

Color sorting code path: [dofbot_ws/src/dofbot_color_identify/scripts/Color_sorting.ipynb](#)

Color stacking code path: [dofbot_ws/src/dofbot_color_stacking/scripts/Color_stacking.ipynb](#)

1. Before starting color sorting and stacking function, you must start the reverse solution server and keep running.

Input following command:

```
cd ~/dofbot_ws/ # Entering Workspace
catkin_make # compile
source devel/setup.bash # Update the system environment
roslaunch dofbot_info dofbot_server.launch # Start the server terminal node
```

As shown below.

```
jetson@jetson-desktop:~$ cd ~/dofbot_ws/
jetson@jetson-desktop:~/dofbot_ws$ catkin_make
Base path: /home/jetson/dofbot_ws
Source space: /home/jetson/dofbot_ws/src
Build space: /home/jetson/dofbot_ws/build
Devel space: /home/jetson/dofbot_ws/devel
Install space: /home/jetson/dofbot_ws/install
####
```

```
[ 86%] Linking CXX executable /home/jetson/dofbot_ws/devel/lib/dofbot_moveit/02_motion_plan
[ 89%] Built target 01_random_move
[ 93%] Built target 02_motion_plan
[ 96%] Linking CXX executable /home/jetson/dofbot_ws/devel/lib/dofbot_moveit/03_attached_object
[100%] Built target 03_attached_object
jetson@jetson-desktop:~/dofbot_ws$ source devel/setup.bash
jetson@jetson-desktop:~/dofbot_ws$ roslaunch dofbot_info dofbot_server.launch
```

```
[ 96%] Linking CXX executable /home/jetson/dofbot_ws/devel/lib/dofbot_moveit/03_attached_object
[100%] Built target 03_attached_object
jetson@jetson-desktop:~/dofbot_ws$ source devel/setup.bash
jetson@jetson-desktop:~/dofbot_ws$ roslaunch dofbot_info dofbot_server.launch
