two_stationary Experiment Report

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This is a summary of the data from the two_stationary experiment.

Shown below is the summary of the error of all robots combined for both x and y coordinates, and also the error in total distance.

```
summary(continuous$x_error)
```

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -1.163e-01 -1.163e-01 -1.163e-01 -6.991e-02 -7.611e-05 -5.903e-05
```

```
summary(continuous$y_error)
```

```
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## 9.400e-08 3.650e-07 1.186e-02 7.299e-03 1.222e-02 1.258e-02
```

```
summary(continuous$dist_error)
```

```
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## 5.903e-05 7.611e-05 1.169e-01 7.029e-02 1.170e-01 1.170e-01
```

```
summary(discrete$x_error)
```

```
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -3.39300 -0.19720 -0.16980 -0.05116  0.11480  3.13700
```

```
summary(discrete$y_error)
```

```
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -4.14400 -0.20800 -0.00619 -0.02414  0.07293  4.87700
```

```
summary(discrete$dist_error)
```

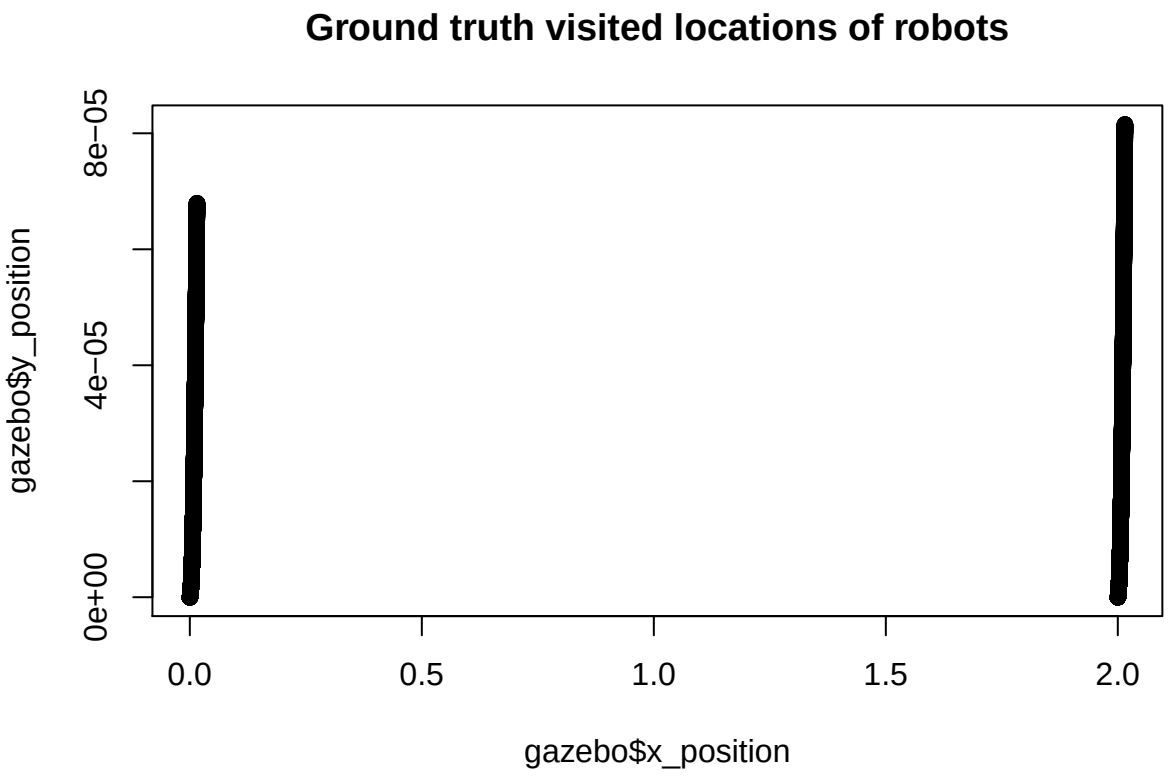
```
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## 0.000015 0.169900 0.412800 0.944200 1.423000 5.181000
```

