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.
## -6.640e-07  1.272e-04  2.555e-04  2.556e-04  3.838e-04  5.191e-04
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -4.485e-10  1.652e-08  4.946e-08  5.911e-08  9.089e-08  1.925e-07
```

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

```
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## 3.462e-07 1.272e-04 2.555e-04 2.556e-04 3.838e-04 5.191e-04
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -0.0000007  0.0002562  0.0005127  0.1173000  0.2301000  2.0000000
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -6.272e-04 -4.339e-04  1.000e-10 -1.941e-04  4.420e-08  1.155e-07
```

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

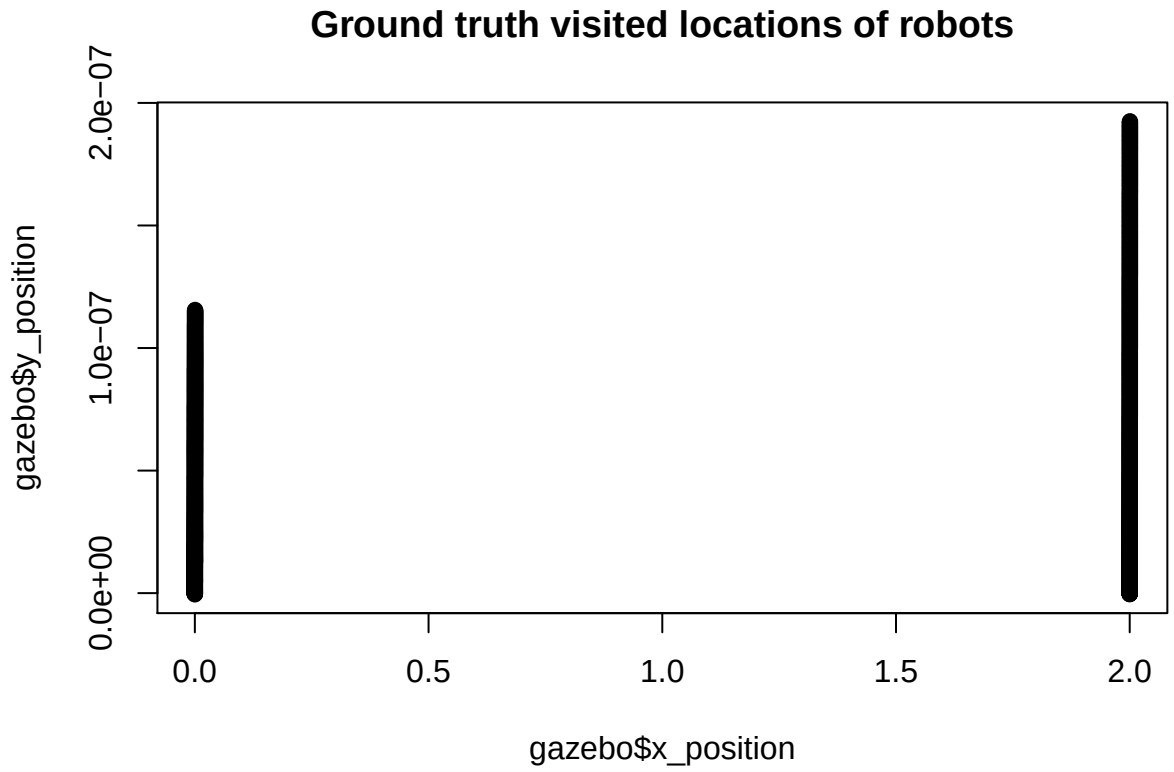
```