... logging to /home/jetson/.ros/log/5d3c7692-5985-11eb-b258-355db64c8d49/roslaunch-jetson-desktop-19109.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://192.168.1.169:33229/

SUMMARY
=====

PARAMETERS

* /rostdistro: melodic
* /rosversion: 1.14.10

NODES

/
dofbot_server (dofbot_info/dofbot_server)

ROS_MASTER_URI=http://localhost:11311

process[dofbot_server-1]: started with pid [19164]

2. HSV calibration

Because the color recognition is different in different environments, it is best to perform HSV calibration before starting color sorting.

More Details, please check [Color Calibration] course.

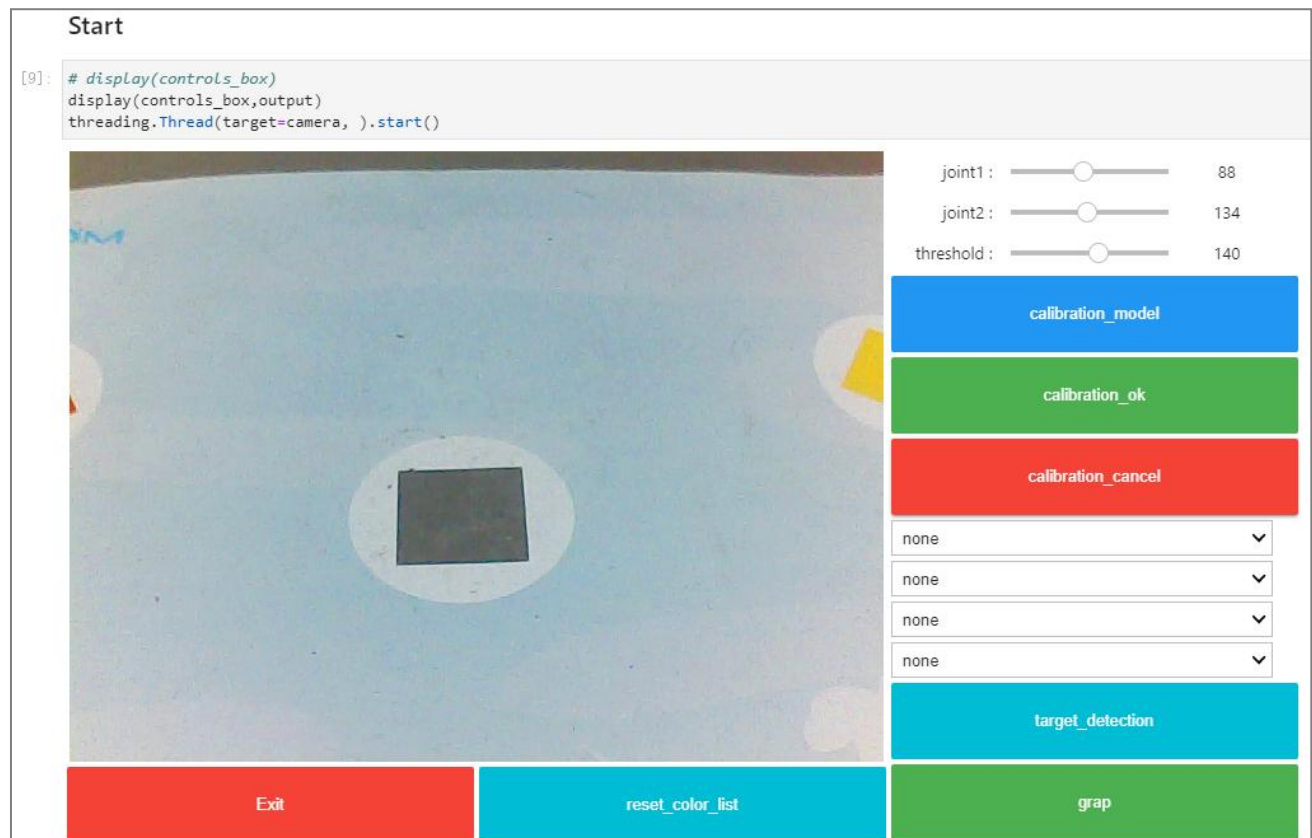
3.Box calibration

After the color calibration is completed, box calibration is required to obtain the position information of the block in the box.

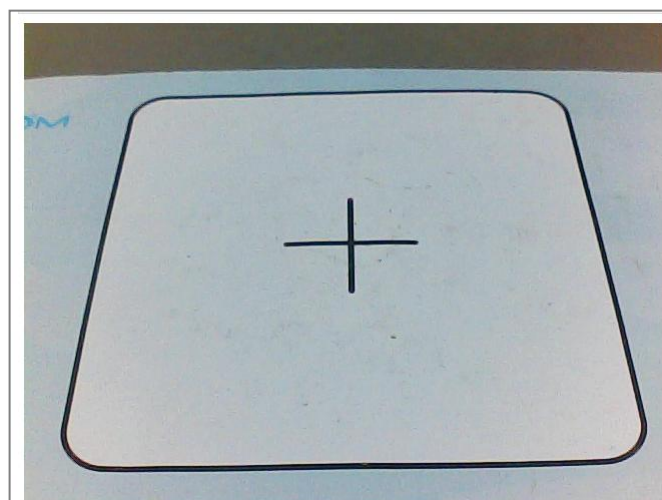
More Details, please check [Visual positioning] course.

4. Running color sorting program

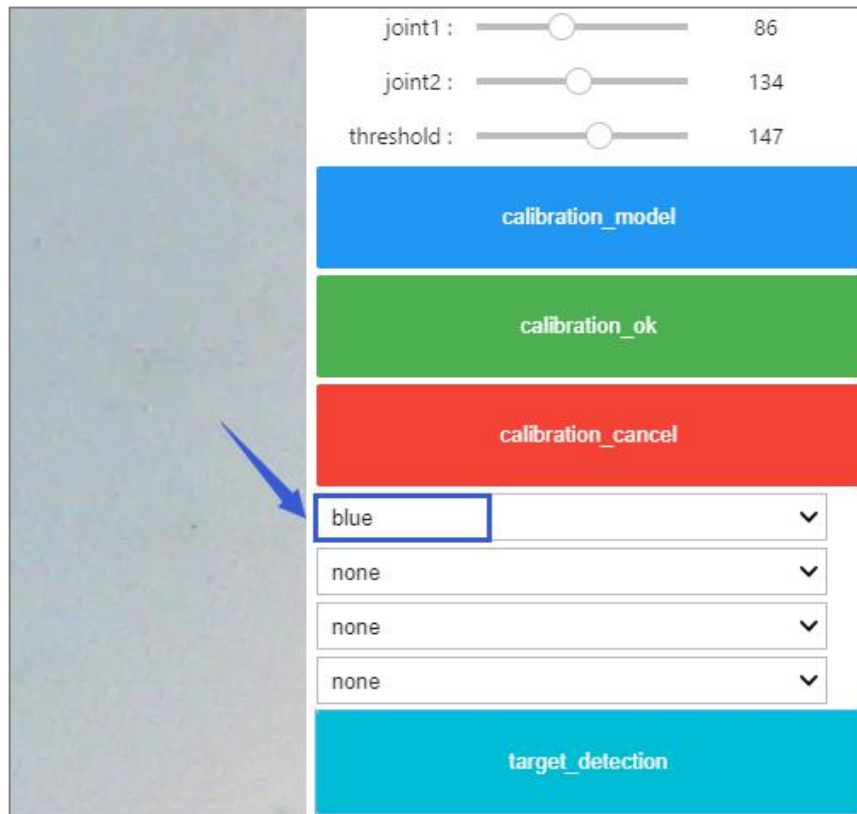
After running the program, you will see the interface as shown below.



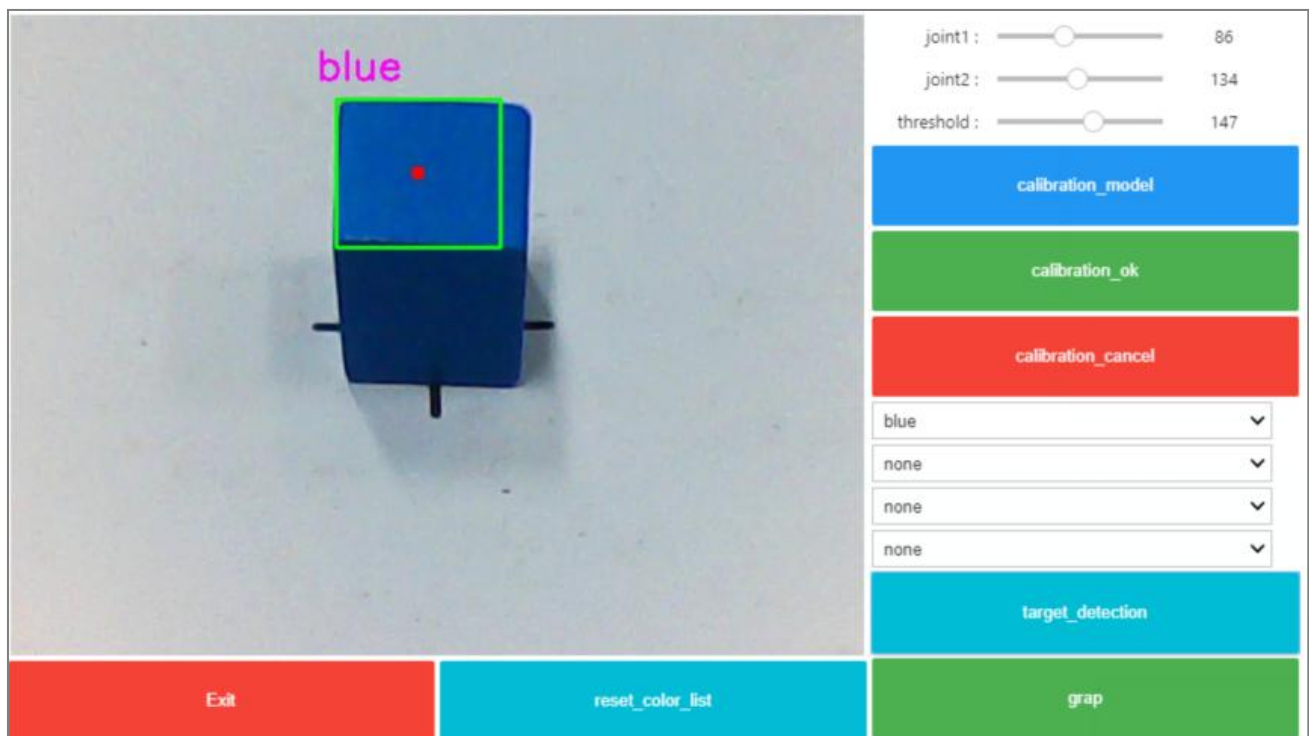
4.1 Place map as shown below.



4.2 After the [HSV calibration] and [box calibration] is completed. Select the color in the color option box on the right side, as shown below.



4.3 After the color selection is completed, click the [target_detection] button to call the color recognition function, and mark the recognized block.



4.4 Click the [grap] button to sort out the block.

joint1 : 86
joint2 : 134
threshold : 147

calibration_model
calibration_ok
calibration_cancel

blue
none
none
none

target_detection

grap

Exit reset_color_list

