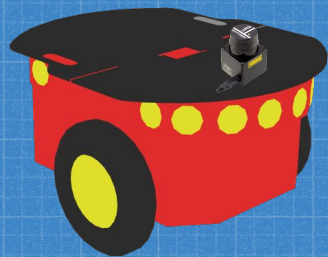




TÉCNICO
LISBOA



Week 5

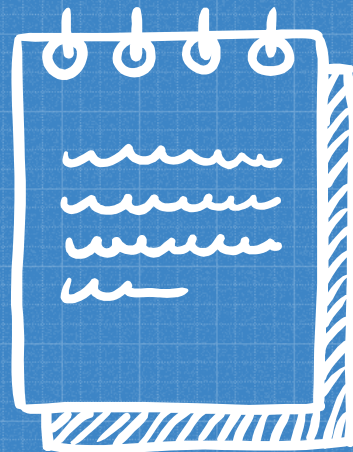
Pioneer 3DX - SLAM

(Group 17)

Eufémio Marques
Ivan Figueiredo
Miguel Roldão
Pedro Matos

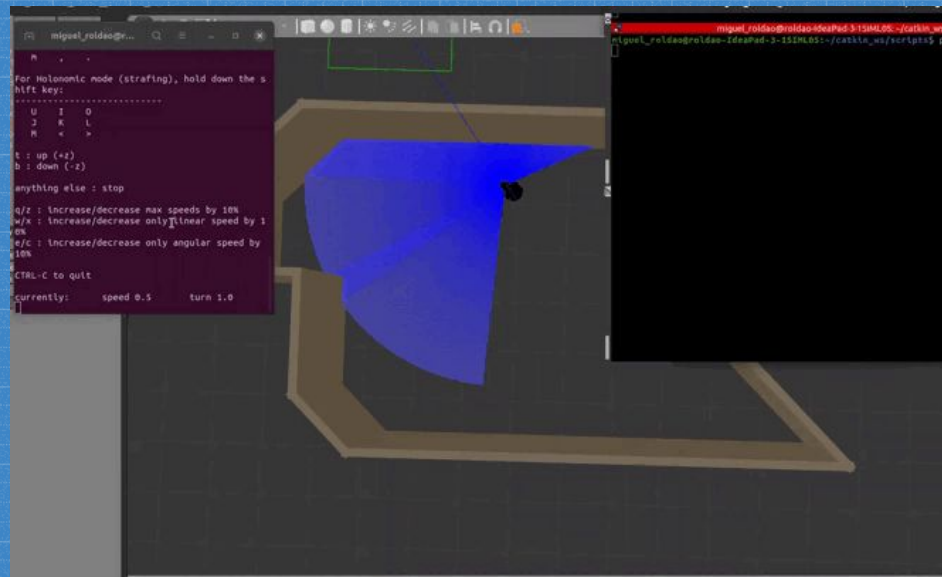
Plans for last week:

1. Retrieve and match the landmarks from our maps;
2. Implement and verify the update step;
3. Verify the prediction step.



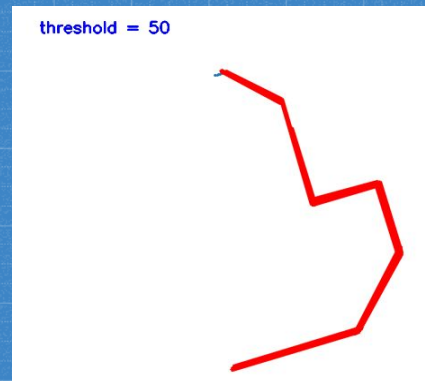
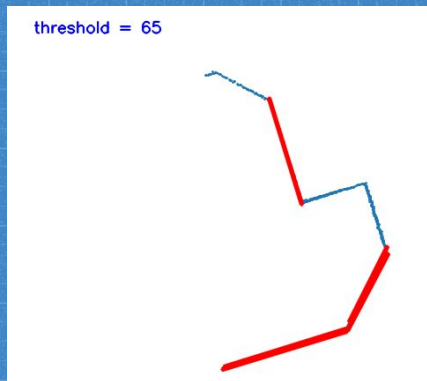
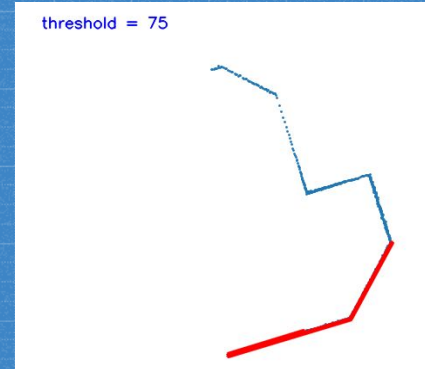
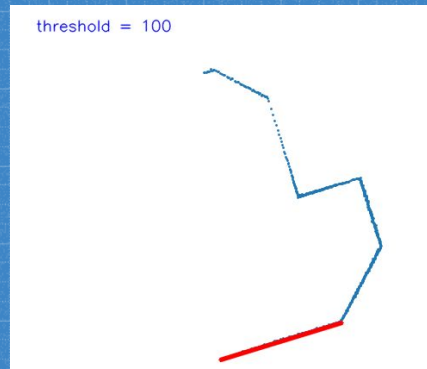
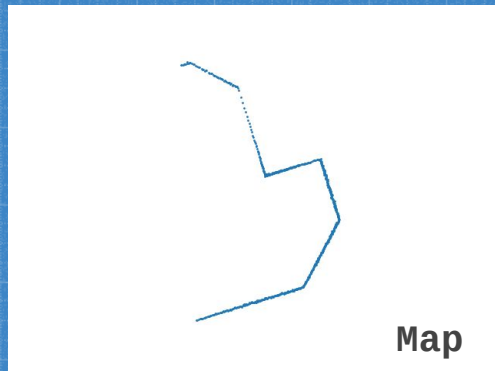
The prediction step

