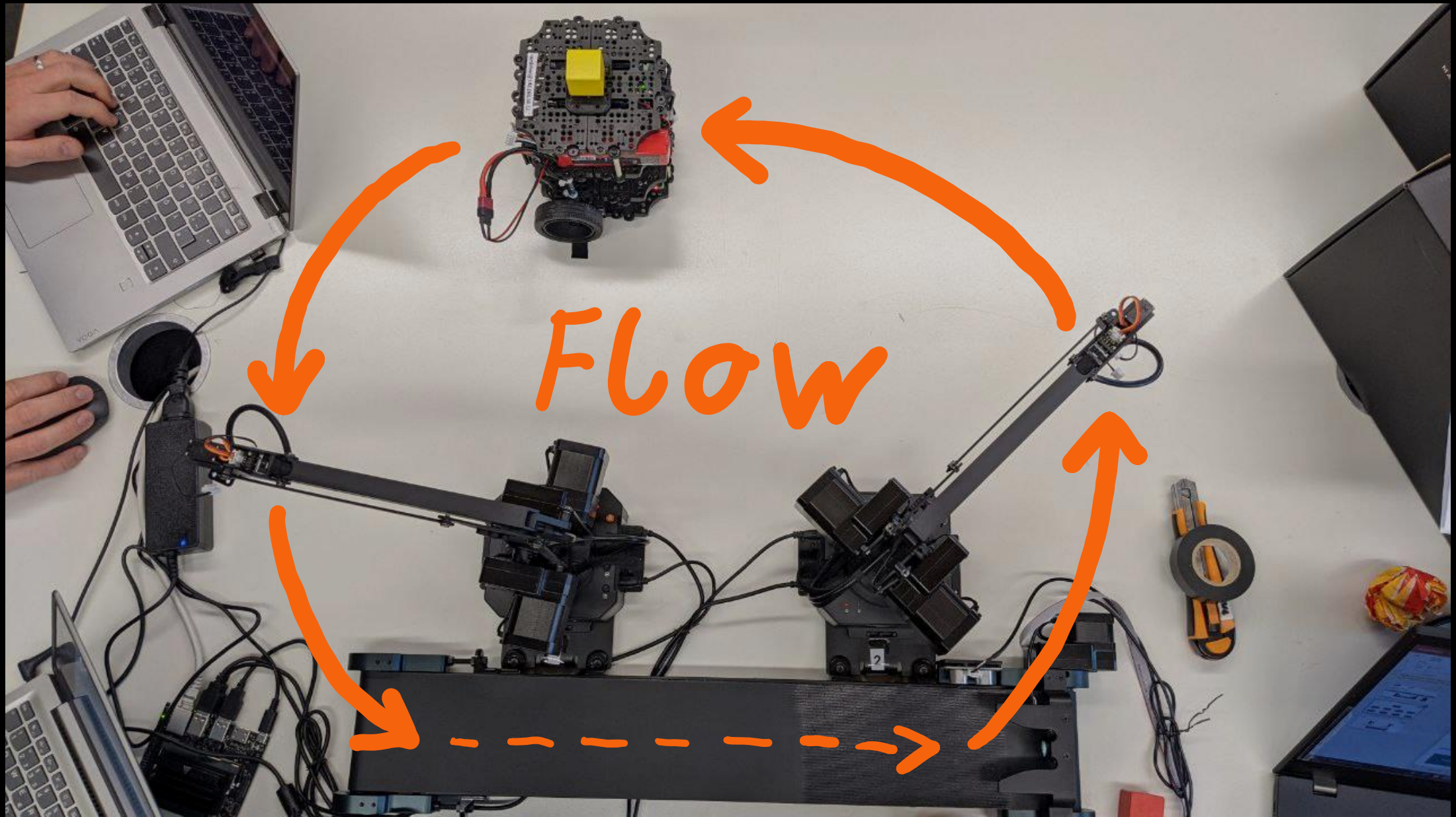




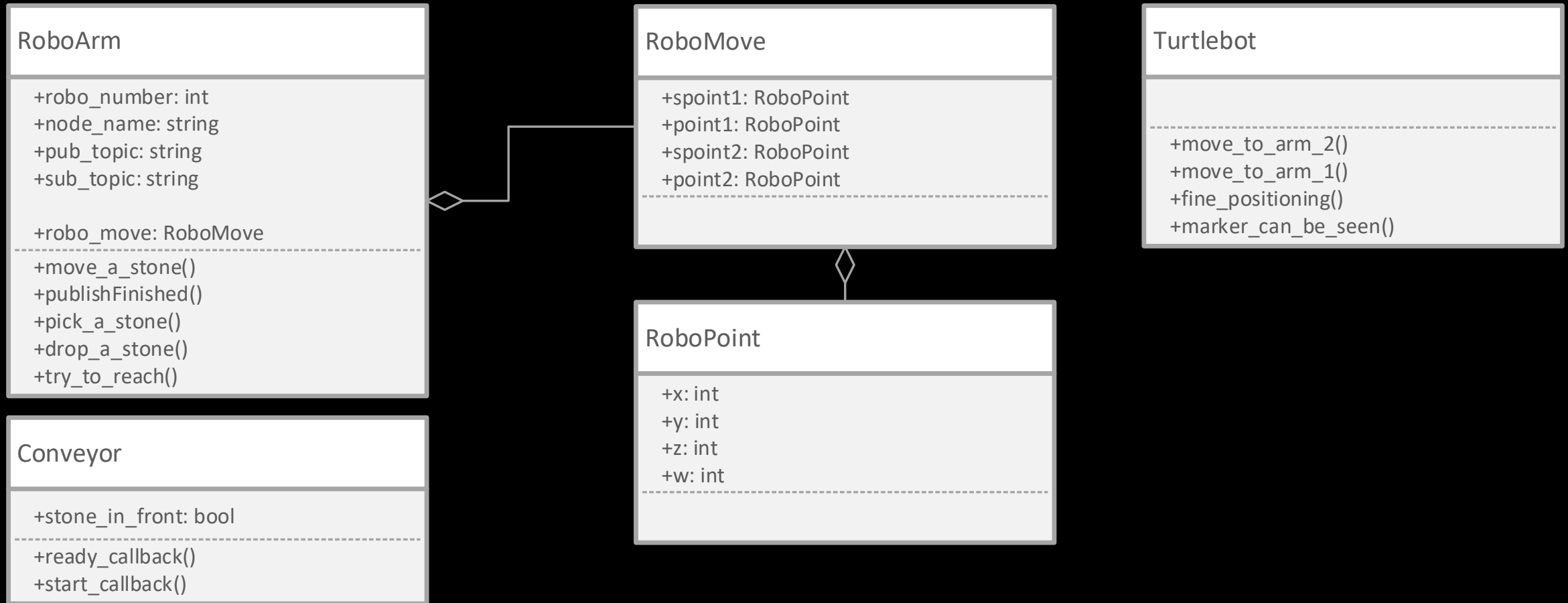
# Automated Material Flow with ROS

## Autonomous Robotics Lab





# Code Structure



# Instance Structure

## RoboArm1: RoboArm

```
robo_number = 1
node_name = "roboarm1"
pub_topic = "/pub_topic_robo_arm_1"
sub_topic = "/sub_topic_robo_arm_1"
robo_move = RoboMove1
```

## RoboMove1: RoboMove

```
spoint1 = RoboPoint(x=220, y=-40, z=174, w=90)
point1 = RoboPoint(x=220, y=-40, z=168, w=90)
spoint2 = RoboPoint(x=110, y=160, z=168, w=60)
point2 = RoboPoint(x=110, y=160, z=46, w=60)
```

## RoboArm2: RoboArm

```
robo_number = 2
node_name = "roboarm2"
pub_topic = "/pub_topic_robo_arm_2"
sub_topic = "/sub_topic_robo_arm_2"
robo_move = RoboMove2
```