```
if (params$robot >= 2) {
    summary(external_data_averages)
}
```

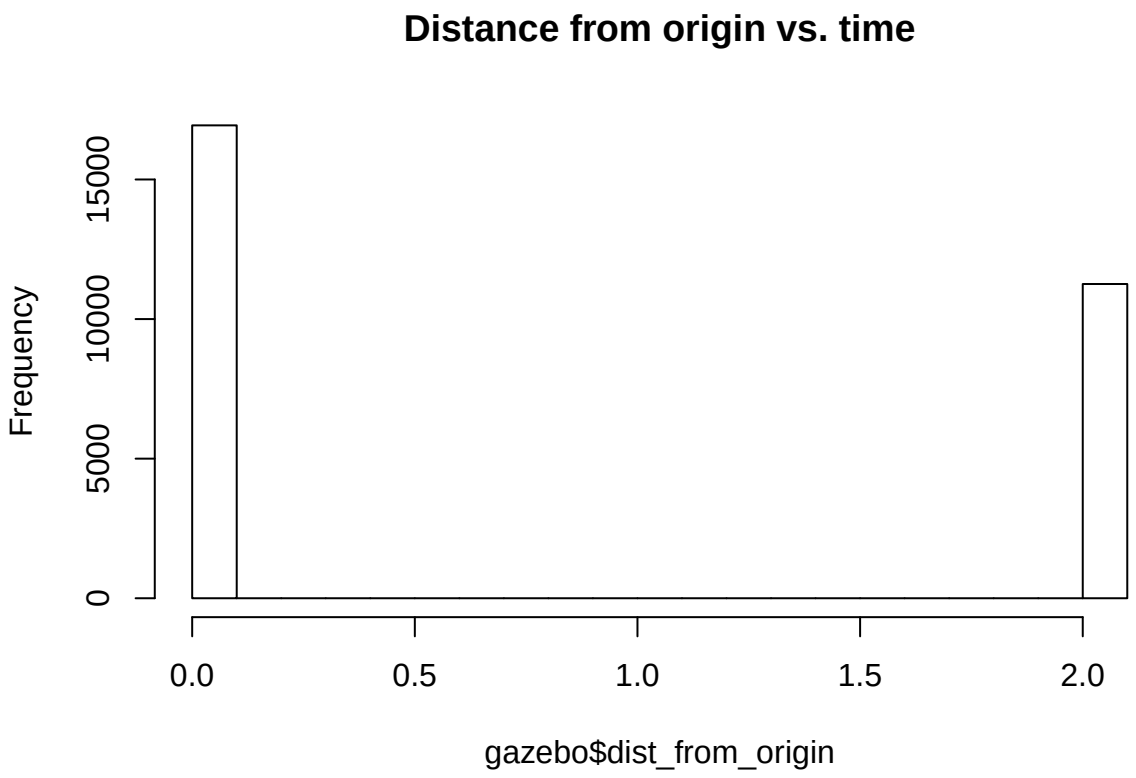
```
##      Length Class  Mode
## [1,] 1      -none- numeric
## [2,] 1      -none- numeric
```

