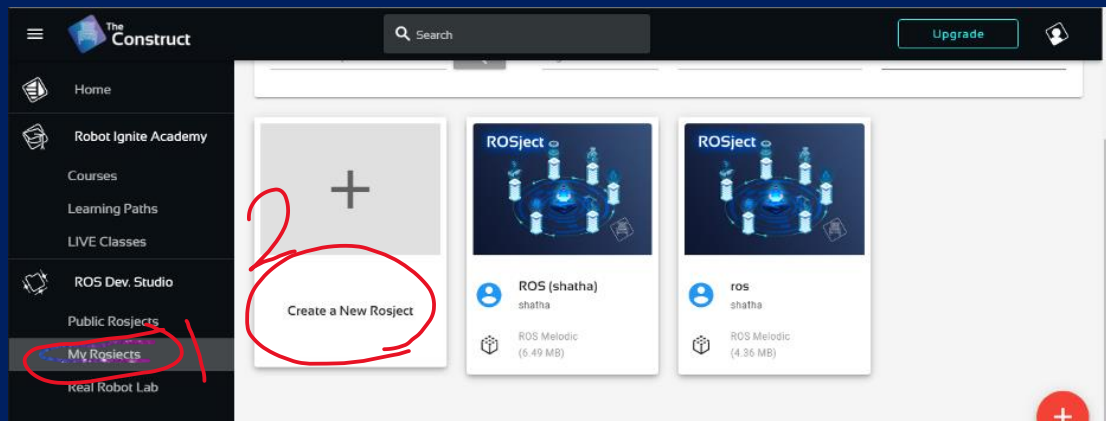
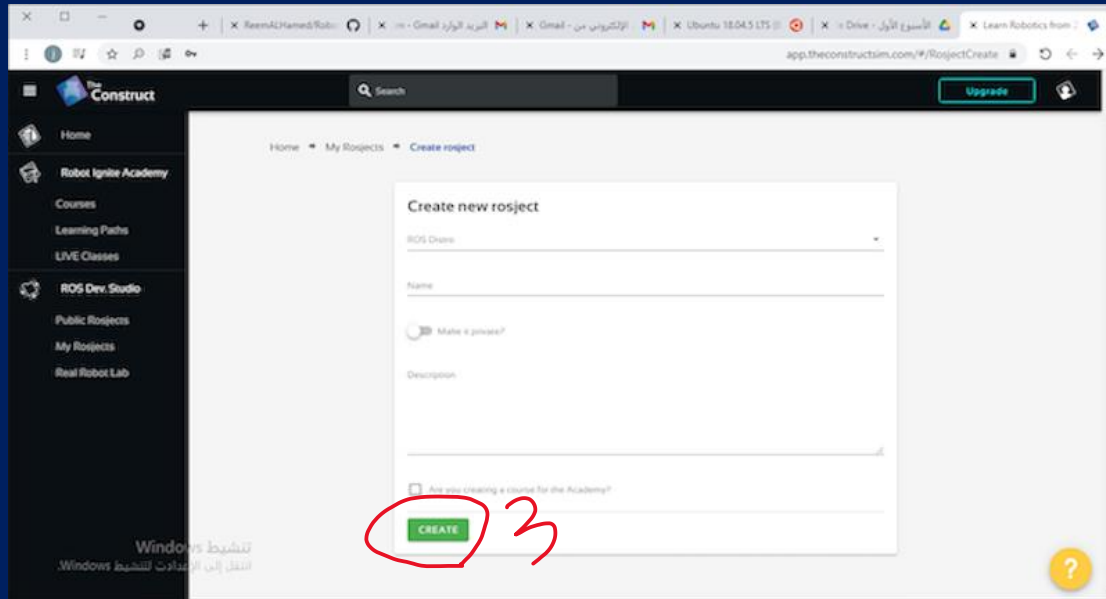


