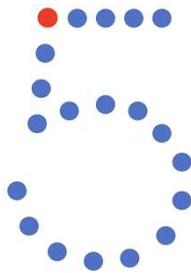




FIVE

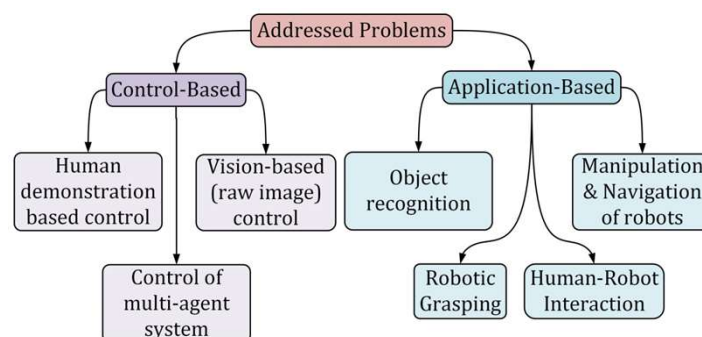
Visual Object Tracking



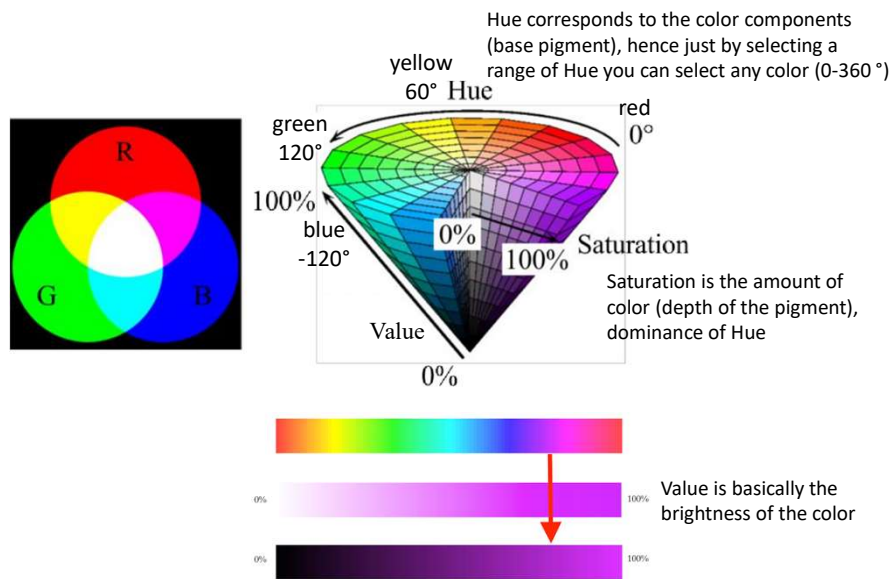
1



Robotic Vision

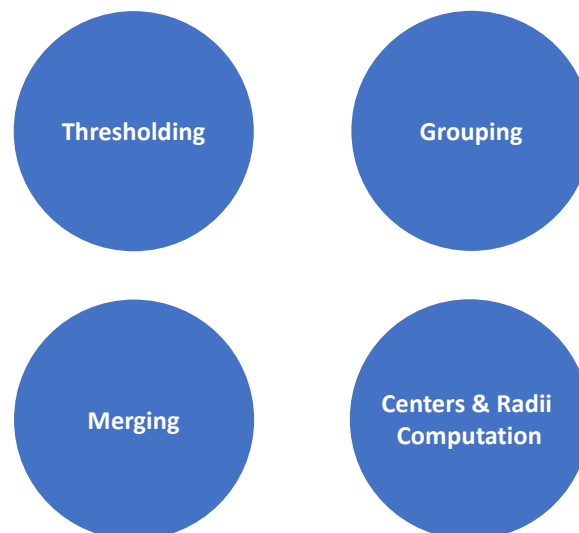


2



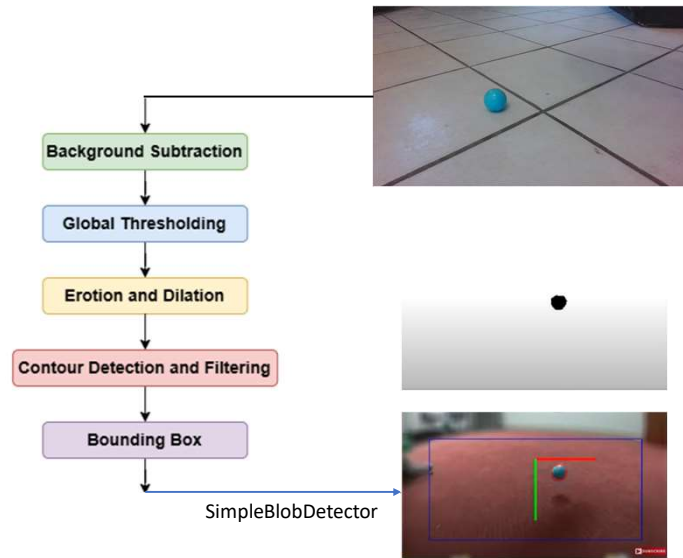
OpenCV range filters