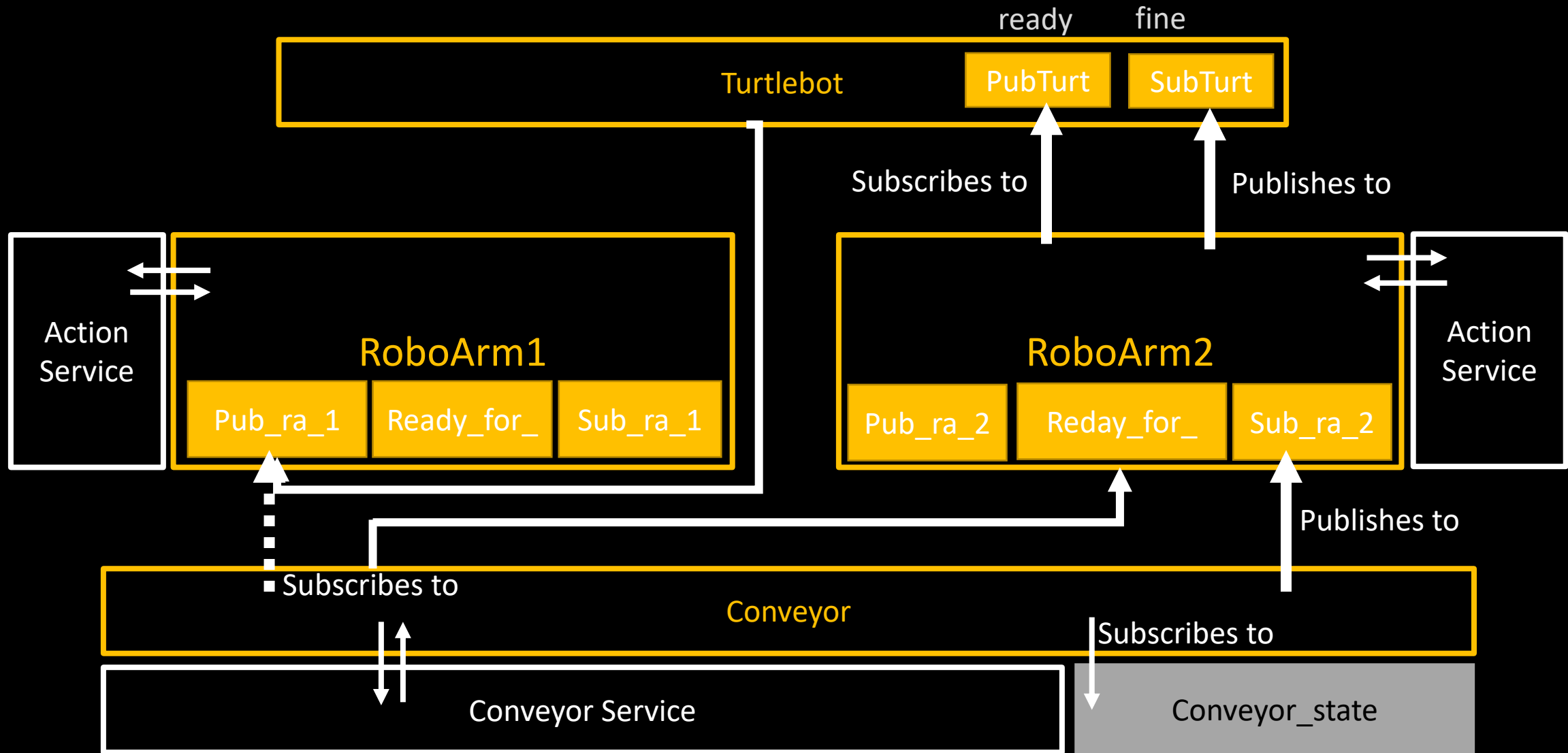
## RoboMove2: RoboMove

```
spoint1 = RoboPoint(x=220, y=-40, z=174, w=90)
point1 = RoboPoint(x=220, y=-40, z=168, w=90)
spoint2 = RoboPoint(x=110, y=160, z=168, w=60)
point2 = RoboPoint(x=110, y=160, z=46, w=60)
```