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## 0.0000006 0.0002562 0.0005127 0.1173000 0.2301000 2.0000000
```

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

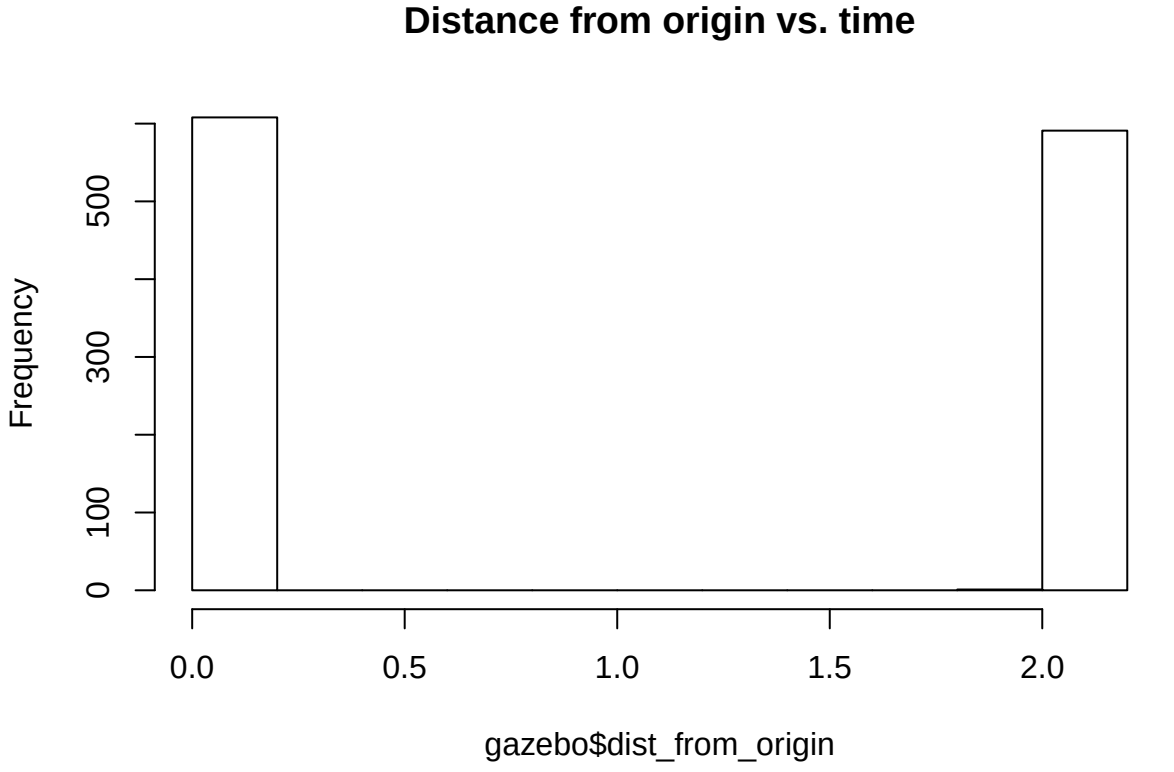
```
##      Length Class  Mode
## [1,] 1      -none- numeric
## [2,] 1      -none- numeric
```

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

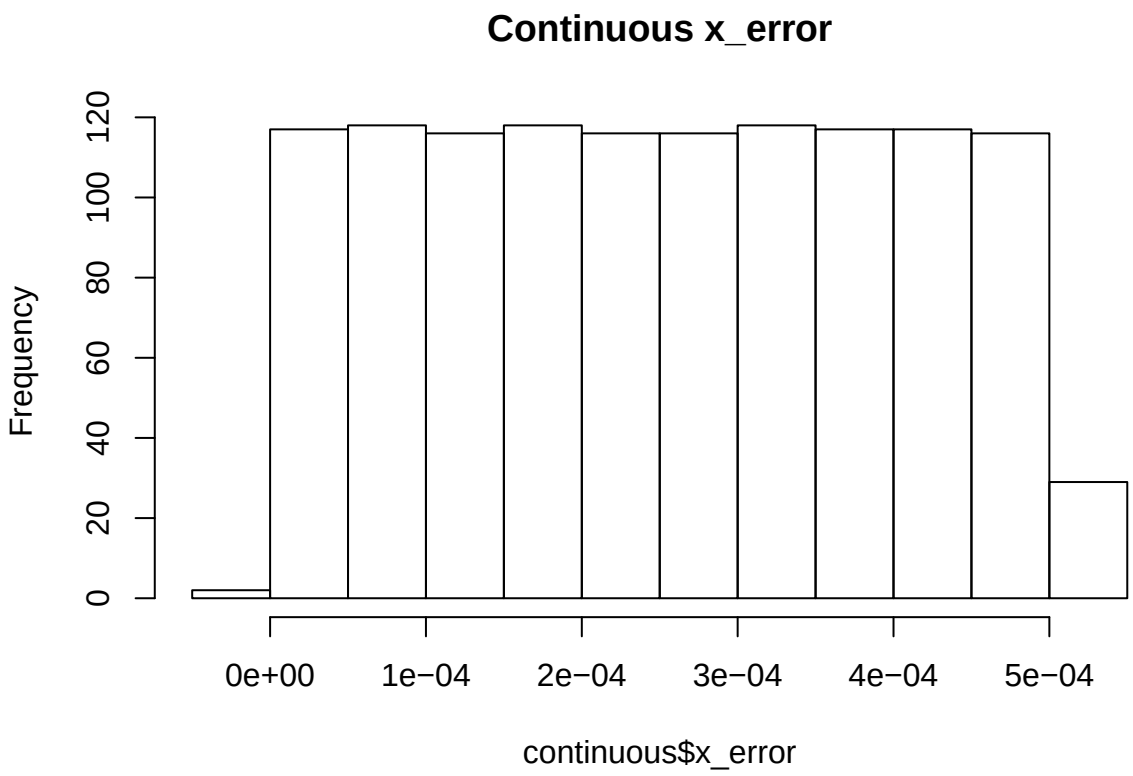
