

Installing the robot arm

First step

Open terminal and write :

```
mkdir -p ~/catkin_ws/src
cd ~/catkin_ws/

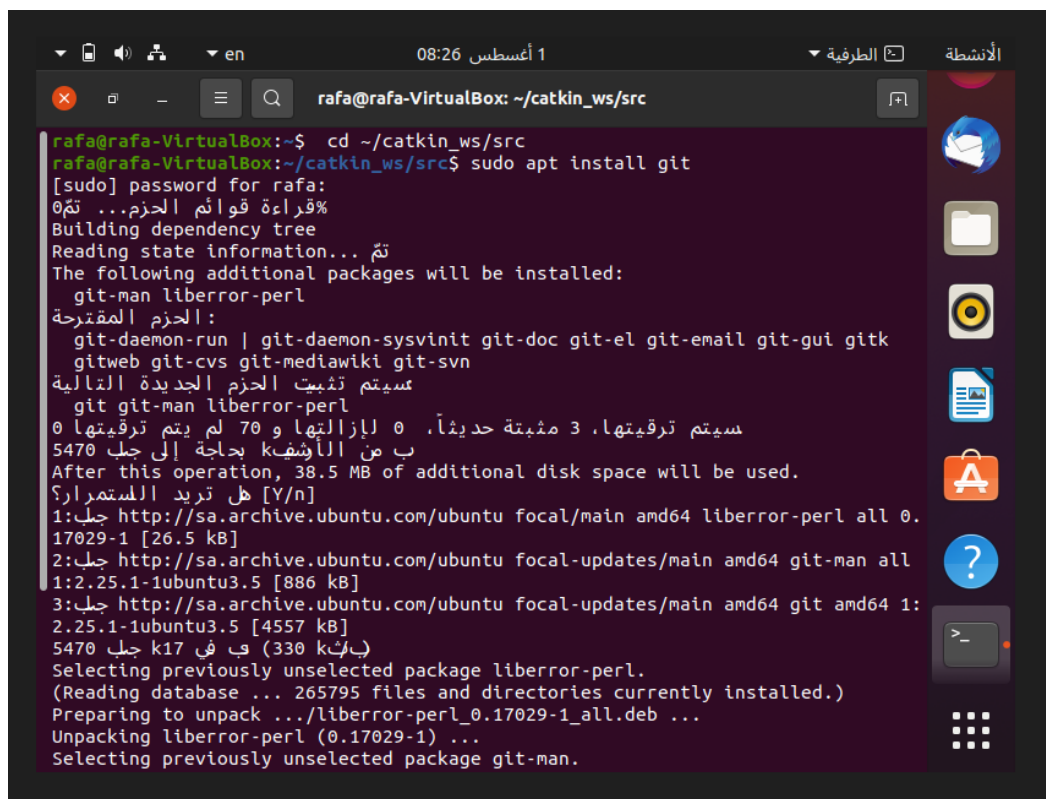
catkin_make

cd ~/catkin_ws/src

git clone https://github.com/smart-methods/arduino_robot_arm.git

cd ~/catkin_ws
```

some screenshot from the start process



The screenshot shows a terminal window titled 'rafa@rafa-VirtualBox: ~/catkin_ws/src'. The user has entered the command 'sudo apt install git'. The terminal output shows the password prompt, the building of the dependency tree, and the installation of git and its dependencies. The output is in both English and Arabic. The English output shows that the following additional packages will be installed: git-man, liberror-perl, and git-daemon-run. The Arabic output shows that the packages will be installed and that the disk space required is 38.5 MB. The user has confirmed the installation by pressing 'Y'.