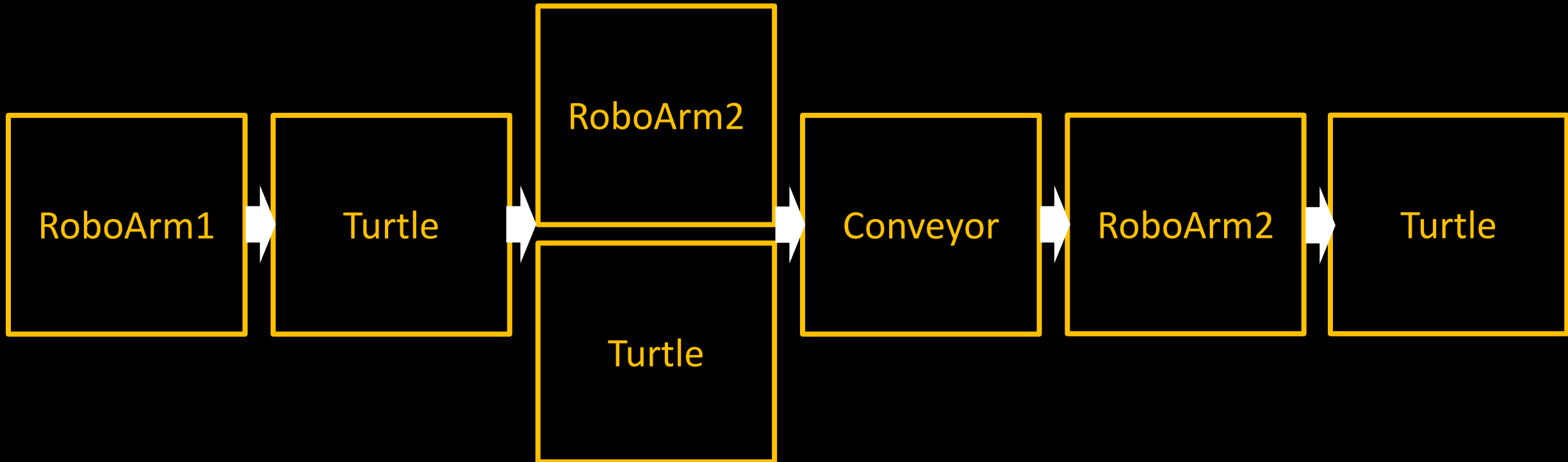
## Conveyor: Conveyor

## Turtle:Turtlebot