# المهمة الأولى في الذكاء الاصطناعي

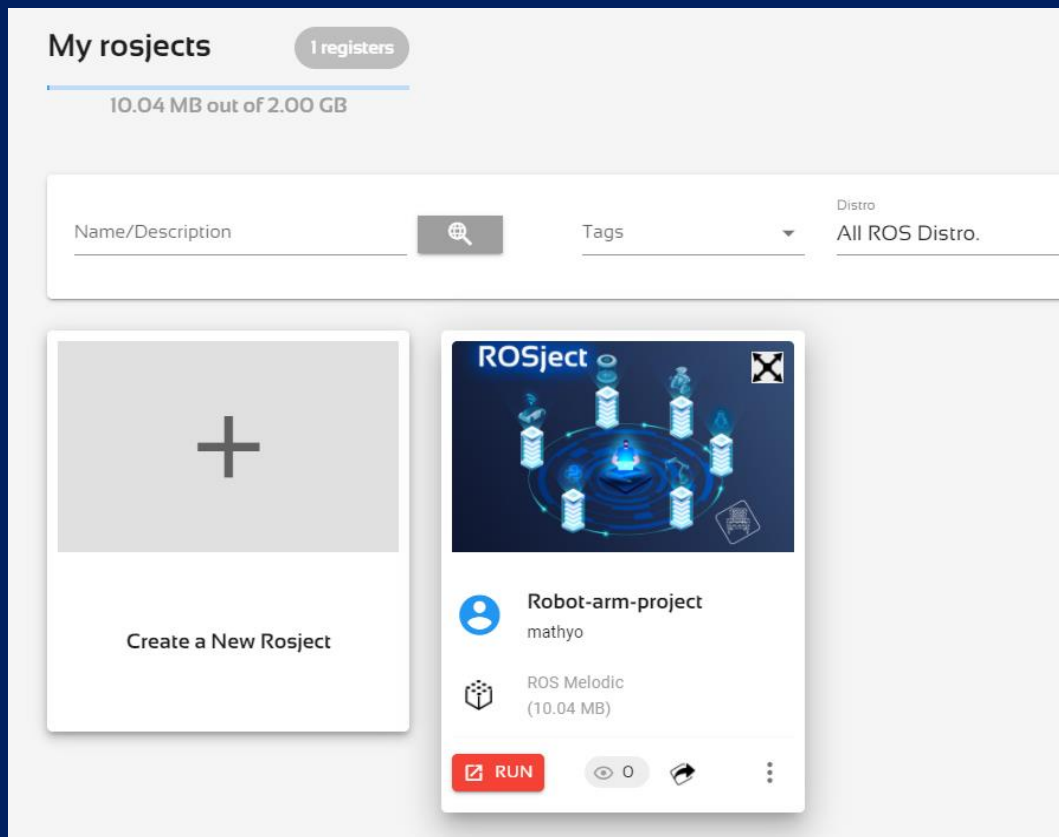
في البداية استخدمت website لاتمام المهمة في الذكاء الاصطناعي  
الرابط <https://www.theconstructsim.com> بعد تسجيل الدخول  
نبدء اول الخطوات



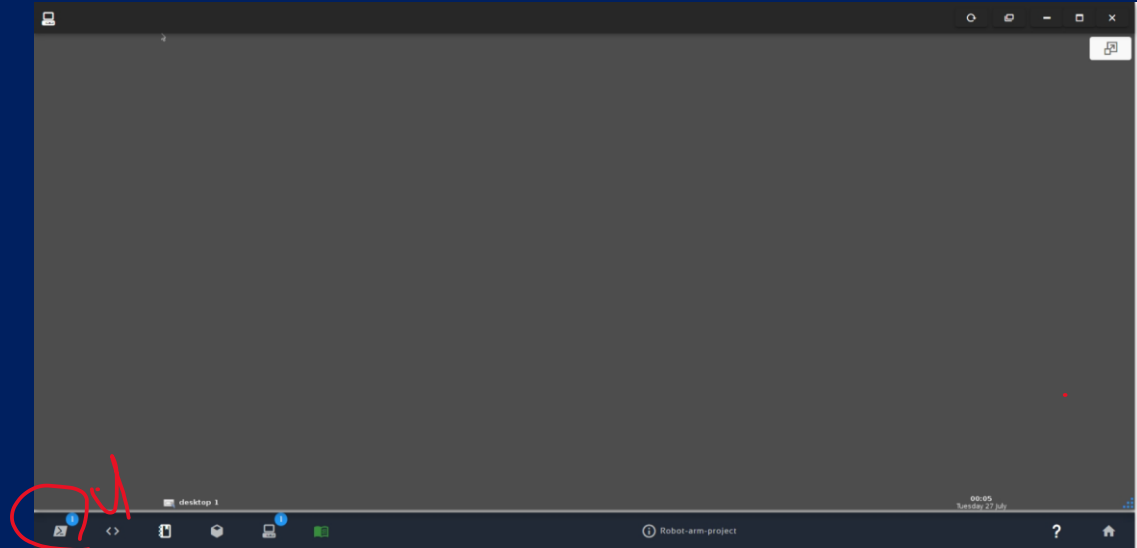
بعد ذلك تفتح معنا هذه الصفحة ونقوم بتعبئه البيانات مثل اسم المشروع  
ووصف له ثم انشاء