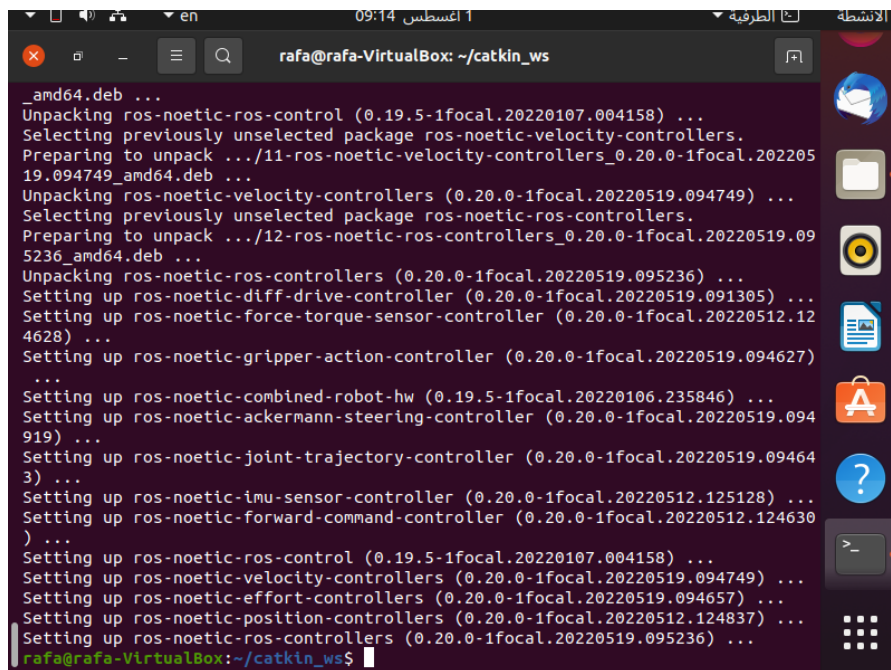
```
rafa@rafa-VirtualBox:~$ cd ~/catkin_ws/src
rafa@rafa-VirtualBox:~/catkin_ws/src$ sudo apt install git
[sudo] password for rafa:
تم قراءة قوائم الحزم... تم
Building dependency tree
Reading state information... تم
The following additional packages will be installed:
  git-man liberror-perl
الحزم المقترحة:
  git-daemon-run | git-daemon-sysvinit git-doc git-el git-email git-gui gitk
  gitweb git-cvs git-mediawiki git-svn
سيتم تثبيت الحزم الجديدة التالية
  git git-man liberror-perl
سيتم ترقيةها. 3 مئيتة حديثاً. 0 لإزالتها و 70 لم يتم ترقيةها
ب من الأرشيف k بحاجة إلى جلب 5470
After this operation, 38.5 MB of additional disk space will be used.
هل تريد الاستمرار؟ [Y/n]
1:جلب http://sa.archive.ubuntu.com/ubuntu focal/main amd64 liberror-perl all 0.17029-1 [26.5 kB]
2:جلب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 git-man all 1:2.25.1-1ubuntu3.5 [886 kB]
3:جلب http://sa.archive.ubuntu.com/ubuntu focal-updates/main amd64 git amd64 1:2.25.1-1ubuntu3.5 [4557 kB]
(بكب 330 k في 17 k جلب 5470
Selecting previously unselected package liberror-perl.
(Reading database ... 265795 files and directories currently installed.)
Preparing to unpack .../liberror-perl_0.17029-1_all.deb ...
Unpacking liberror-perl (0.17029-1) ...
Selecting previously unselected package git-man.
```

Complete the process

All the packages:

```
- rosdep install --from-paths src --ignore-src -r -y
sudo apt-get install ros-noetic-moveit

- sudo apt-get install ros-noetic-joint-state-publisher ros-
  noetic-joint-state-publisher-gui
- sudo apt-get install ros-noetic-gazebo-ros-control joint
state-publisher
```

