Movelt positive kinematics design

1. Usage environment

Motherboard: Jetson Orin Nano/Nx

ROS2: Humble

2. Driving the real machine

Driving the real machine is to convert the joint state information of the robot arm into the control of the real robot arm by subscribing to the `/joint_states` topic of Moveit2.

Note: Since the real robot arm does not have an obstacle avoidance function, some positions may encounter obstacles; so the planned robot arm movements should be as reasonable as possible and avoid obstacles

(It is recommended to use preset positions to demonstrate driving the real machine)

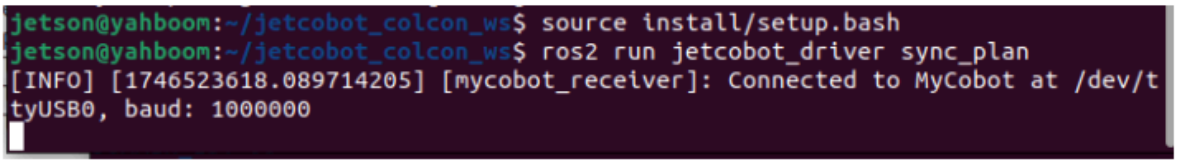
2.1. Start the real machine

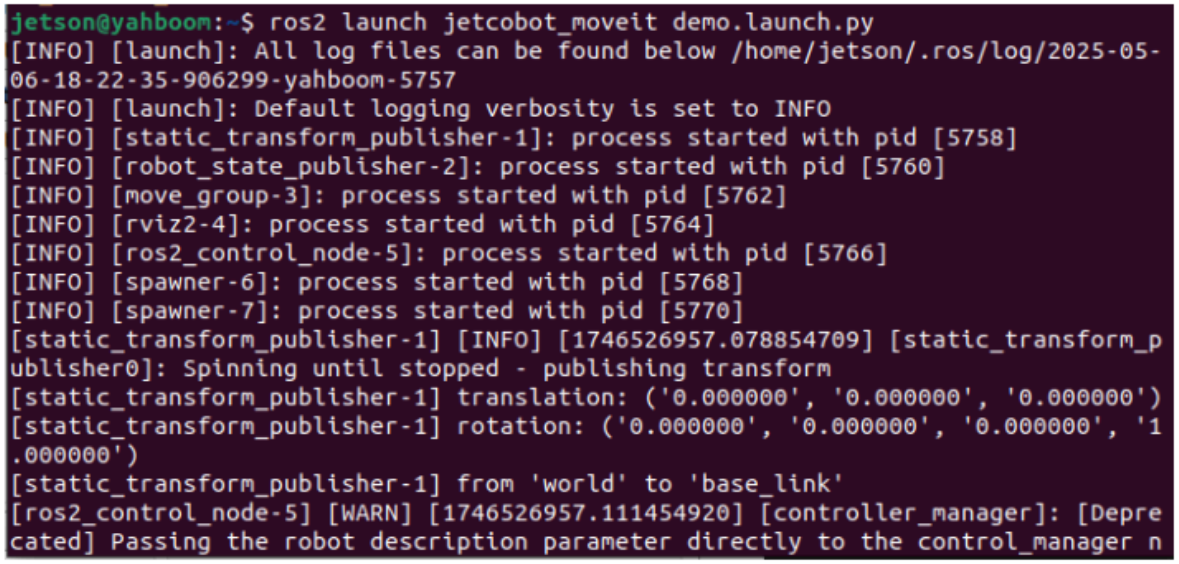
If you do not drive the real machine, simulate the robot arm movements in MoveIt:

```
ros2 run jetcobot_driver sync_plan
```

2.2. Start MoveIt2

```
ros2 launch jetcobot_moveit demo.launch.py
```





3. Forward kinematics design

Forward kinematics refers to the target position (angle of each joint) of the given robot arm, and then MoveIt plans to the target position by itself.

Start command

The robot needs to be successfully loaded in MoveIt and `You can start planning now!` appears. Run the following command: The robot will plan to the target position by itself

```
ros2 run jetcobot_moveit set_target_joints
```

```
jetson@yahboom:~/app_jetcobot$ ros2 run jetcobot_moveit set_target_joints
[INFO] [1746528888.561267721] [random_moveit2_control]: Initializing RandomMoveIt2Control.
[INFO] [1746528890.012083113] [moveit_rdf_loader.rdf_loader]: Loaded robot model in 1.45041 seconds
[INFO] [1746528890.012202541] [moveit_robot_model.robot_model]: Loading robot model 'jetcobot'...
[WARN] [1746528890.012224077] [moveit_robot_model.robot_model]: Skipping virtual joint 'virtual_joint' because its child frame 'base_li
nk' does not match the URDF frame 'dummy'
[INFO] [1746528890.012235822] [moveit_robot_model.robot_model]: No root/virtual joint specified in SRDF. Assuming fixed joint
[WARN] [1746528890.248343132] [moveit_ros.robot_model_loader]: No kinematics plugins defined. Fill and load kinematics.yaml!
[INFO] [1746528890.301801155] [moveit_rdf_loader.rdf_loader]: Loaded robot model in 0.0529467 seconds
[INFO] [1746528890.301868325] [moveit_robot_model.robot_model]: Loading robot model 'jetcobot'...
[WARN] [1746528890.301882374] [moveit_robot_model.robot_model]: Skipping virtual joint 'virtual_joint' because its child frame 'base_li
nk' does not match the URDF frame 'dummy'
[INFO] [1746528890.301891270] [moveit_robot_model.robot_model]: No root/virtual joint specified in SRDF. Assuming fixed joint
[WARN] [1746528890.520900957] [moveit_ros.robot_model_loader]: No kinematics plugins defined. Fill and load kinematics.yaml!
[INFO] [1746528890.546239687] [move_group_interface]: Ready to take commands for planning group arm_group.
[INFO] [1746528890.557639095] [move_group_interface]: MoveGroup action client/server ready
[INFO] [1746528890.559403499] [move_group_interface]: Planning request accepted
[INFO] [1746528890.586253123] [move_group_interface]: Planning request complete!
[INFO] [1746528890.586564940] [move_group_interface]: time taken to generate plan: 0.0166999 seconds
[INFO] [1746528890.590853162] [random_moveit2_control]: Planning succeeded, moving the arm.
[INFO] [1746528890.591996140] [move_group_interface]: Execute request accepted
[INFO] [1746528893.232590739] [move_group_interface]: Execute request success!
```