```

Calibration
calibration_OK
color_list_three_Callback clicked. {'1': 'red'}
color_list_three_Callback clicked. {'1': 'red'}
color_list_three_Callback clicked. {'1': 'blue'}
color_list_three_Callback clicked. {'1': 'blue'}
Detection
Grp
  
```

4.5 You can also choose four color order, as shown below.

calibration_cancel

blue
green
blue
yellow

target_detection

grap

Exit reset_color_list

```

Calibration
calibration_OK
color_list_three_Callback clicked. {'1': 'red'}
color_list_three_Callback clicked. {'1': 'red'}
color_list_three_Callback clicked. {'1': 'blue'}
color_list_three_Callback clicked. {'1': 'blue'}
Detection
Grp
color_list_three_Callback clicked. {'1': 'blue', '2': 'green'}
color_list_three_Callback clicked. {'1': 'blue', '2': 'green'}
color_list_three_Callback clicked. {'1': 'blue', '2': 'green', '3': 'blue'}
color_list_three_Callback clicked. {'1': 'blue', '2': 'green', '3': 'blue'}
color_list_four_Callback clicked. {'1': 'blue', '2': 'green', '3': 'blue', '4': 'yellow'}
color_list_four_Callback clicked. {'1': 'blue', '2': 'green', '3': 'blue', '4': 'yellow'}
  
```

4.6 Click the [reset_color_list] button to clear the selected color order.

4.3 Color stacking

The procedure is similar to [color sorting].