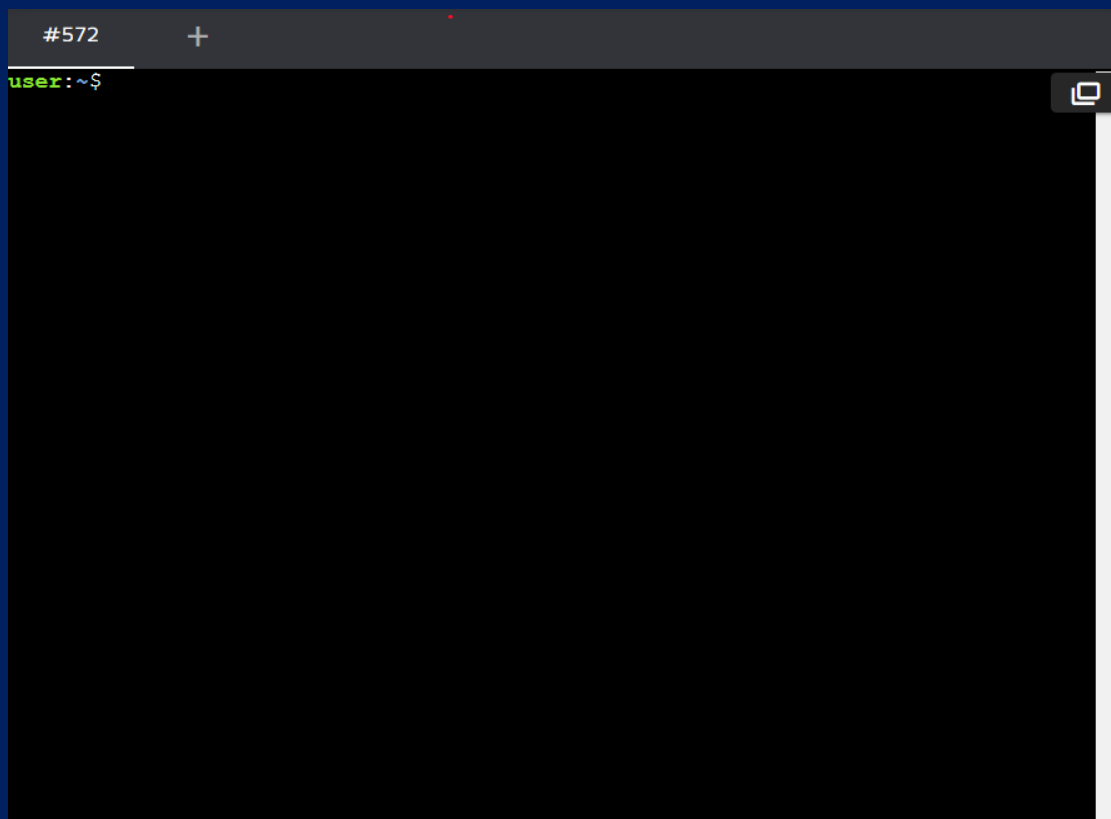
بعدها تظهر هذه النافذه ونضغط run



قد يستغرق بعض الوقت ولكن سوف تفتح النافذه التالية :  
 في اسف اليسار هنالك علامة صغيره نضغط عليها لكي تفتح صفحة شبيهه  
 بالكوماند نكتب فيها الأوامر التاليه بشكل متتابع



هكذا يكون شكلها ونبدء بكتابة الأوامر فيها



*Add the “arduino\_robot\_arm” package to “src” ❖  
folder*

الأوامر

```
cd ~/catkin_ws/src
```

```
sudo apt install git
```

```
git clone https://github.com/smart-methods/arduino\_robot\_arm
```