Shown below are plots representing the robot's motion and error over time.

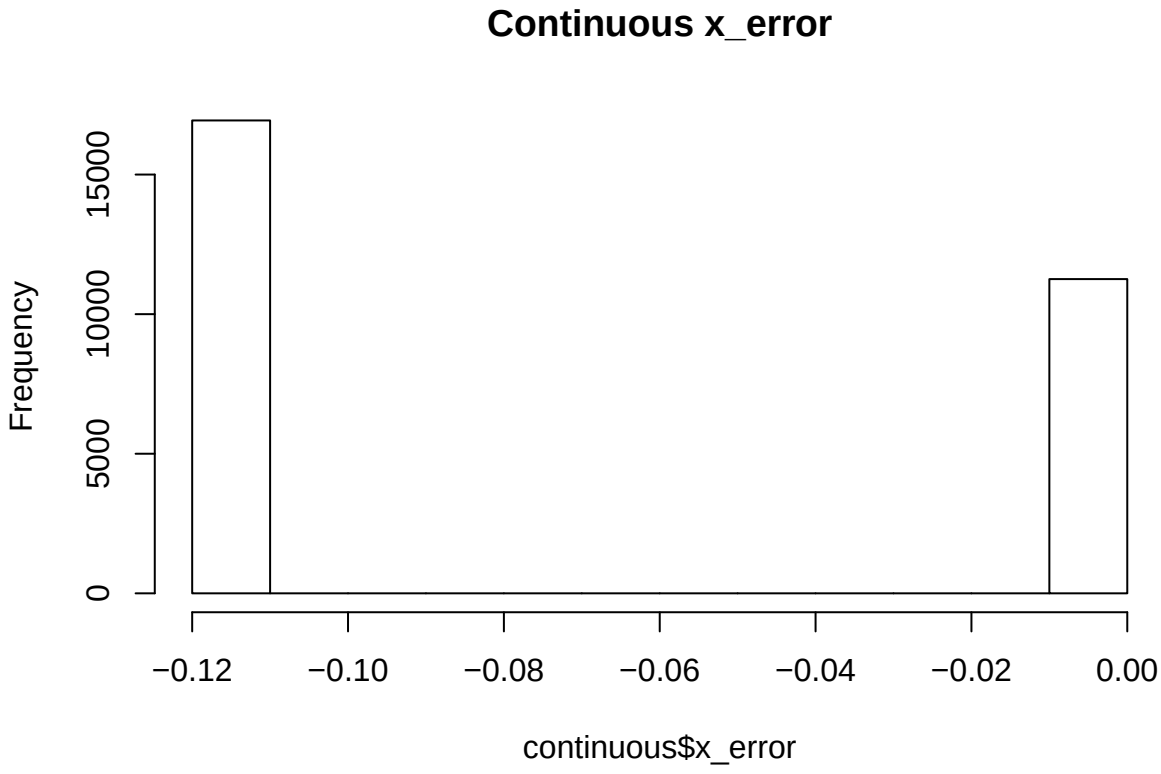
```r
plot(gazebo$x_position, gazebo$y_position,
     main = "Ground truth visited locations of robots")
```



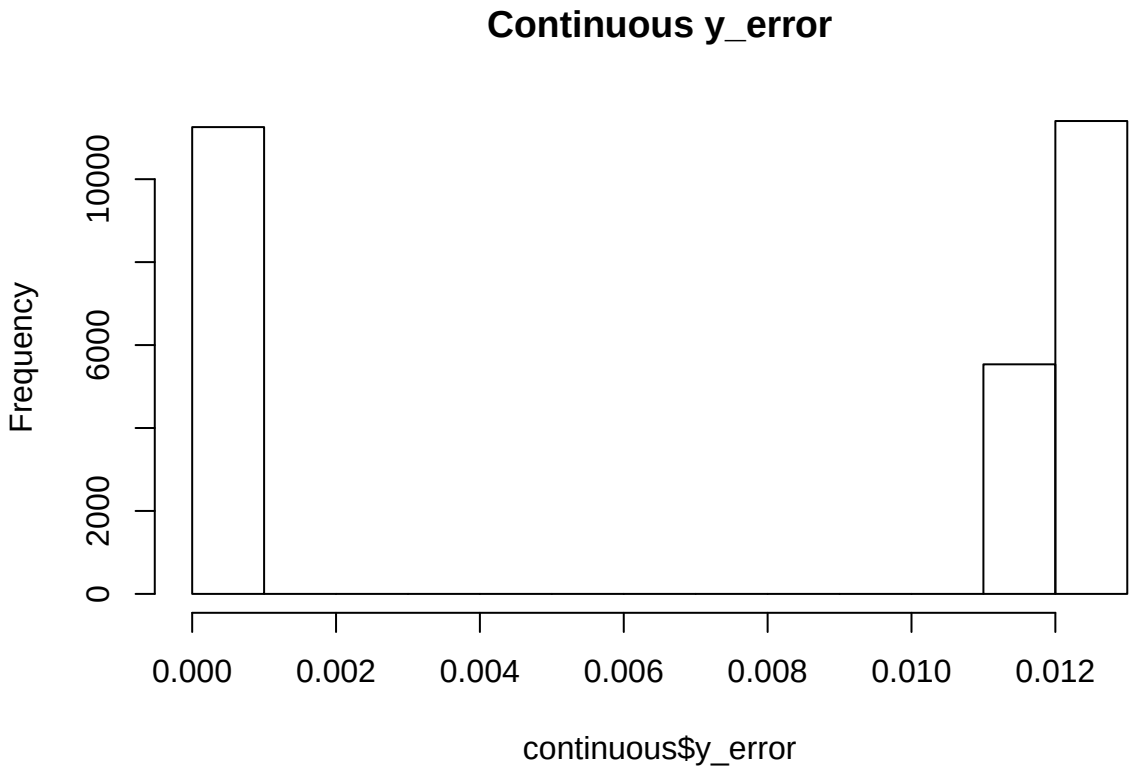

