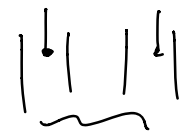
keyboard white : ≥1mm

gap: 2mm

→ {8} keys: 68mm

4 keys: 91mm

qtift



$68 \times \frac{2}{3} = 45.3\,mm$

68

$91 \times \frac{3}{4} = 68.25\,mm$

wtutu

---

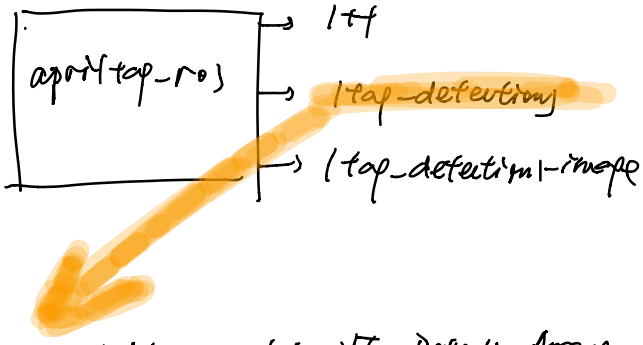
left camera

/cameras/left_hand_camera/image

type = sensor_msgs/Image

/cameras/left_hand_camera/camera_info

type : sensor_msgs/CameraInfo



type: apriltag_ros/AprilTagDetectionArray

AprilTagDetectionArray { header, detections { int size, pose { header, pose { pose → { position, orientation }, covariance } } } }

geometry_msgs/Pose

```
sub_callback ( msg ) {

tag_pose = msg.detections[0].pose.pose.pose

}
```

pose in camera frame

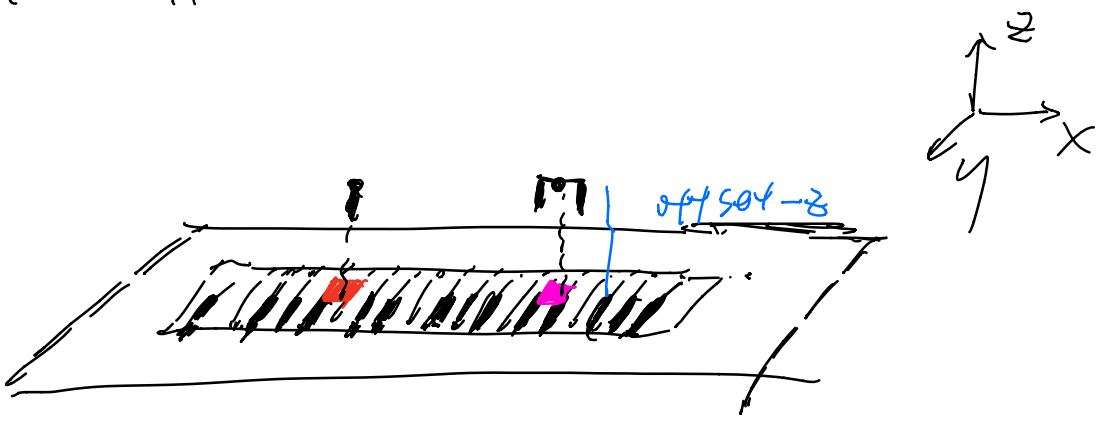
know: tag pose in end_eff frame (T_{ef})

end_eff pose in world frame. (baxter) (T_{be})

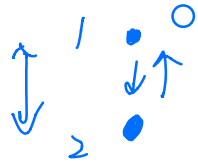
↓ Transformation matrix

goal: tag pose in baxter frame. $T_{bt} = T_{be} \cdot T_{ef}$

① standoff pose



play notes.



left : offset on X direction

right { offset

gripper. open & close.