*install all the dependencies*



بعد ذلك نكمل بكتابة هذه الأوامر

```
cd ~/catkin_ws
```

```
rosdep install --from-paths src --ignore-src -r -y
```

```
sudo apt-get install ros-melodic-moveit
```

```
sudo apt-get install ros-melodic-joint-state-publisher  
ros-melodic-joint-state-publisher-gui
```

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

```
sudo apt-get install ros-melodic-ros-controllers ros-melodic-ros-control
```

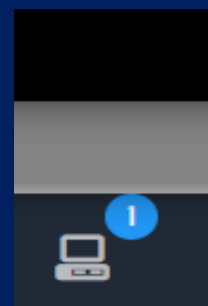
*compile the package* ❖

```
catkin_make
```

```
app.theconstructsim.com/#/Desktop
#572 +
user:~$ cd ~/catkin_ws/src
user:~/catkin_ws/src$ sudo apt install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
git is already the newest version (1:2.17.1-lubuntu0.8).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
user:~/catkin_ws/src$ git clone https://github.com/smart-methods/arduino_robot_arm
fatal: destination path 'arduino_robot_arm' already exists and is not an empty directory.
user:~/catkin_ws/src$
```

```
app.theconstructsim.com/#/Desktop
#572 +
Reading package lists... Done
Building dependency tree
Reading state information... Done
git is already the newest version (1:2.17.1-lubuntu0.8).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
user:~/catkin_ws/src$ git clone https://github.com/smart-methods/arduino_robot_arm
fatal: destination path 'arduino_robot_arm' already exists and is not an empty directory.
user:~/catkin_ws/src$ cd ~/catkin_ws
user:~/catkin_ws$ rosdep install --from-paths src --ignore-src -r -y
All required rosdeps installed successfully
user:~/catkin_ws$
user:~/catkin_ws$ sudo apt-get install ros-melodic-moveit
Reading package lists... Done
Building dependency tree
Reading state information... Done
ros-melodic-moveit is already the newest version (1.0.8-1bionic.20210601.181746).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
user:~/catkin_ws$ sudo apt-get install ros-melodic-joint-state-publisher ros-melodic-joint-state-publisher-gui
Reading package lists... Done
Building dependency tree
Reading state information... Done
ros-melodic-joint-state-publisher-gui is already the newest version (4.12.15-1bionic.20210505.032058).
ros-melodic-joint-state-publisher is already the newest version (1.12.15-1bionic.20210505.031159).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
user:~/catkin_ws$
```

الان سنقوم بعمل run للروبوت ارم بكج من خلل هذا الامر  
roslaunch robot\_arm\_pkg check\_motors.launch  
ونضغط على graphical tools  
في اسفل الشاشة