3



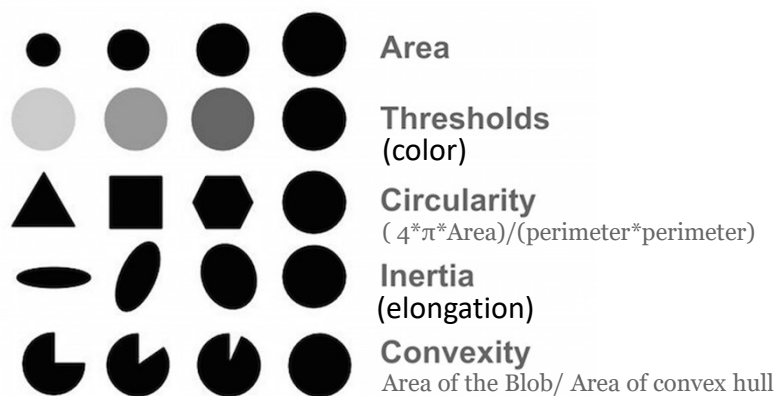
Blob detection algorithms / processes

4



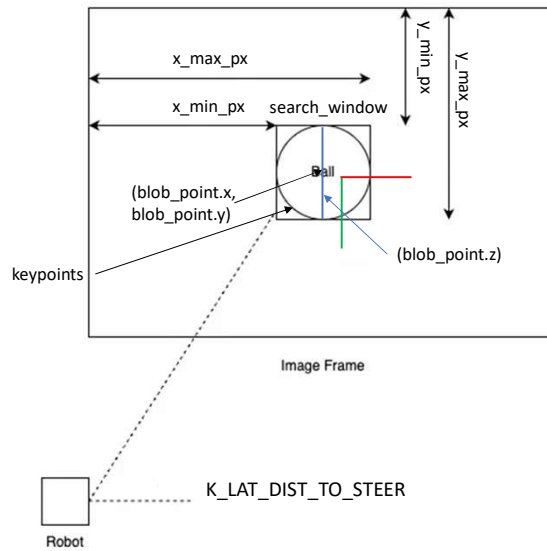
Blob detection pipeline

5



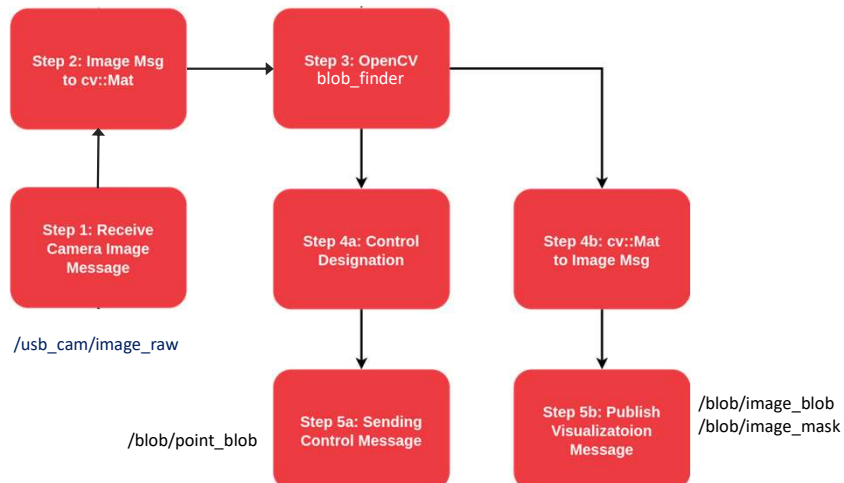
OpenCV SimpleBlobDetector filters

6



OpenCV blob detection

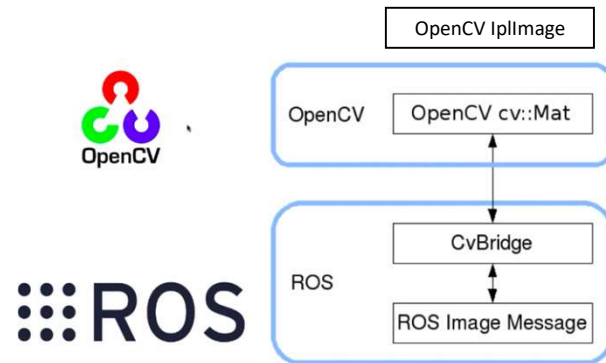