```r
hist(gazebo$dist_from_origin,
     main = "Distance from origin vs. time")
```




```
hist(continuous$x_error,
     main = "Continuous x_error")
```

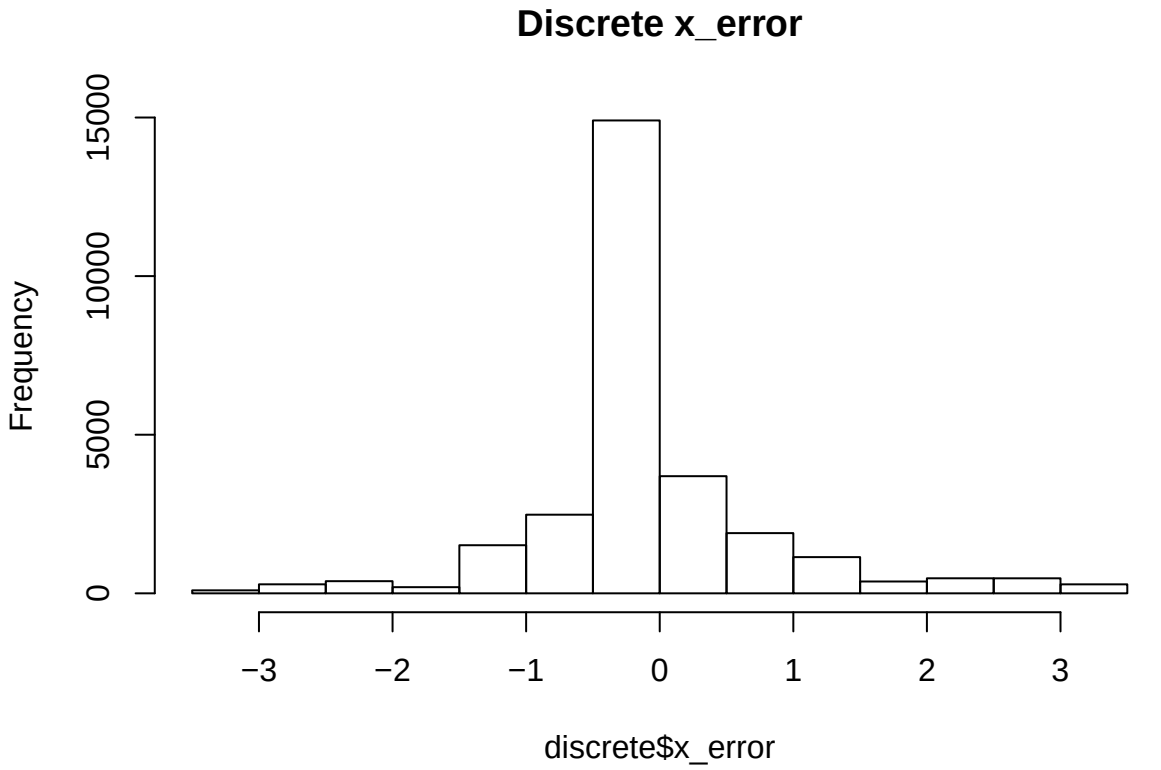


```r
hist(continuous$y_error,
     main = "Continuous y_error")
```

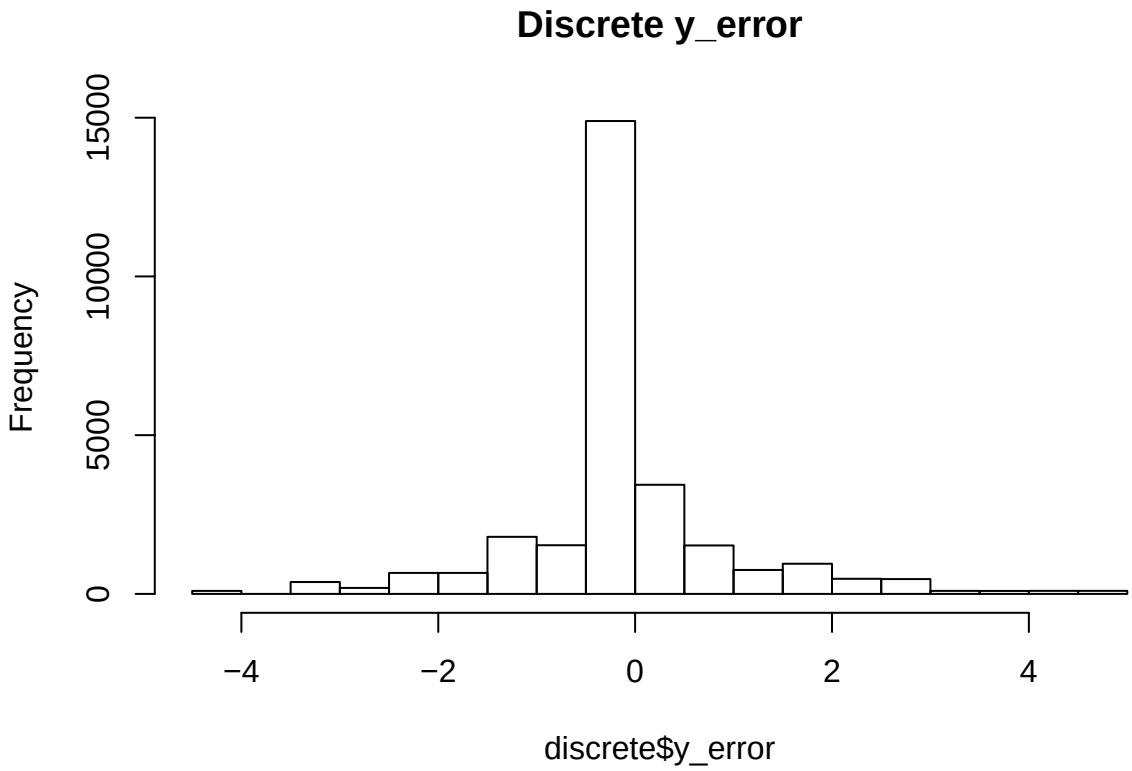