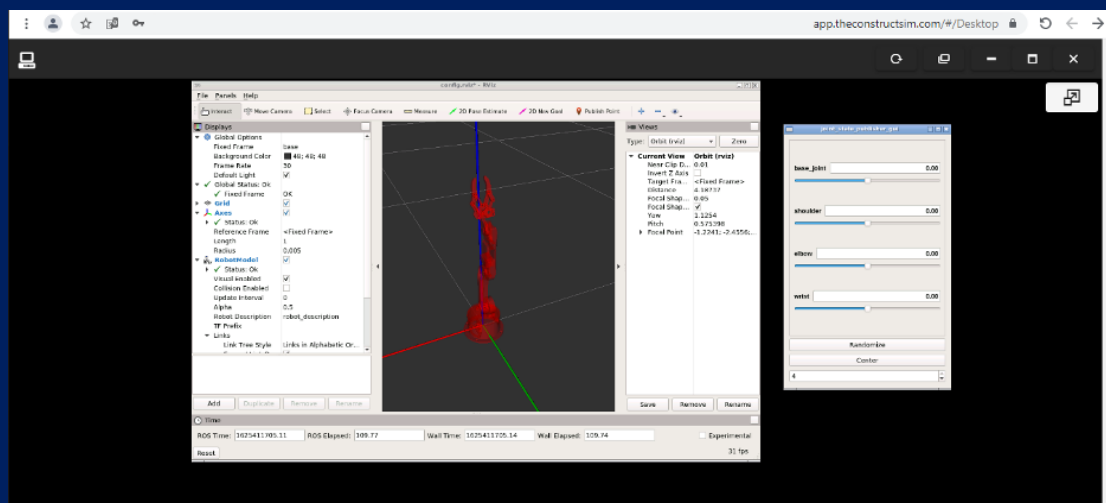
```
#572 +
[100%] Built target move_group_node
user:~/catkin_ws$ roslaunch robot_arm_pkg check_motors.launch
... logging to /home/user/.ros/log/589d493a-dcda-11eb-bcf6-0242ac160007/roslaunch-8_xterm-4303.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt.
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://8_xterm:34017/

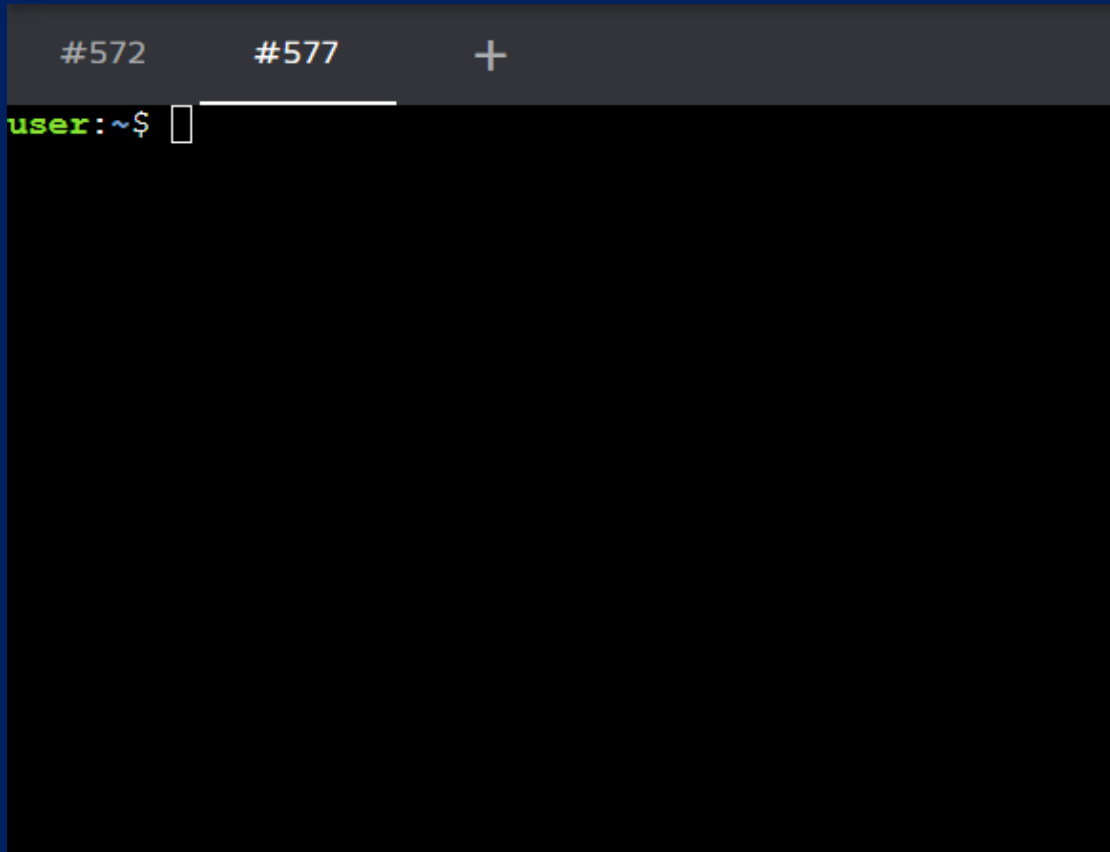
SUMMARY
=====

PARAMETERS
* /robot_description: <?xml version="1....
* /roslaunch_verbosity: 0
* /rosversion: 1.14.11

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)
```