A screenshot of a terminal window titled 'rafa@rafa-VirtualBox: ~/catkin_ws'. The terminal shows the output of a 'rosdep install' command. It lists various ROS packages being installed, including 'ros-noetic-velocity-controllers', 'ros-noetic-ros-controllers', 'ros-noetic-diff-drive-controller', 'ros-noetic-force-torque-sensor-controller', 'ros-noetic-gripper-action-controller', 'ros-noetic-combined-robot-hw', 'ros-noetic-ackermann-steering-controller', 'ros-noetic-joint-trajectory-controller', 'ros-noetic-imu-sensor-controller', 'ros-noetic-forward-command-controller', 'ros-noetic-ros-control', 'ros-noetic-velocity-controllers', 'ros-noetic-effort-controllers', 'ros-noetic-position-controllers', and 'ros-noetic-ros-controllers'. The terminal output ends with the prompt 'rafa@rafa-VirtualBox:~/catkin_ws\$'.

```
amd64.deb ...
Unpacking ros-noetic-ros-control (0.19.5-1focal.20220107.004158) ...
Selecting previously unselected package ros-noetic-velocity-controllers.
Preparing to unpack .../11-ros-noetic-velocity-controllers_0.20.0-1focal.20220519.094749_amd64.deb ...
Unpacking ros-noetic-velocity-controllers (0.20.0-1focal.20220519.094749) ...
Selecting previously unselected package ros-noetic-ros-controllers.
Preparing to unpack .../12-ros-noetic-ros-controllers_0.20.0-1focal.20220519.095236_amd64.deb ...
Unpacking ros-noetic-ros-controllers (0.20.0-1focal.20220519.095236) ...
Setting up ros-noetic-diff-drive-controller (0.20.0-1focal.20220519.091305) ...
Setting up ros-noetic-force-torque-sensor-controller (0.20.0-1focal.20220512.124628) ...
Setting up ros-noetic-gripper-action-controller (0.20.0-1focal.20220519.094627) ...
Setting up ros-noetic-combined-robot-hw (0.19.5-1focal.20220106.235846) ...
Setting up ros-noetic-ackermann-steering-controller (0.20.0-1focal.20220519.094919) ...
Setting up ros-noetic-joint-trajectory-controller (0.20.0-1focal.20220519.094643) ...
Setting up ros-noetic-imu-sensor-controller (0.20.0-1focal.20220512.125128) ...
Setting up ros-noetic-forward-command-controller (0.20.0-1focal.20220512.124630) ...
Setting up ros-noetic-ros-control (0.19.5-1focal.20220107.004158) ...
Setting up ros-noetic-velocity-controllers (0.20.0-1focal.20220519.094749) ...
Setting up ros-noetic-effort-controllers (0.20.0-1focal.20220519.094657) ...
Setting up ros-noetic-position-controllers (0.20.0-1focal.20220512.124837) ...
Setting up ros-noetic-ros-controllers (0.20.0-1focal.20220519.095236) ...
rafa@rafa-VirtualBox:~/catkin_ws$
```

After the packages loading process is over

Open a new terminal and write :

```
sudo nano ~/.bashrc
```

```
source /home/rafa/catkin_ws/devel/setup.bash
```