7



OpenCV blob finder

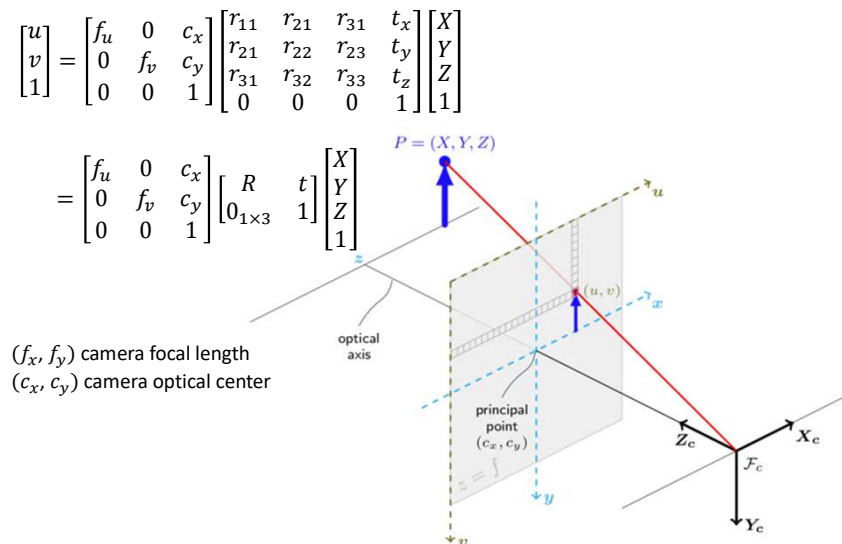
8

cv_bridge package to convert between ROS Image Message and OpenCV frames



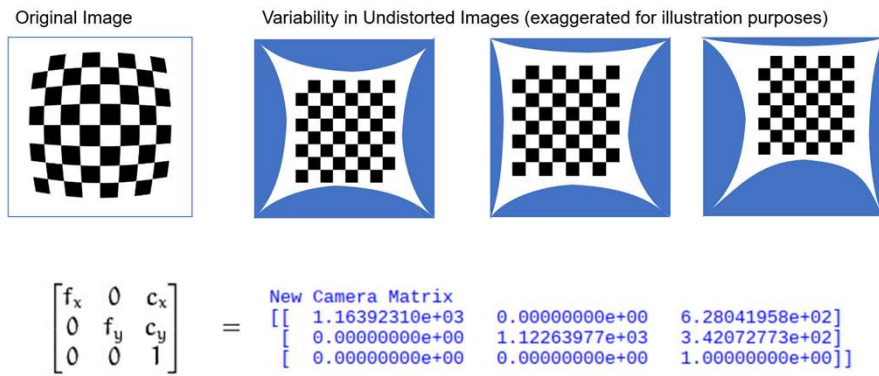
OpenCV blob finder

9



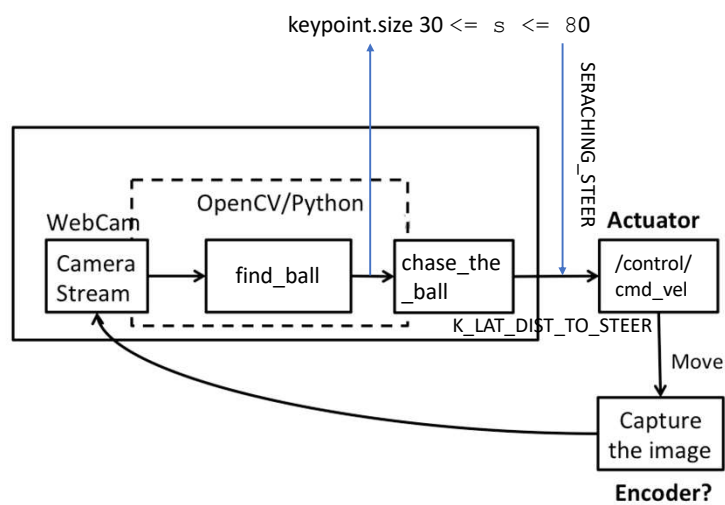
Camera calibrations

10



