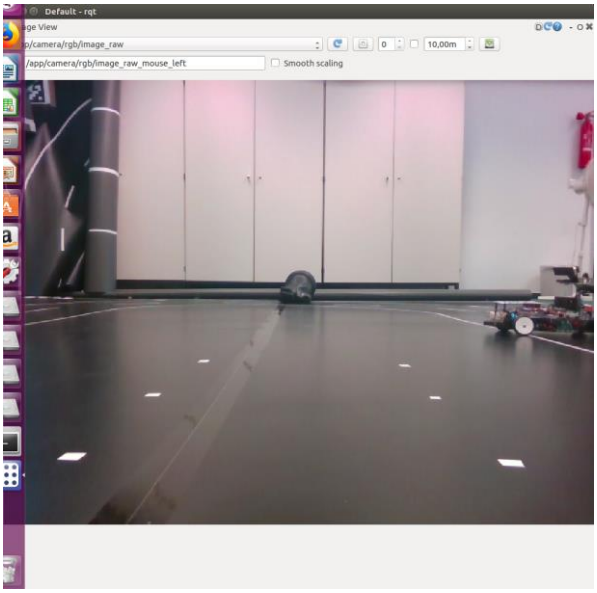
Assignment 3 Eren Altun / Jan Batelka

Task1:

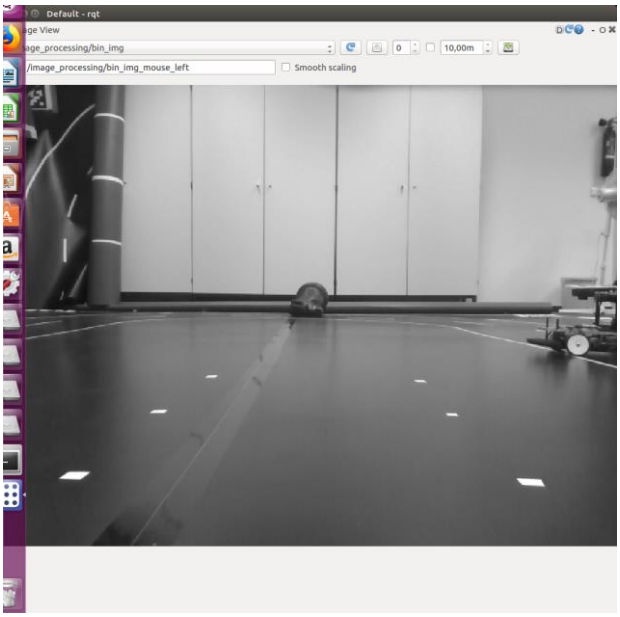
Field prepared

Task2:

Raw:



Gray:



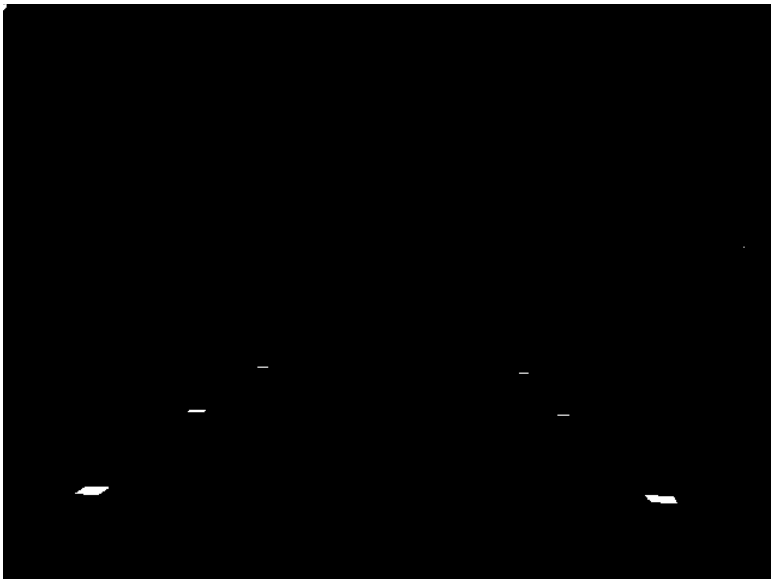
Task3:

Intervall:

min: 245

max: 255

Black and White:



Task4:

All found points:

```
[(0, 2), (1, 0), (1, 1), (1, 2), (2, 0), (2, 1), (2, 2), (3, 0), (3, 1), (3, 2), (4, 0), (4, 1), (5, 0), (203, 617), (303, 212), (303, 213), (303,
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554), (416, 555), (416, 556), (416, 557), (416, 558), (416, 559), (416, 560), (416, 561)]
```

White points were reduced by the mean of all six groups of white points:

```
[(2.3846153846153846, 0.9230769230769231), (303.0, 216.0), (339.5, 161.0), (343.0, 466.5), (405.8510638297872, 74.02127659574468), (413.02919708029196,
548.4014598540145)]
[Finished in 0.8s]
```

Task5:

Rotation and translation vectors:

```
Rotation vector: [[-1.32738457]
 [-1.46644068]
 [ 0.40191583]]
Translation vector: [[-0.25199524]
 [-0.2618615 ]
 [ 0.85376473]]
```

Task6:

Rotation matrix:

```
Rotation matrix = [[ 0.18687339  0.50508662 -0.84259471]
 [ 0.86410583  0.32350858  0.38556881]
 [ 0.46733226 -0.80014355 -0.37599315]]
```

Inverse:

```
Inverse: [[  1.09443318  -8.61417381   4.73781176]
 [ -5.96166181  67.86027123 -31.22912127]
 [ -2.35715369  16.20316424  -7.50267853]]
[Finished in 2.0s]
```

Angles:

```
x,y,z 1.4461156821196208 0.37175894029123024 1.6776796505239489
[Finished in 3.0s]
```