and for log out :

```
ctrl + o then enter
```

```
ctrl + x
```

```
source ~/.bashrc
```

```
roslaunch robot_arm_pkg check_motors.launch
```

```
rafa@rafa-VirtualBox:~$ sudo nano ~/.bashrc
[sudo] password for rafa:
rafa@rafa-VirtualBox:~$ source ~/.bashrc
bash: /opt/ros/kinetic/setup.bash: No such file or directory
bash: /opt/ros/kinetic/setup.bash: No such file or directory
bash: /home/wesam/catkin_ws/devel/setup.bash: No such file or directory
rafa@rafa-VirtualBox:~$ roslaunch robot_arm_pkg check_motors.launch
... logging to /home/rafa/.ros/log/b3bde5ac-1165-11ed-884b-5fe7117227b4/roslaunch-rafa-VirtualBox-100424.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

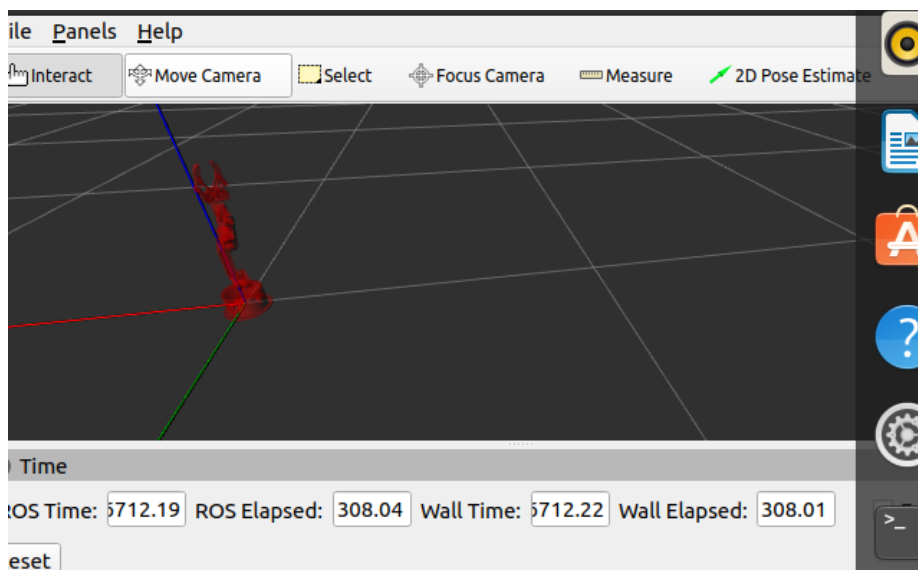
started roslaunch server http://rafa-VirtualBox:44855/

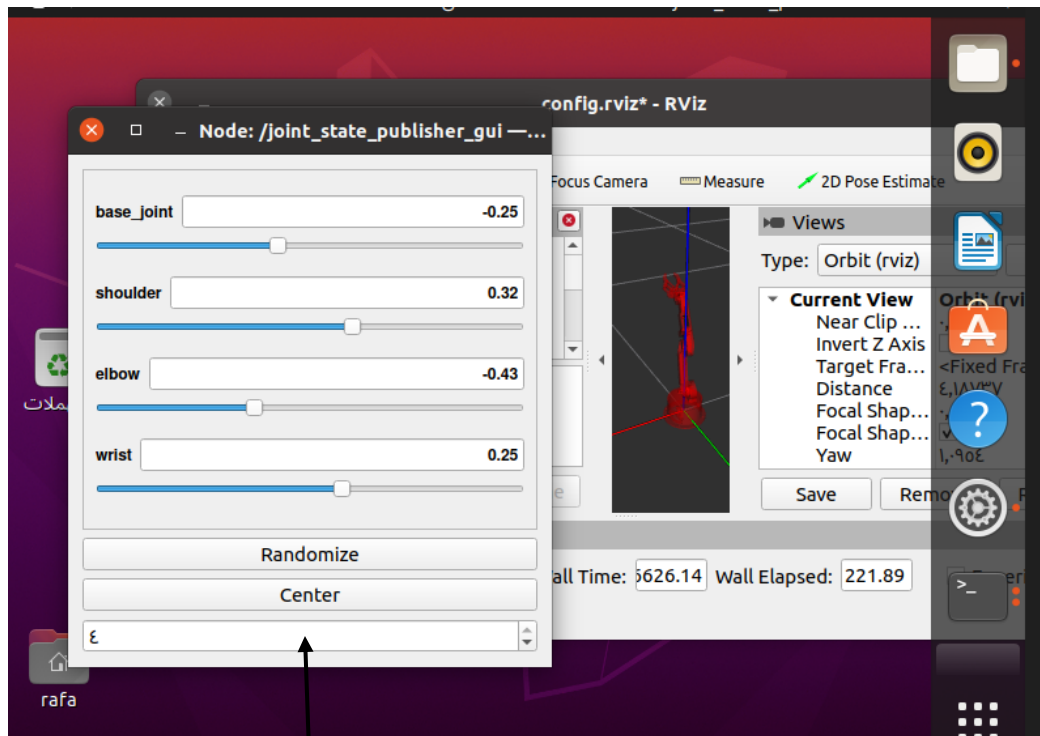
SUMMARY
=====
PARAMETERS
* /robot_description: <?xml version="1....
* /rostdistro: noetic
* /rosversion: 1.15.14

NODES
/
  joint_state_publisher_gui (joint_state_publisher_gui/joint_state_publisher_gui)
  robot_state_publisher (robot_state_publisher/robot_state_publisher)
  rviz (rviz/rviz)
```

finish

open the Rviz





joint-state-publisher