Camera calibrations

11



OpenCV KeyPoint steering

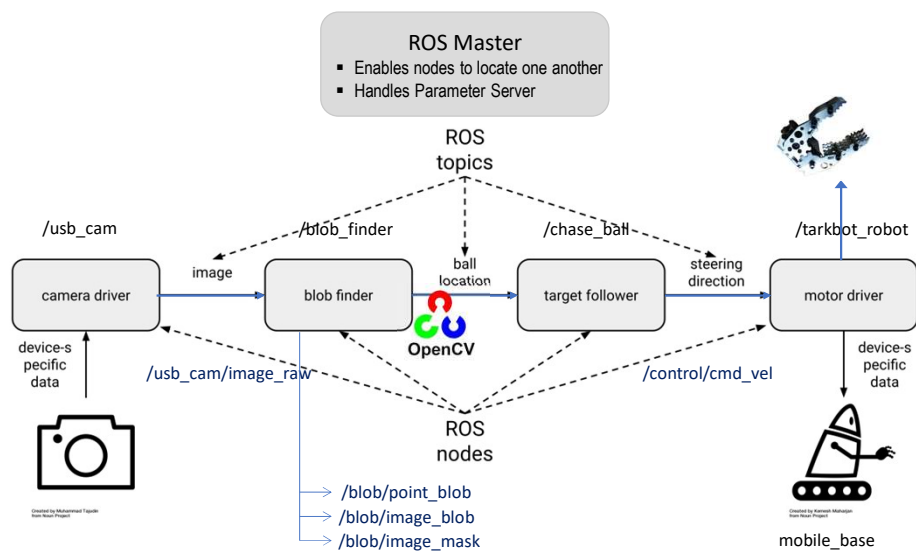
12

```
$ roslaunch yocs_cmd_vel_mux test_actions.launch
```

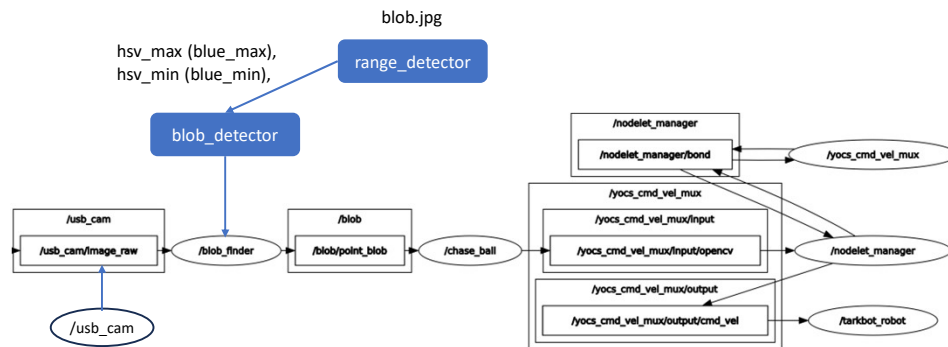


https://github.com/joshnewans/ball_tracker/
<https://www.youtube.com/watch?v=We6CQHhOFO>