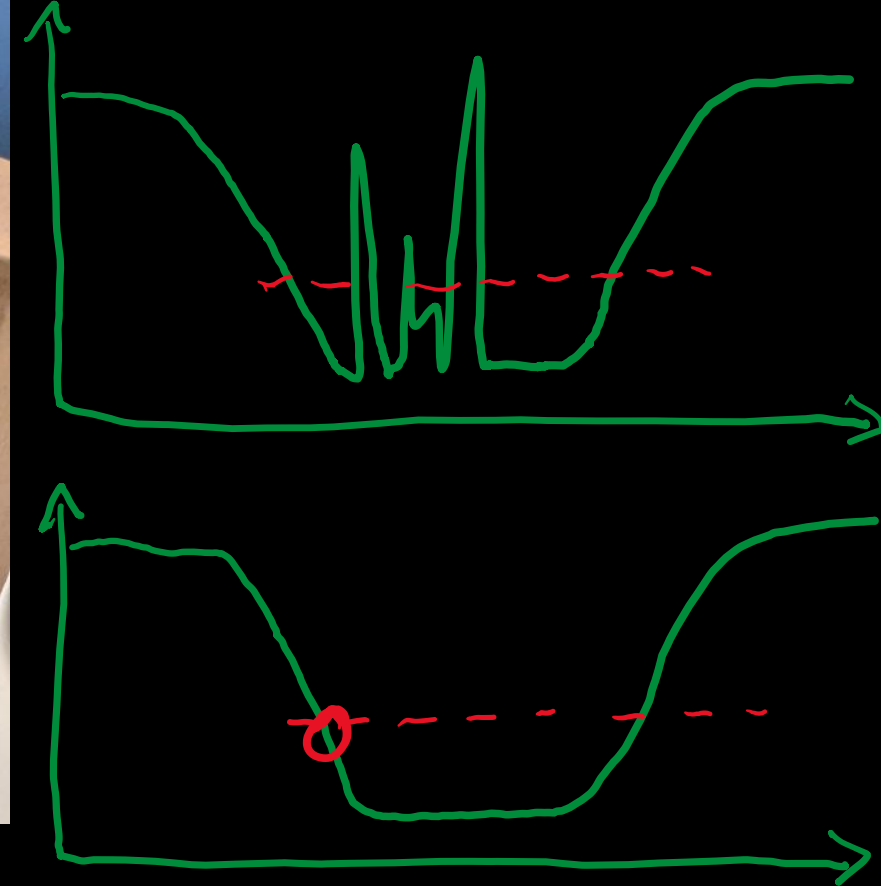
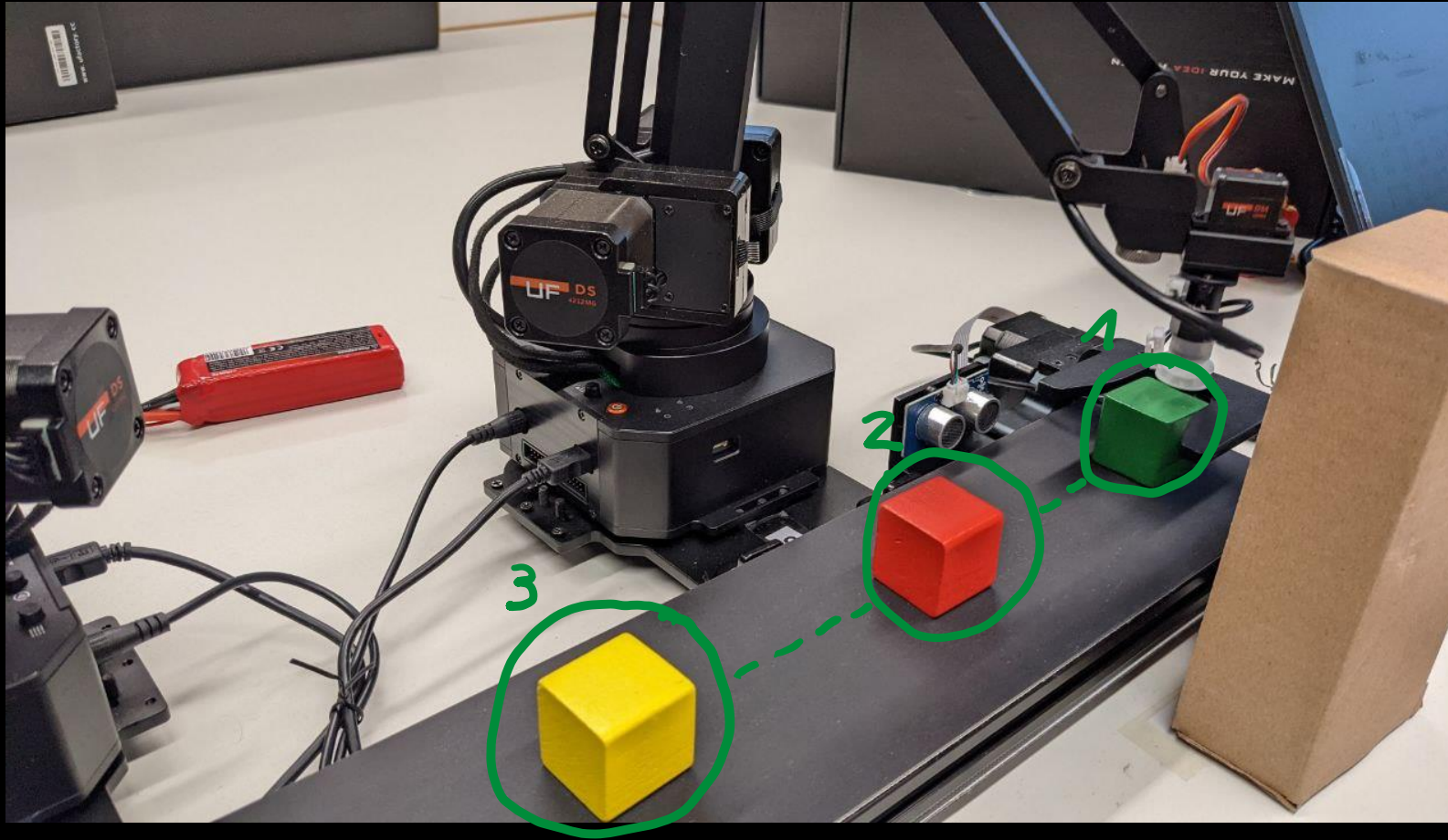
# Communication Structure