- It is already implemented, and the results obtained appear to be fine.
- The covariance matrix determinant increases during the movement of the robot.



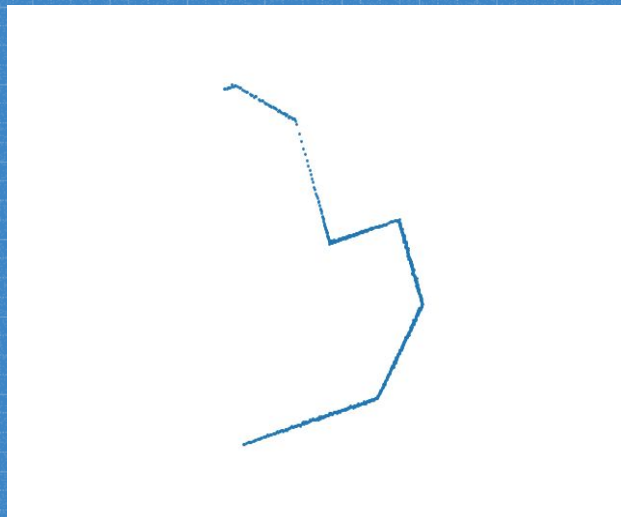
Hough Transform

- Used in order to detect lines

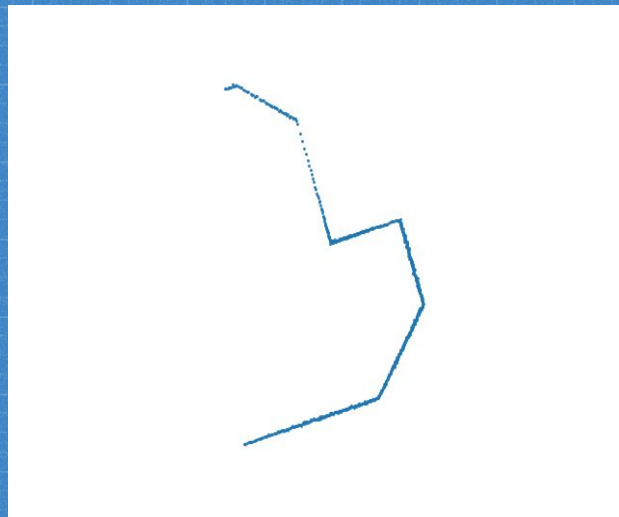


threshold: the minimum number of intersections in the parameters space to detect a line

Hough Transform

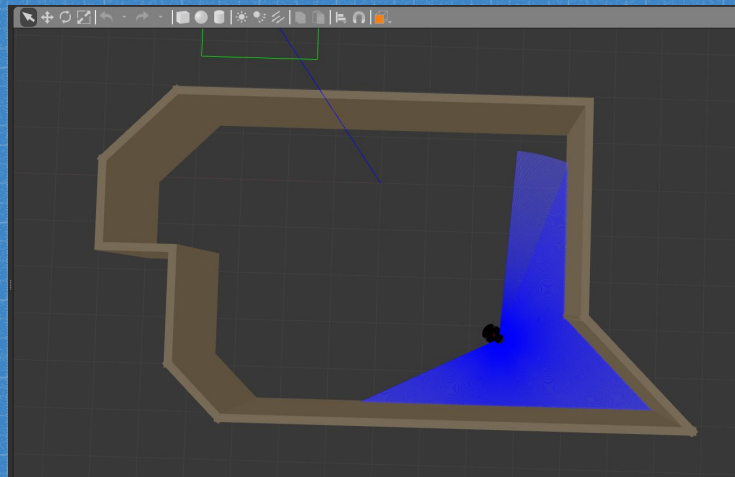
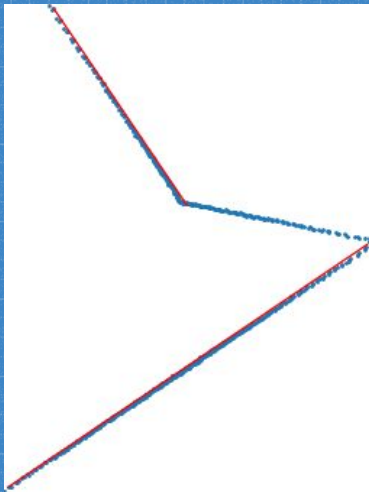


