# MPC-MAP Assignment No. 1 - Report

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## Task 2

Based on calculated values, standard deviations across all LiDAR channels could be considered similar (Figure 2). The same conclusion can be made about both axis of GNSS measurements (Figure 1).

## 

## A close up of numbers AI-generated content may be incorrect.

Figure 1 – GNSS measurements

Figure 2 – LiDAR measurements

## Task 3

## Values on the main diagonal of covariance matrix correspond to variance i.e. square of standard deviation.

A screenshot of a math equation

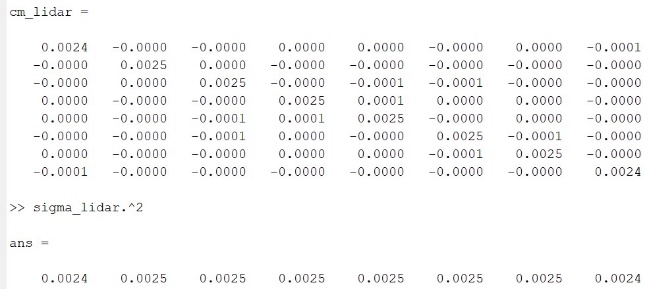
AI-generated content may be incorrect.

Figure 4 – Covariance matrix and variance of LiDAR measurements

Figure 3 – Covariance matrix and variance of GNSS measurements

## Task 4

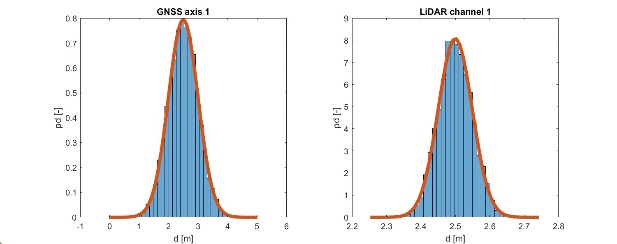
Correctness of implementation of normal probability distribution function has been verified against measured data.

Figure 5 – pdf (red) and measured data (blue)

## Task 5

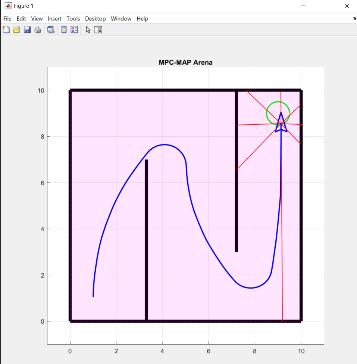
An uncertainty of robot motion could be for example be caused by wheel slippage or by diameter difference of the wheels.

Figure 6 – Open loop control