```r
hist(continuous$dist_error,
     main = "Continuous total distance error")
```

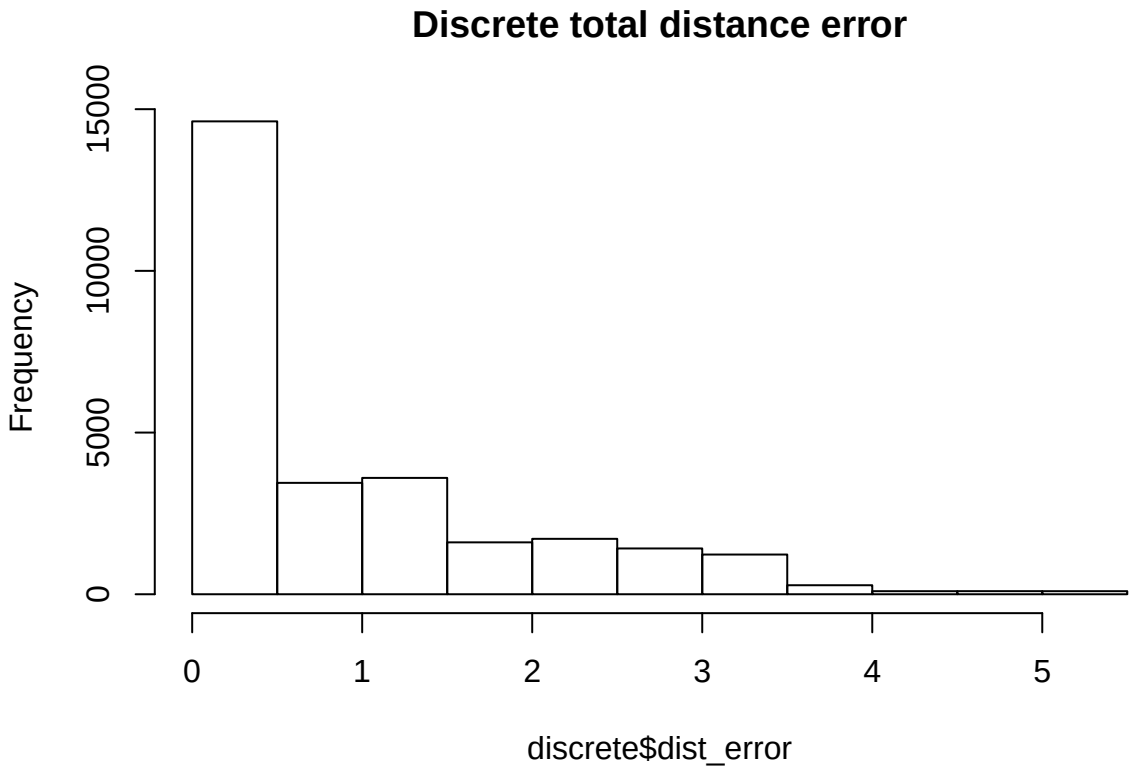

```
hist(discrete$x_error,
     main = "Discrete x_error")
```



```r
hist(discrete$y_error,
     main = "Discrete y_error")
```




```r
hist (discrete$dist_error,
      main = "Discrete total distance error")
```


Discrete total distance error
Frequency
0
5000
10000
15000
0
1
2
3
4
5
discrete$dist_error