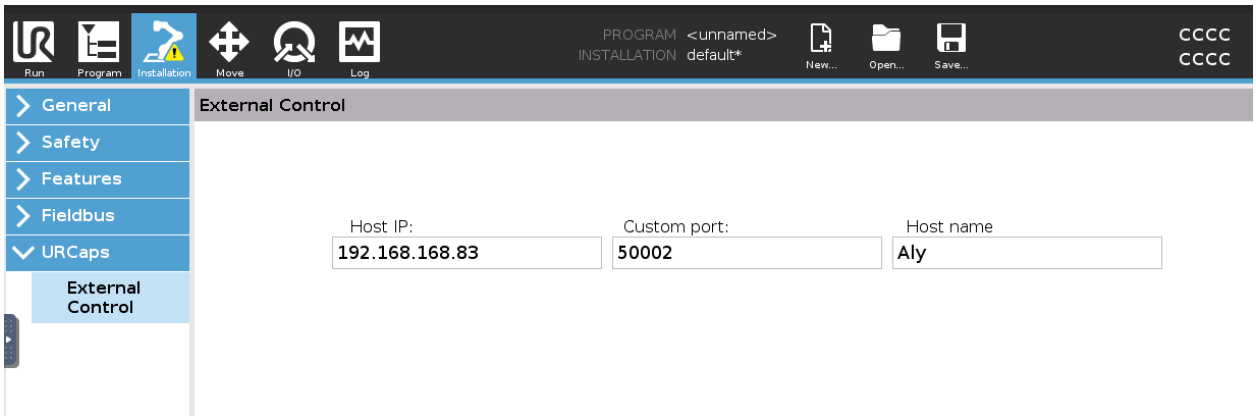
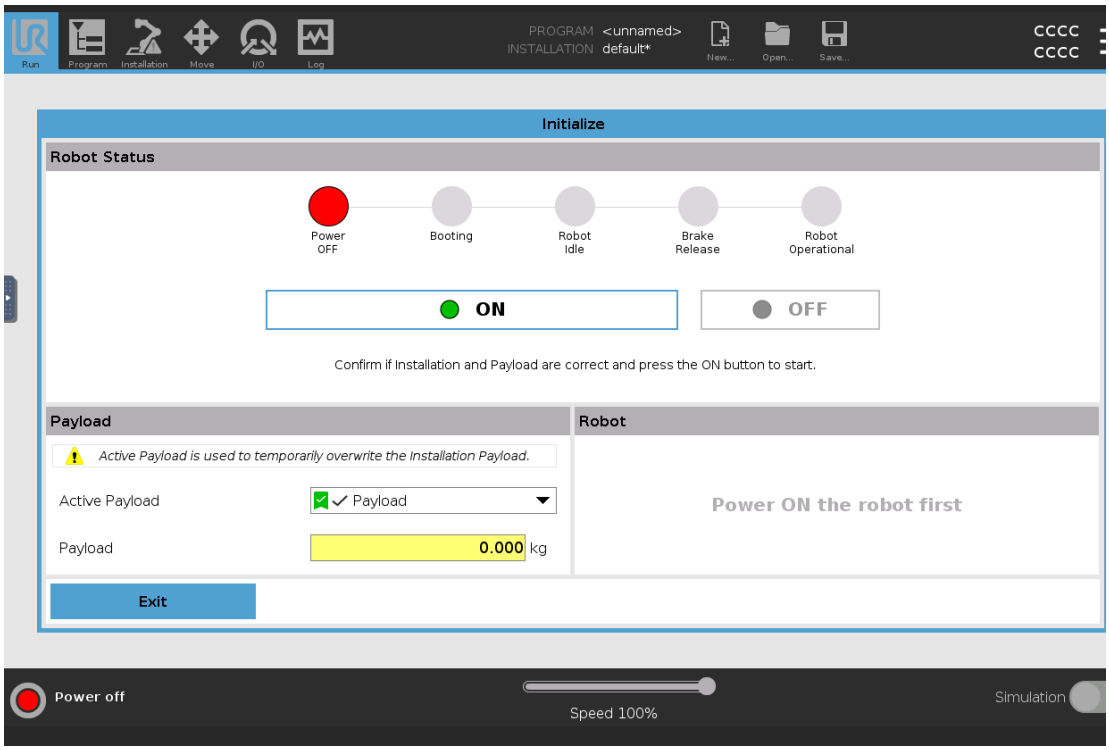
Run the URSIM in terminal
ros2 run ur_client_library start_ursim.sh -m ur10e

Open link http://192.168.56.101:6080/vnc.html
Connect
Go to Installation>URCaps>Host IP