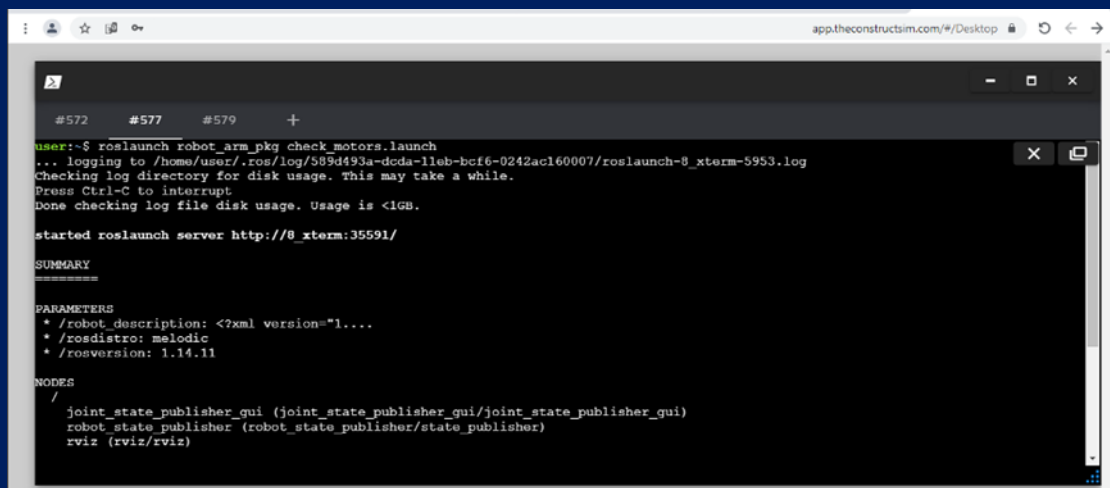


بعد الانتهاء نفتح shell كما هو واضح  
لعمل المحاكاه



ونبدء بكتابة الامر التالي

```
roslaunch robot_arm_pkg check_motors.launch
```



ونفتح shell ثالث بنفس الطريقة ونكتب الامر التالي

```
roslaunch robot_arm_pkg check_motors_gazebo.launch
```

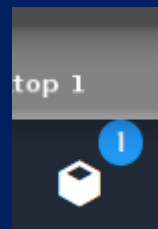
```
roslaunch robot_arm_pkg joint_states_to_gazebo.py
```

```
app.theconstructsim.com/#/Desktop
#572 #577 #579 +
user:~$ roslaunch robot_arm_pkg check_motors_gazebo.launch
... logging to /home/user/.ros/log/589d493a-deda-11eb-bcf6-0242ac160007/roslaunch-8_xterm-6495.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.

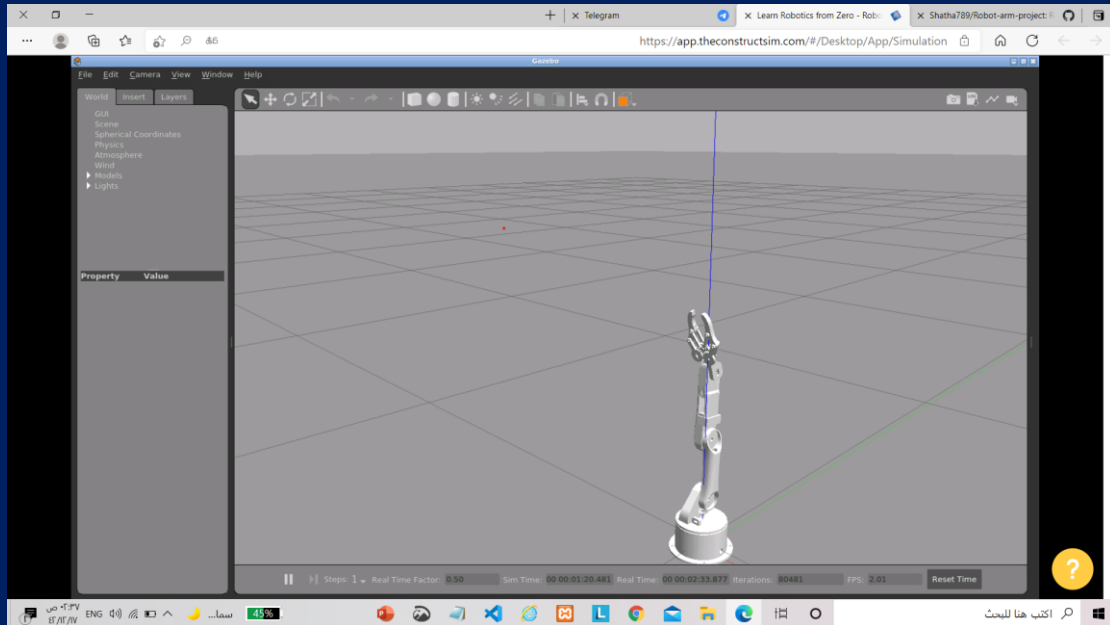
started roslaunch server http://8_xterm:43383/

SUMMARY
=====
PARAMETERS
* /arm_controller/gains/base_joint/d: 1
* /arm_controller/gains/base_joint/i: 1
* /arm_controller/gains/base_joint/i_clamp: 1
* /arm_controller/gains/base_joint/p: 100
* /arm_controller/gains/elbow/d: 1
* /arm_controller/gains/elbow/i: 1
* /arm_controller/gains/elbow/i_clamp: 1
* /arm_controller/gains/elbow/p: 100
* /arm_controller/gains/shoulder/d: 1
* /arm_controller/gains/shoulder/i: 1
```