```
plot(gazebo$x_position, gazebo$y_position,
     main = "Ground truth visited locations of robots")
```



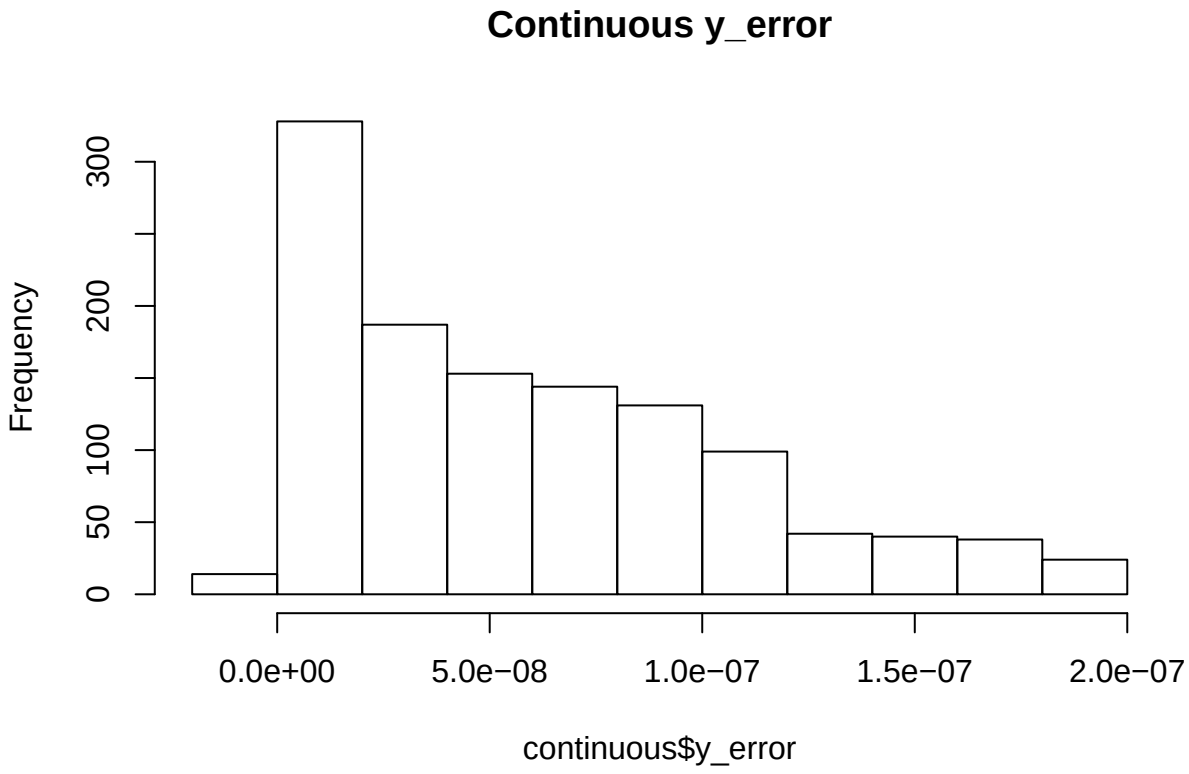

```
hist(gazebo$dist_from_origin,
     main = "Distance from origin vs. time")
```



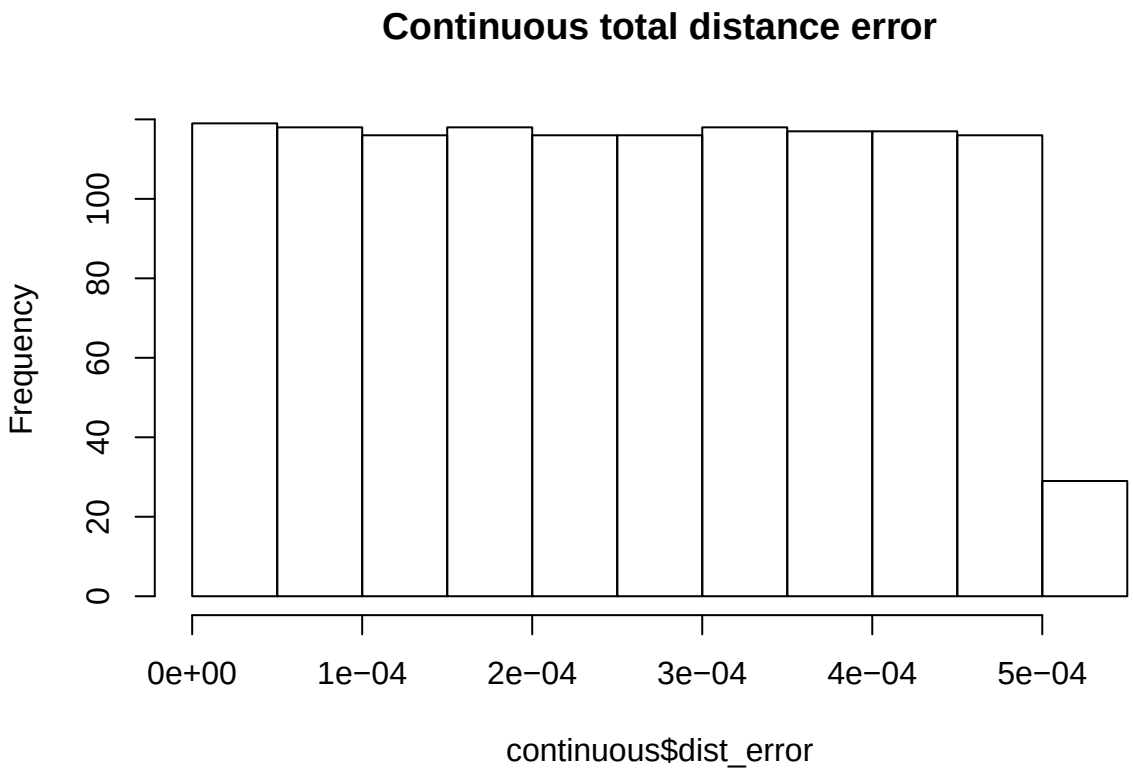

```
hist(continuous$x_error,
     main = "Continuous x_error")
```



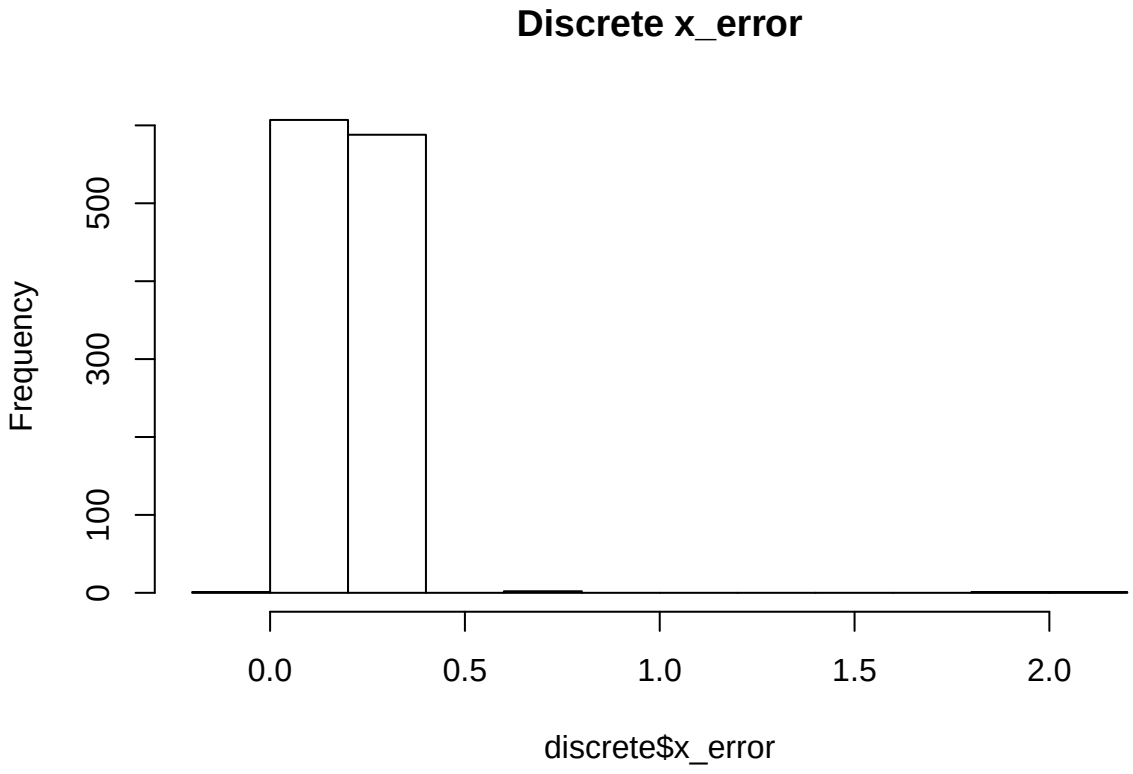