## The program flow

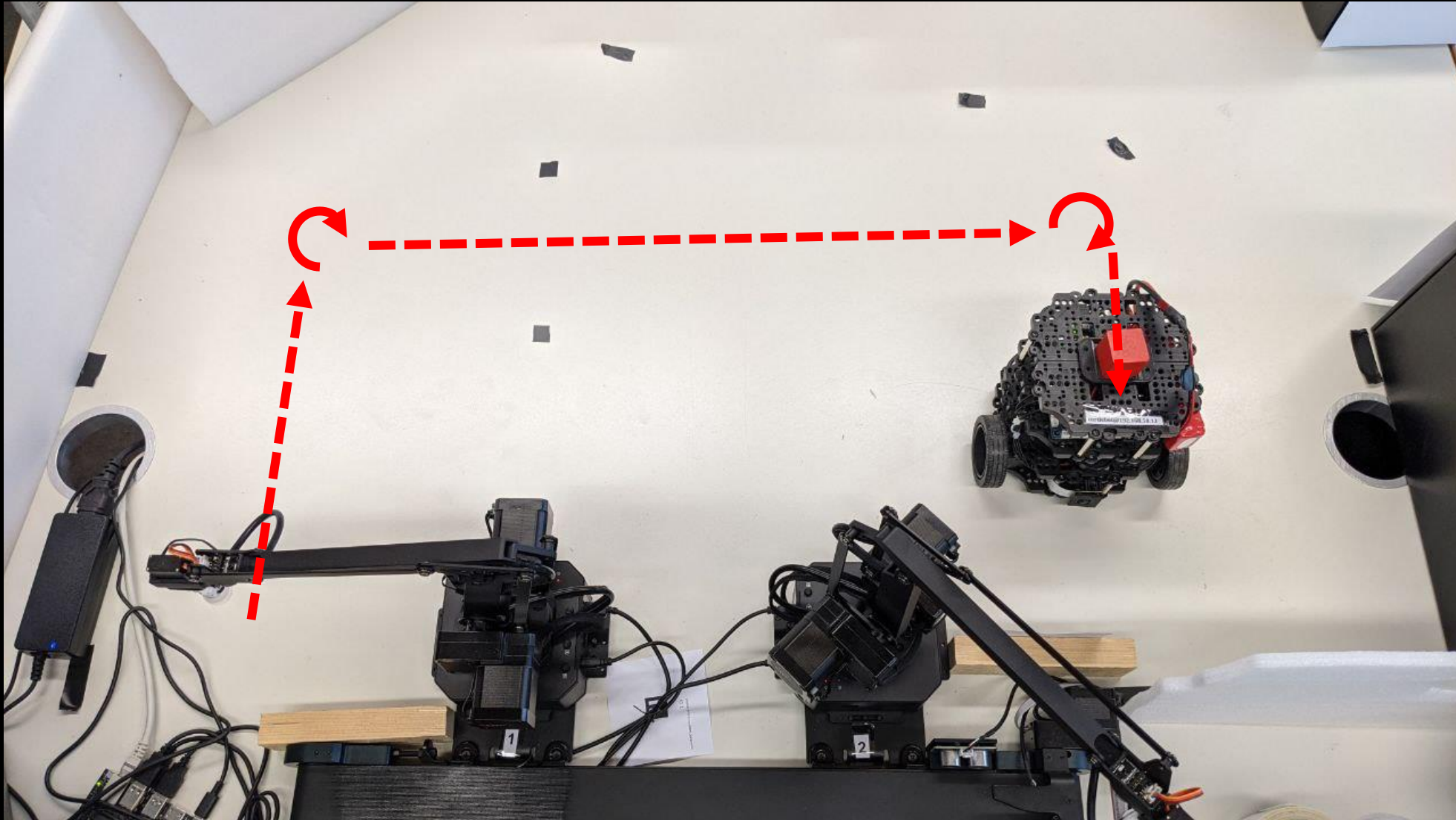


# Stone Detection and