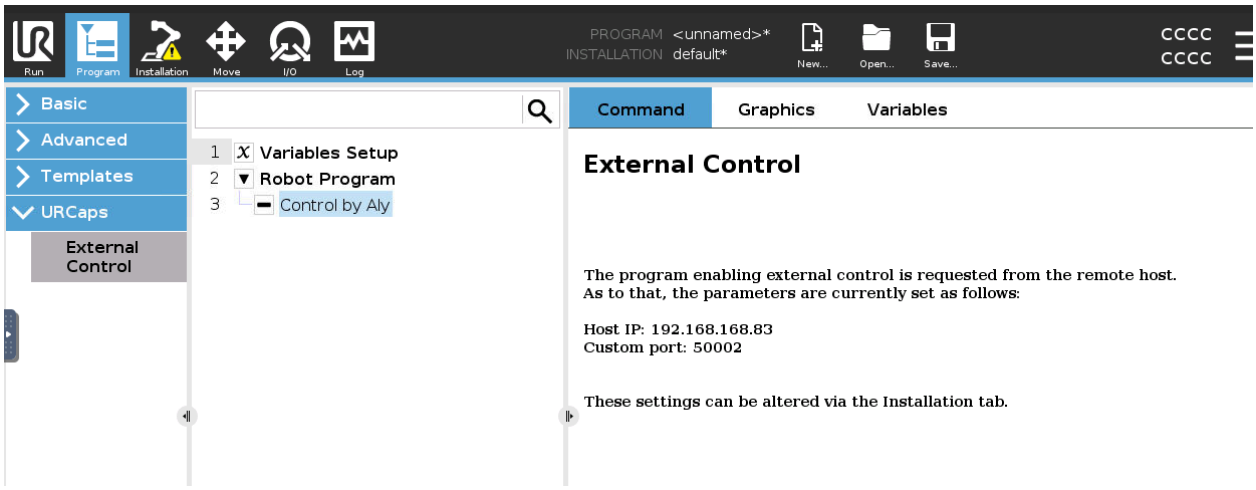
Input host computer IP. Keep port 50002

Power up the robot in the bottom left corner



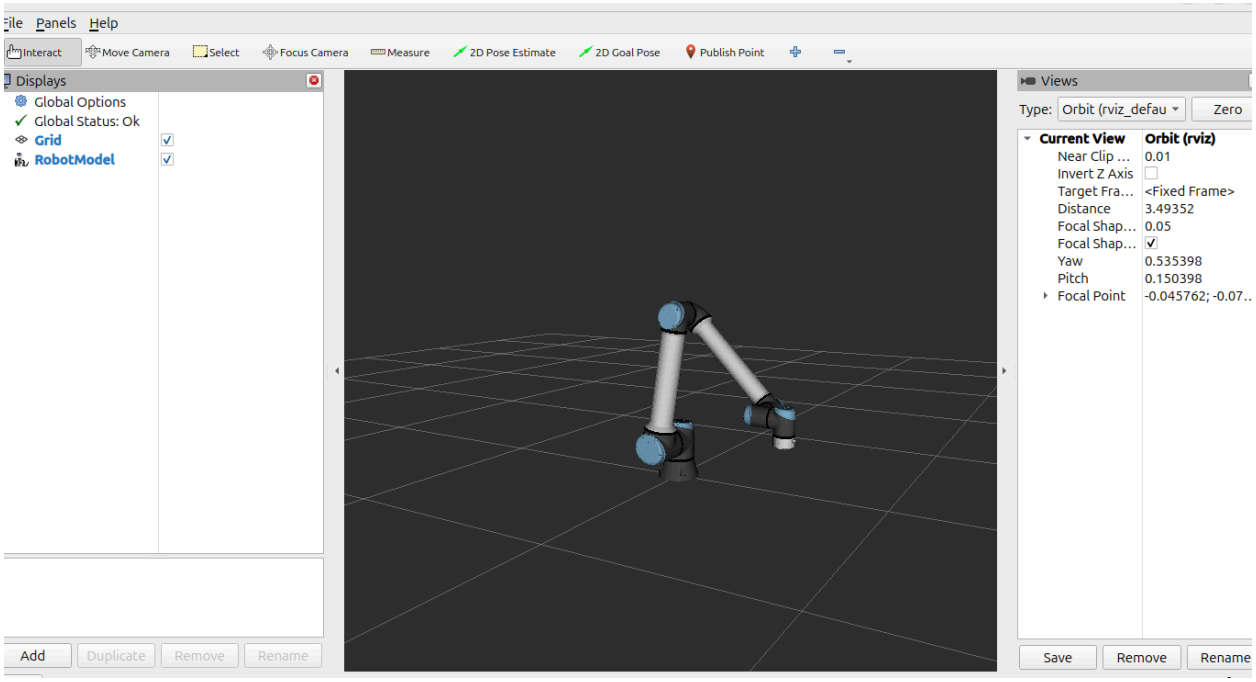
Turn it ON until Robot Operational is GREEN