ونضغط على gazebo في اسفل الشاشة







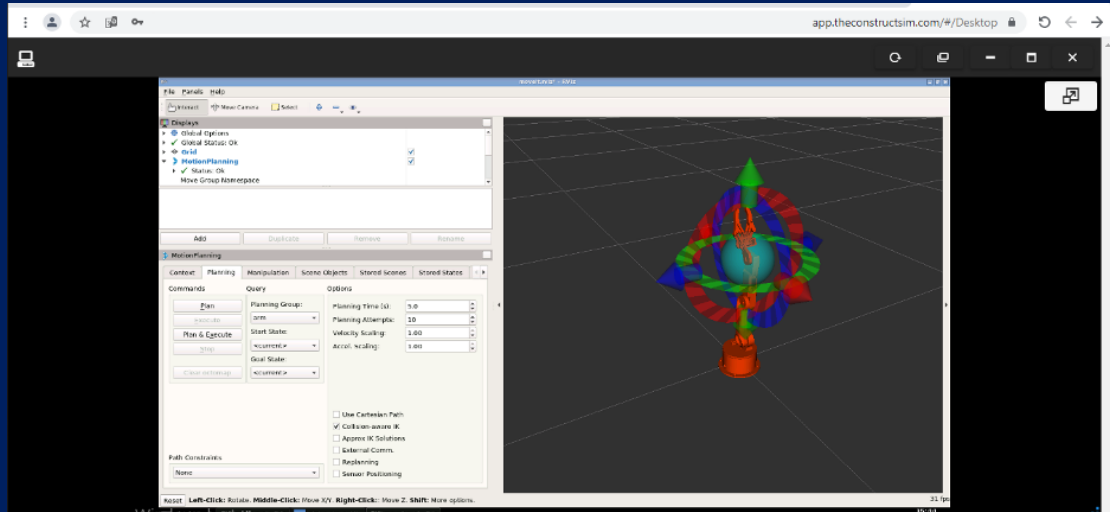
أخيرا نستخدم هذا الكوماند لتحديد المواقع وحركات الذراع سوف نستخدم  
 moveit الذي يحاكي حركة الذراع في اتجاهات مختلفة  
 roslaunch moveit\_pkg demo.launch

```

#26990 #28522 #30330 +
[roslaunch] or not executable:
[roslaunch] /home/user/catkin_ws/src/ar
duino_robot_arm/robot_arm_pkg/scripts/
joint_states_to_gazebo.py
user:~$ roslaunch moveit_pkg demo.launch
... logging to /home/user/.ros/log/0ff745d4-dcdd-11eb-a594-0242ac160007/roslaunch-8_xterm-4
7545.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://8_xterm:38781/

SUMMARY
=====
PARAMETERS
* /joint_state_publisher/source_list: ['move_group/fake...
* /joint_state_publisher/use_gui: False
* /move_group/allow_trajectory_execution: True
* /move_group/arm/default_planner_config: None
* /move_group/arm/planner_configs: ['SBT', 'EST', 'L...
* /move_group/capabilities:
* /move_group/controller_list: [{'joints': ['bas...
* /move_group/disable_capabilities:
* /move_group/jiggle_fraction: 0.05
* /move_group/max_range: 5.0
  
```



## المصادر:

[Shatha789/Robot-arm-project: Ros installation and arm control \(github.com\)](#) -

- العرض التقديمي الخاص بشركة الأساليب الذكية