Picking



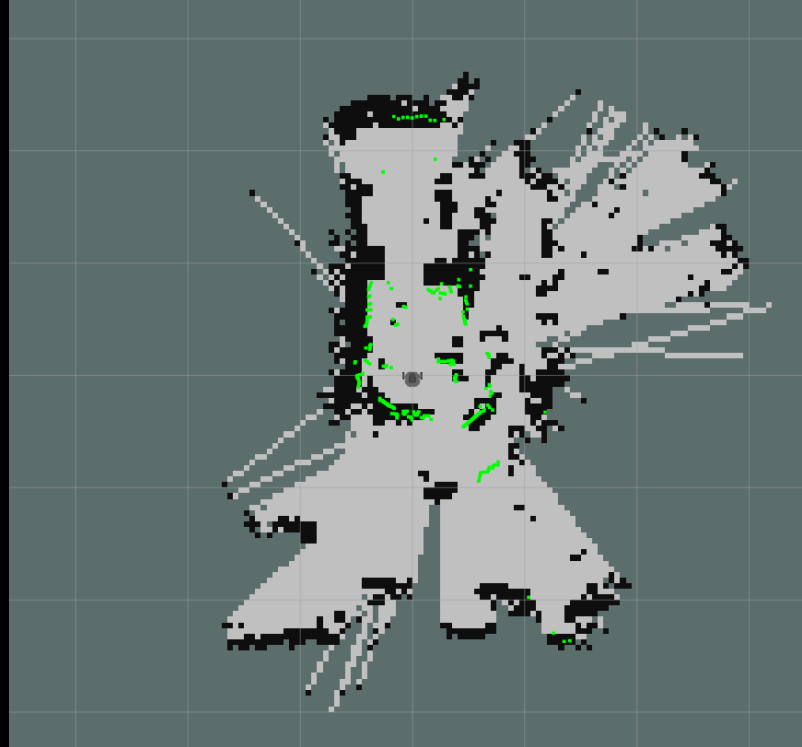
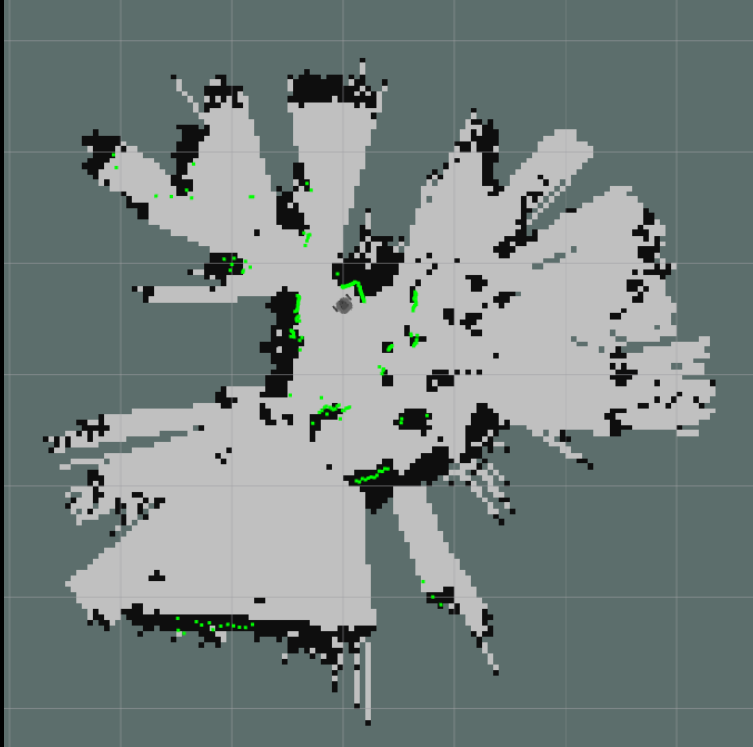