Go to Program>URCaps and click on External Control. Screen should look like this

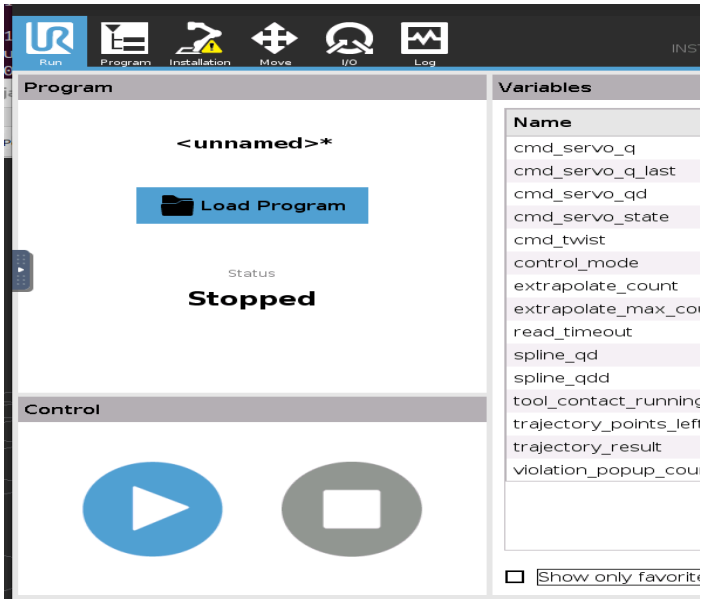


Control by Aly indicates that the program has been set up for external control.

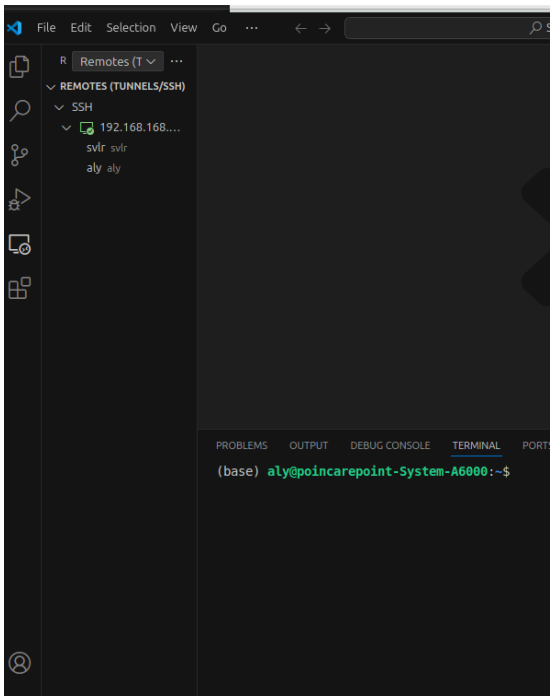
Go back to the terminal, open a new terminal and run the drivers
ros2 launch ur_robot_driver ur_control.launch.py ur_type:=ur10e robot_ip:=192.168.56.101 launch_rviz:=true
An RVIZ model of the ur10 will now show up according to the position in the sim



Go back to the URSim, in the RUN tab, hit the play button. The status should change to RUNNING



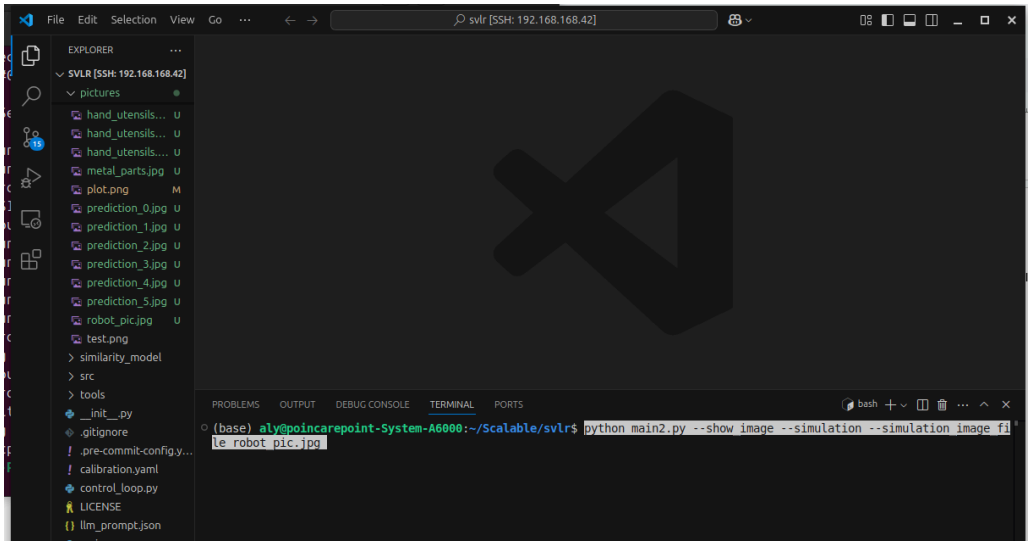
Open up VSCode, use the Remote Extension to connect to the Remote server in HMI2 Lab. It will request a password.



