**Group 53 - Odometry**

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Lab 4: “Localization” Report

**Data**

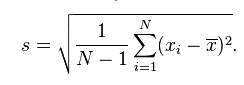
*ECSE 211 Lab 4 Data (USLocalizer):*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Robot Odometer Distance (cm)** | | **Measured Distance (cm)** | |
| **Run #** | **X** | **Y** | **X** | **Y** |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |
| 7 |  |  |  |  |
| 8 |  |  |  |  |
| 9 |  |  |  |  |
| 10 |  |  |  |  |

*ECSE 211 Lab 4 Data (LightLocalizer):*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Robot Odometer Distance (cm)** | | **Measured Distance (cm)** | |
| **Run #** | **X** | **Y** | **X** | **Y** |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |
| 7 |  |  |  |  |
| 8 |  |  |  |  |
| 9 |  |  |  |  |
| 10 |  |  |  |  |

The formula for standard deviation is (taken from Wikipedia):



To calculate the standard deviation in this case, we used Microsoft Excel.

Standard Deviation for USLocalizer:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Odometer X** | **Odometer Y** | **Measured X** | **Measured Y** | **Error X** | **Error Y** |
| **STDEV (cm)** |  |  |  |  |  |  |

Standard Deviation with LightLocalizer:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Odometer X** | **Odometer Y** | **Measured X** | **Measured Y** | **Error X** | **Error Y** |
| **STDEV (cm)** |  |  |  |  |  |  |

**Observations and Conclusions**

1.

2.

3.

**Error Calculations**

1.

2.

**Further Improvements**

1.

2.

3.