

How to launch project?

Step1: Start Ubuntu 20.04 real-time kernel which is in advanced settings in grub menu.

Step2: Turn on the Franka Emika's computer and make sure the internet cable plug in between Franka Emika's computer and your computer.

Step3: Run Firefox browser then go <https://10.0.0.2> , firstly you must open joints brake then you must click Activate FCI all these settings are in right side menu.

Step4: Now, enter the these commands on different terminals;

To launch robot control;

```
cd ~/franka_ros2
source devel/setup.bash
roslaunch franka_control franka_control.launch robot_ip:=10.0.0.2
```

To launch moveit;

```
cd ~/panda_chessmate/FrankaRos
source devel/setup.bash
roslaunch panda_movit_config move_group.launch arm_id:=panda load_gripper:=true
```

To visualize robot;

```
rviz
File > Open Config > Home > panda_demo.rviz
```

To launch camera;

```
roslaunch realsense2_camera rs_camera.launch rgb_camera.color_format:=RGB8
```

To communicate Arduino with ROS;

```
roslaunch rosserial_arduino serial_node.py _port:=/dev/ttyUSB0 (check your port)
```

Run Python scripts (3 different terminal);

```
cd ~/pandachess_ws
source devel/setup.bash
roslaunch panda_chess motion_controller
```

```
cd ~/pandachess_ws
source devel/setup.bash
roslaunch panda_chess board_sensor
```

```
cd ~/pandachess_ws
source devel/setup.bash
roslaunch panda_chess game_controller
```

ROS Communication between other PC to get chessboard boundary box data;

```
gedit ~/.bashrc  
export ROS_MASTER_URI=http://10.0.0.1:11311  
export ROS_IP=10.0.0.4
```

```
source home/kovan4/anaconda3/bin/activate  
conda activate chessMate  
cd ~/chess_ws  
source devel/setup.bash  
cd ~/chess_ws/src/panda_chess/src  
python3 board_server.py
```