In the vscode terminal, do the following commands. (if the environment has been set up already)
conda activate svlr
cd Scalable/svlr

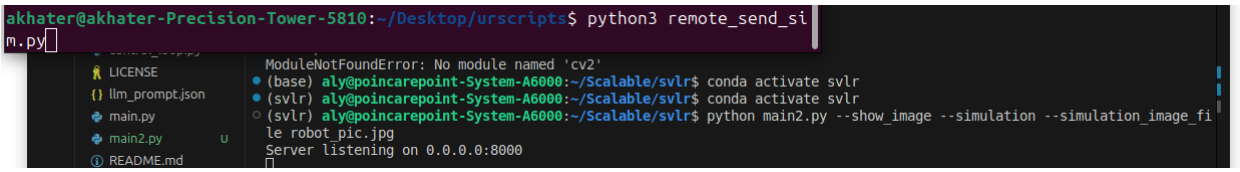
In the vscode remote, run the following
python main2.py --show_image --simulation --simulation_image_file robot_pic.jpg

Note: The image can be an image uploaded to the Scalable/svlr/pictures folder on the remote server

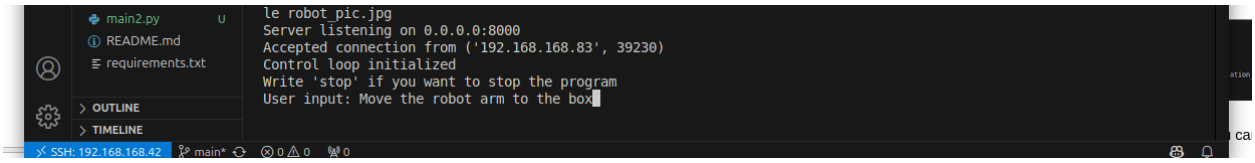


This will run the Server, and it will be waiting for a client to connect (the host pc)
Now go back to the host pc terminal and go to
cd Desktop/urscripts

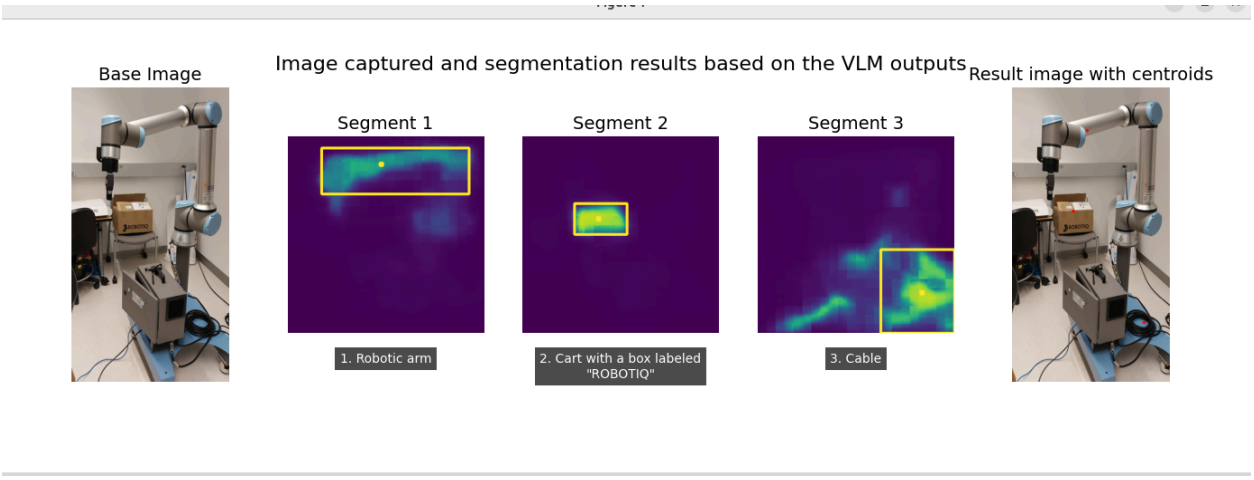
Run the following in the terminal
python3 remote_send_sim.py