13



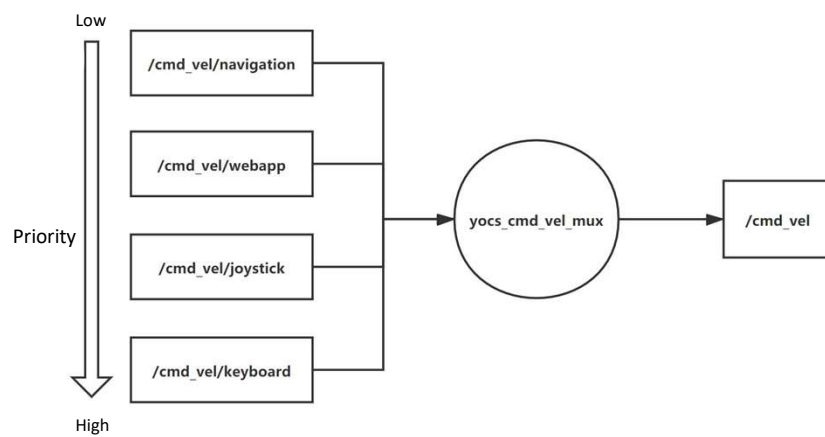
14



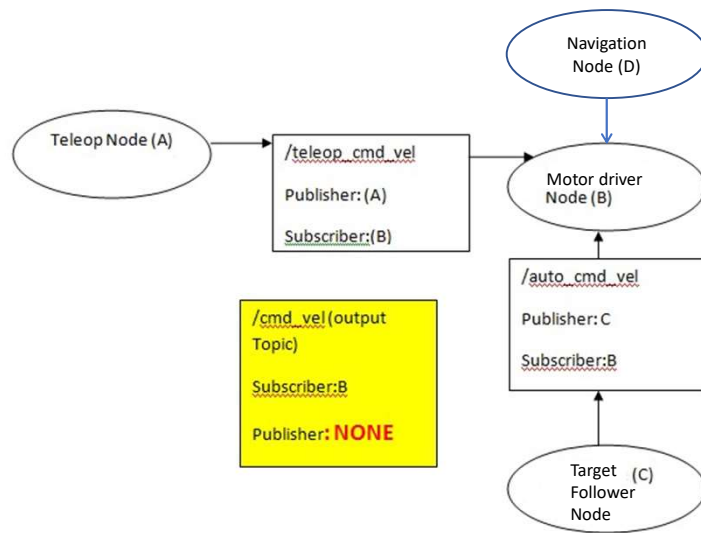
15



Velocity Multiplexing

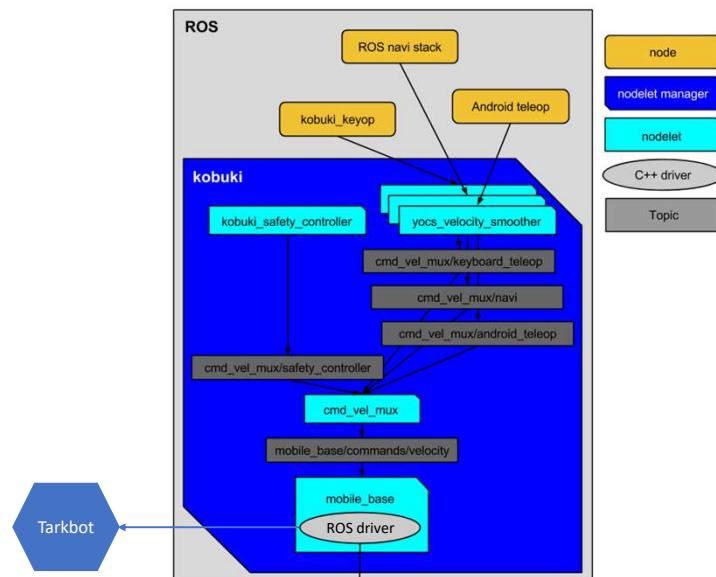


16



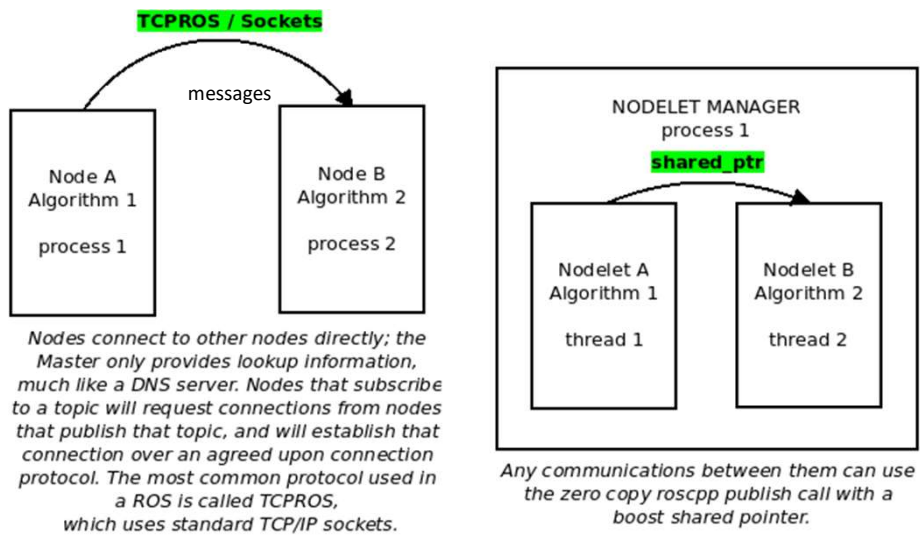
Problem of cmd_vel from multiple tasks

17



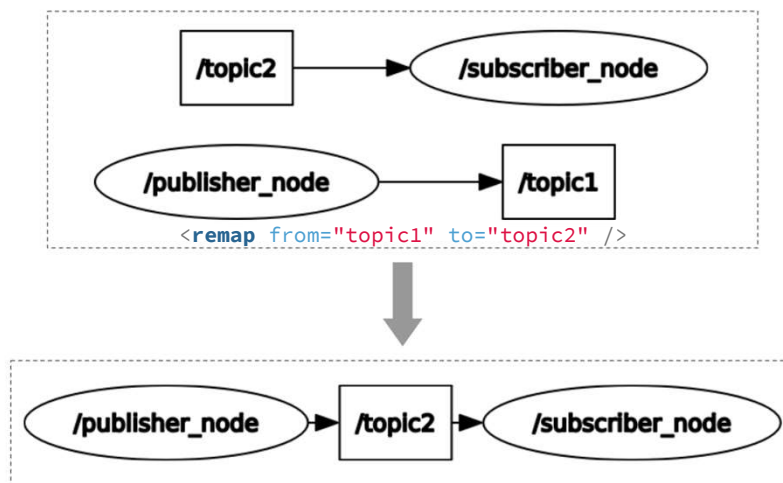
ROS mux package

18



ROS nodelet

19

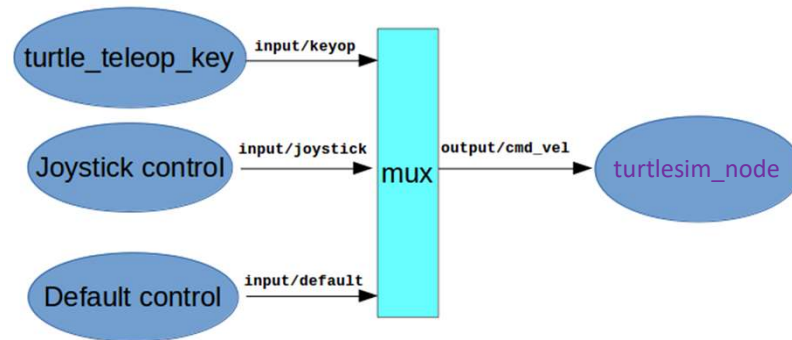


ROS remap

20

```
<remap from="/turtle1/cmd_vel" to="/yocs_cmd_vel_mux/output/cmd_vel" />
```

```
<remap from="/turtle1/cmd_vel" to="/yocs_cmd_vel_mux/input/keyop" />
```



ROS remap