# Autonomous Navigation

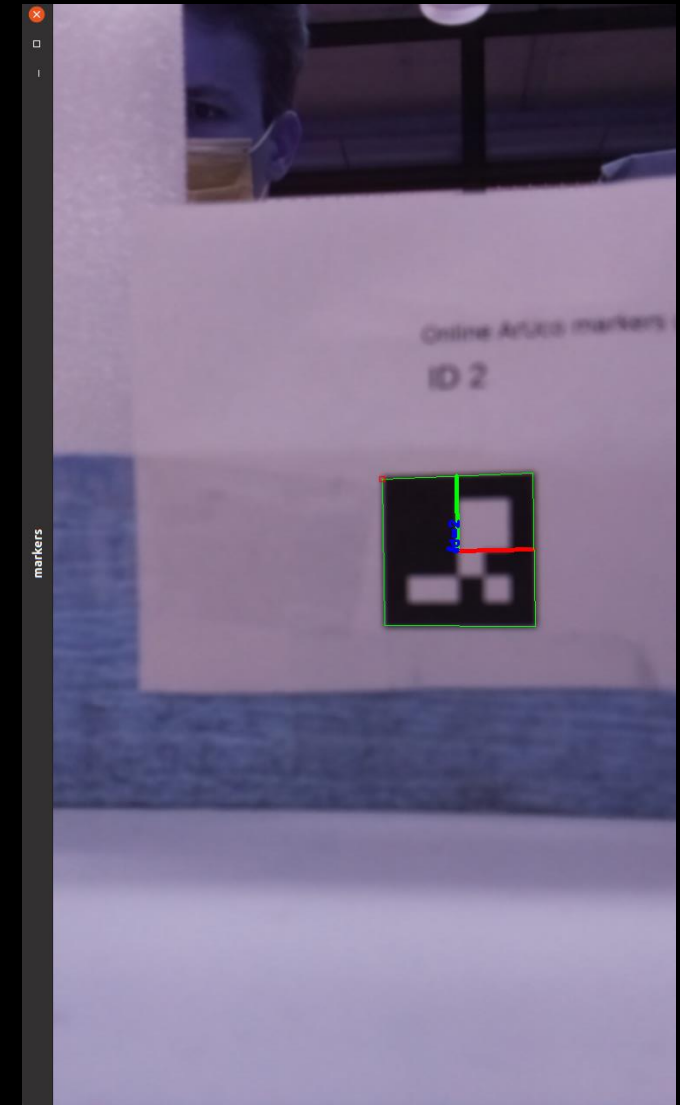
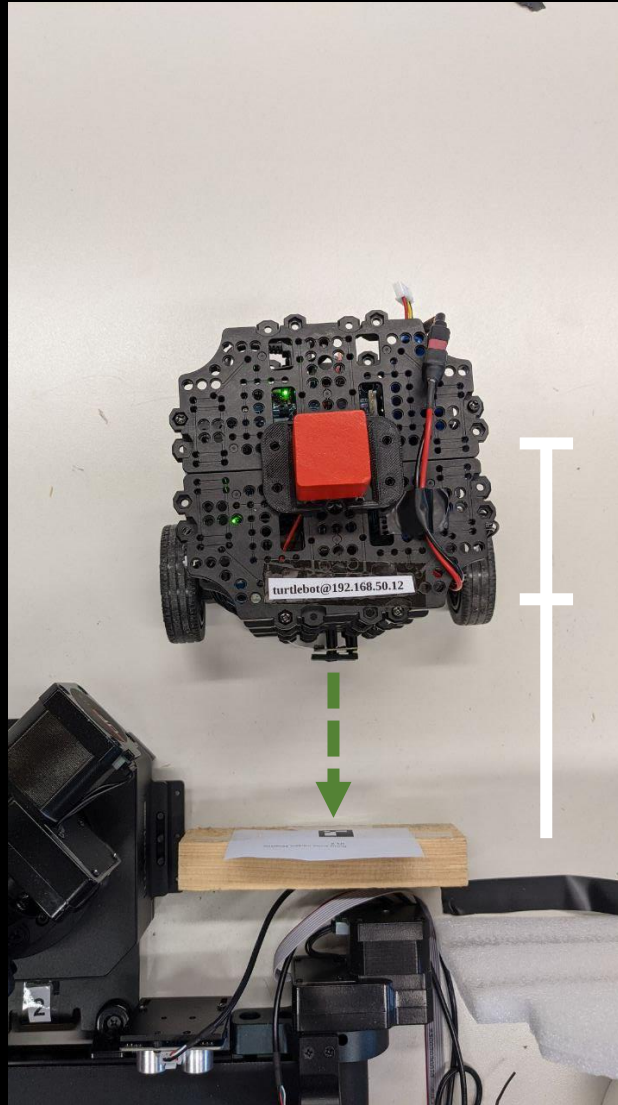
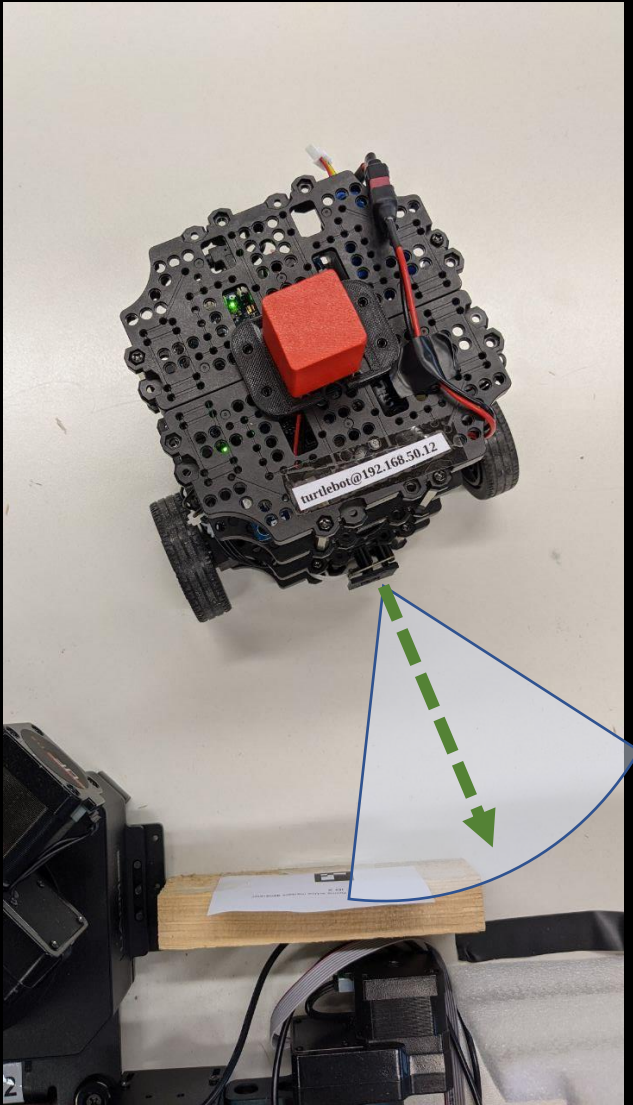




# Map



# Fine Positioning



## Difficulties:

- Precision of Sensors at all (Ultrasonic Sensor, Lidar)
- Limited Calculation Power
- Limited Communication Capacity

***“Wer misst misst Mist .”***

## Possible Improvements:

- Using not just Publisher and Subscriber but more Services i.e.
- Implement adjustment algorithms to current sensor data





Thank you.