`cv2.HoughLines()`

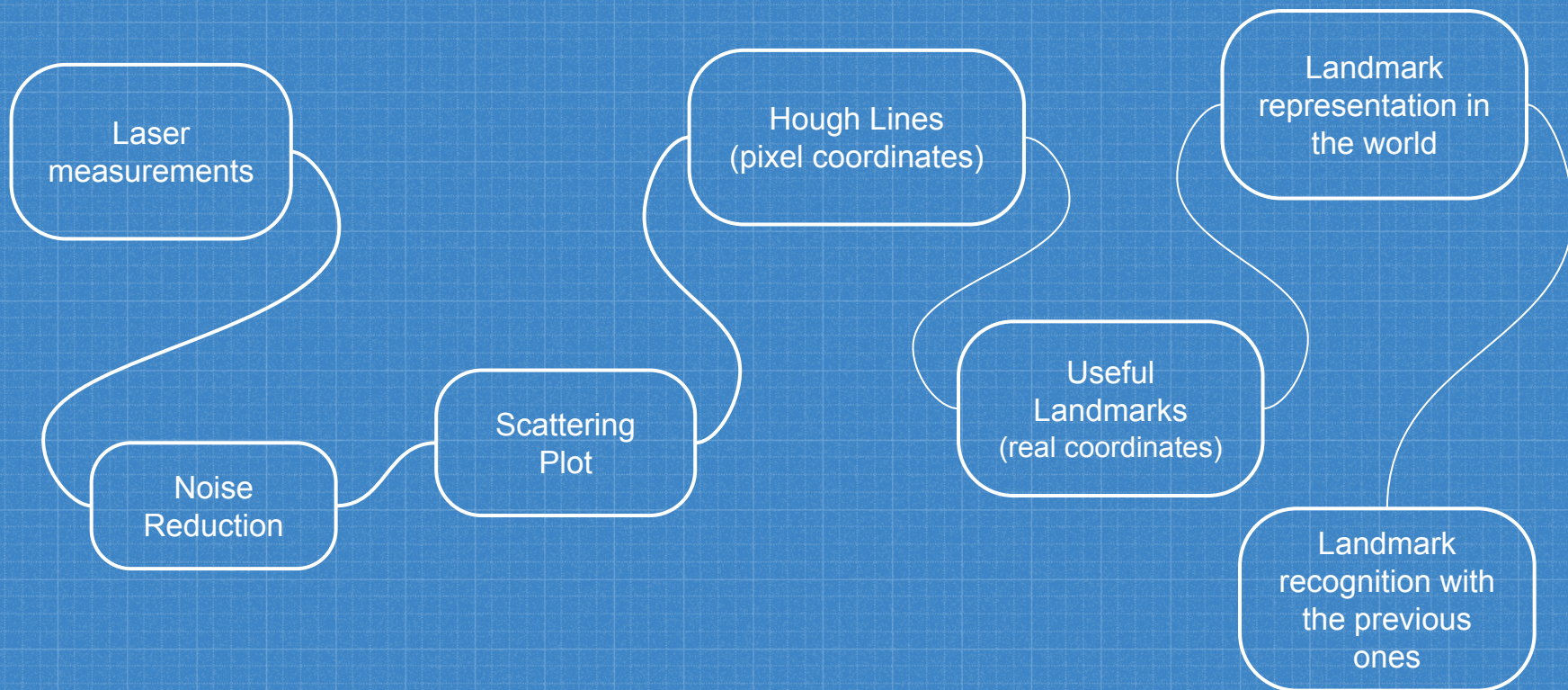


`cv2.HoughLinesP()`

Filter similar lines

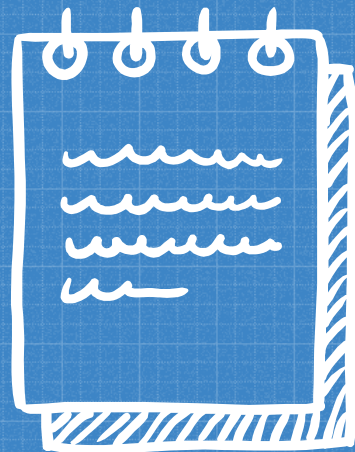


Landmark detection algorithm



Plans for next week:

1. Solve some bugs on the landmark detection;
2. Finish the implementation and testing of the update step;
3. Make the map occupancy grid.



Thank you!

ANY COMMENTS/QUESTIONS/Suggestions (please)?

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