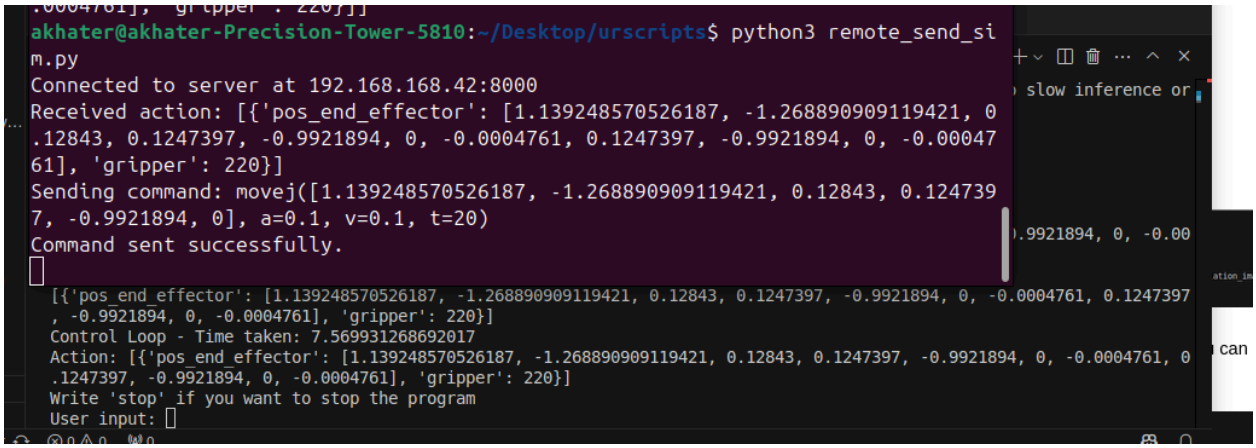
Go back to the server terminal, it will request for user input from the image given. You can tell it to move a specific object in the image.



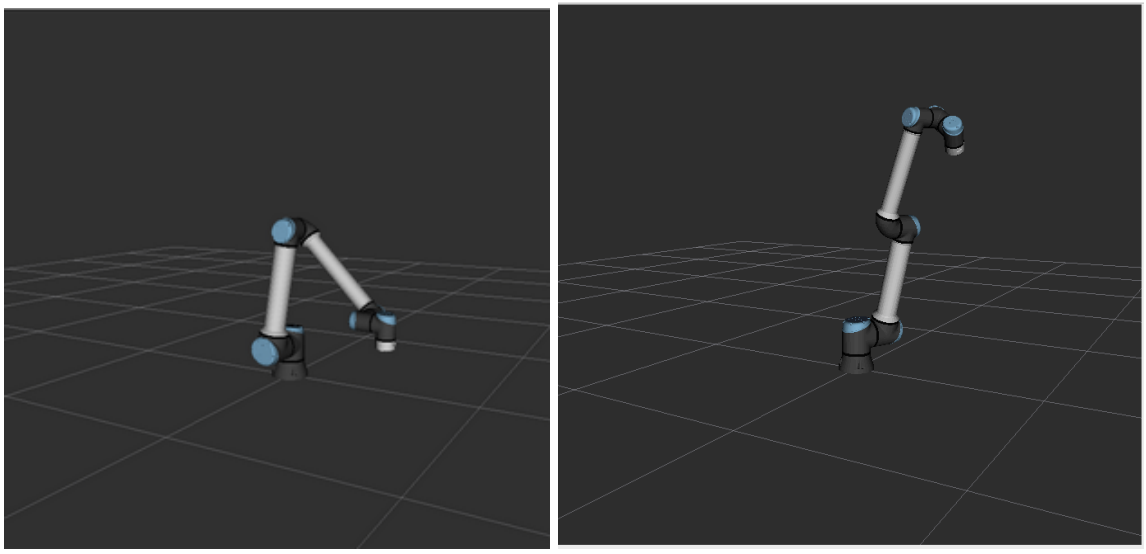
You will get an output picture and segmentation from the VLM



The server terminal will then output the actions needed to perform the task. It will send the actions and positions to the client (host pc) to send the command to the UR10 robot



The robot should have moved



Before(left) and after(right)