```
hist(continuous$y_error,
      main = "Continuous y_error")
```



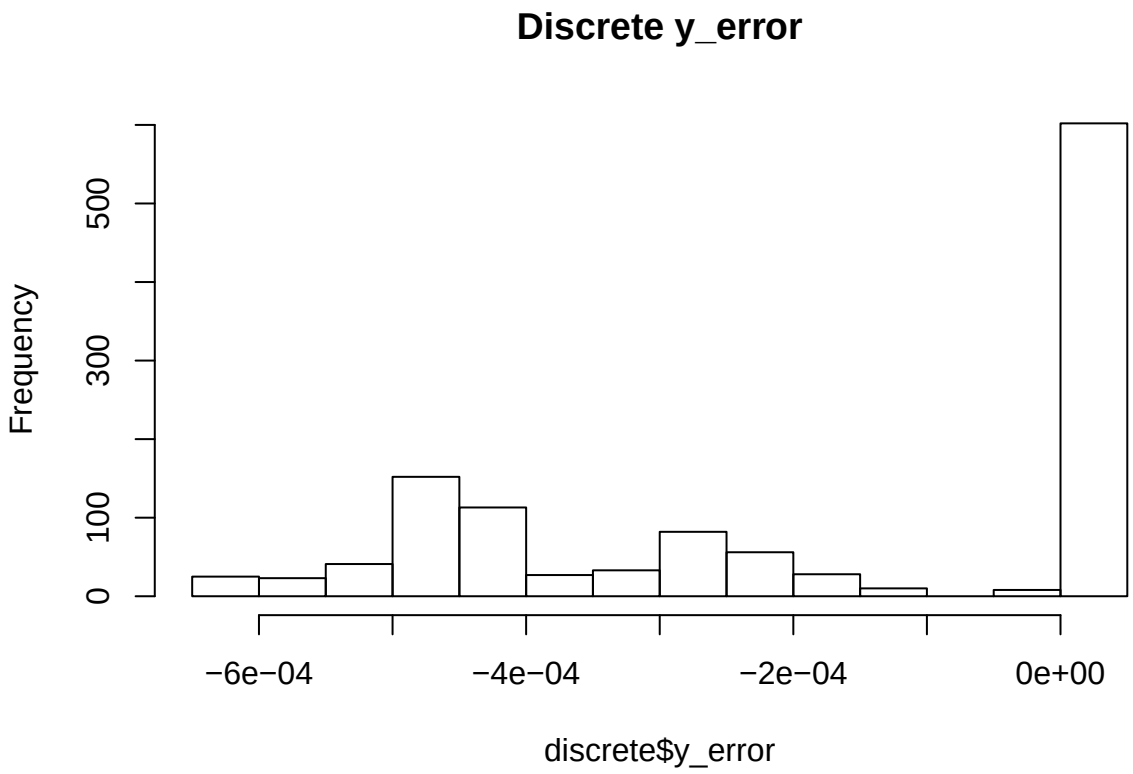

```
hist(continuous$dist_error,
     main = "Continuous total distance error")
```




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




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




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