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.
## -1.060e-06  2.224e-02  4.448e-02  4.448e-02  6.672e-02  8.895e-02
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -2.000e-10  7.933e-05  3.345e-04  4.532e-04  7.687e-04  1.405e-03
```

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

```
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## 1.200e-07 2.224e-02 4.448e-02 4.448e-02 6.672e-02 8.896e-02
```

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

```
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -0.06041 -0.01047  0.02726  0.04449  0.08174  2.00000
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -1.877e-02 -9.915e-03 -2.453e-06  4.502e-04  1.058e-02  2.157e-02
```

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

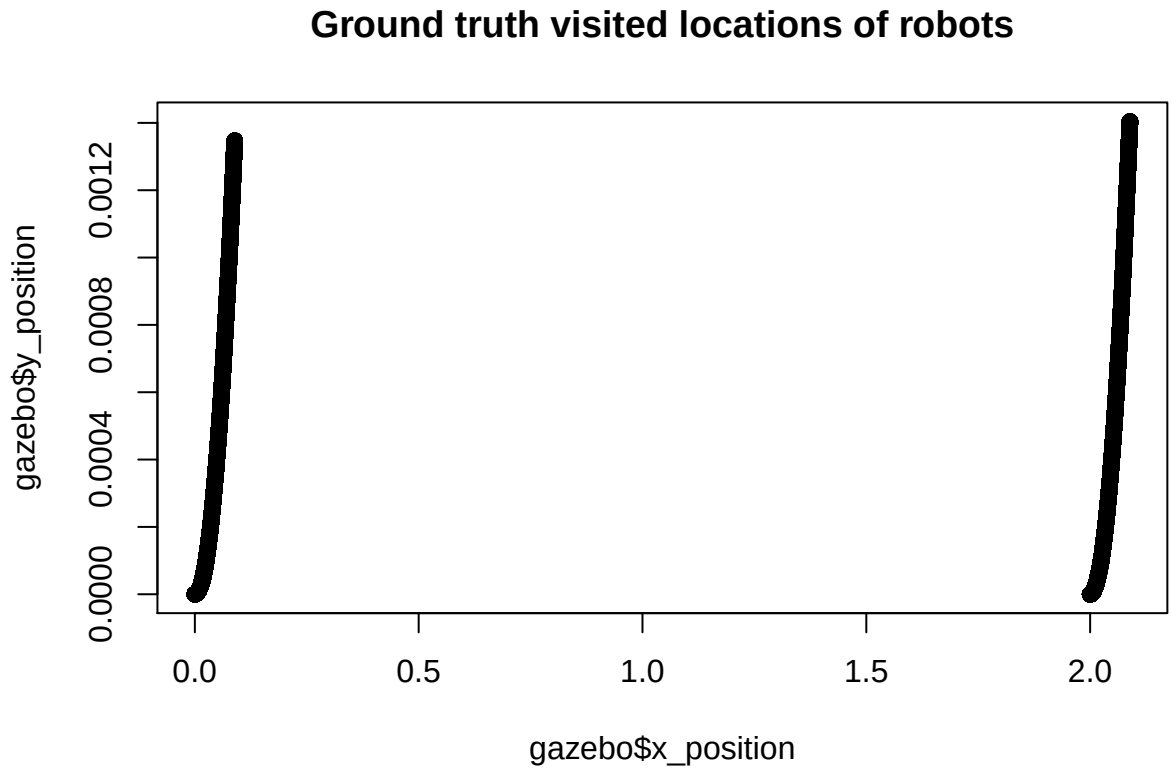
```
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## 0.0000001 0.0220100 0.0396400 0.0625100 0.0823400 2.0000000
```

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

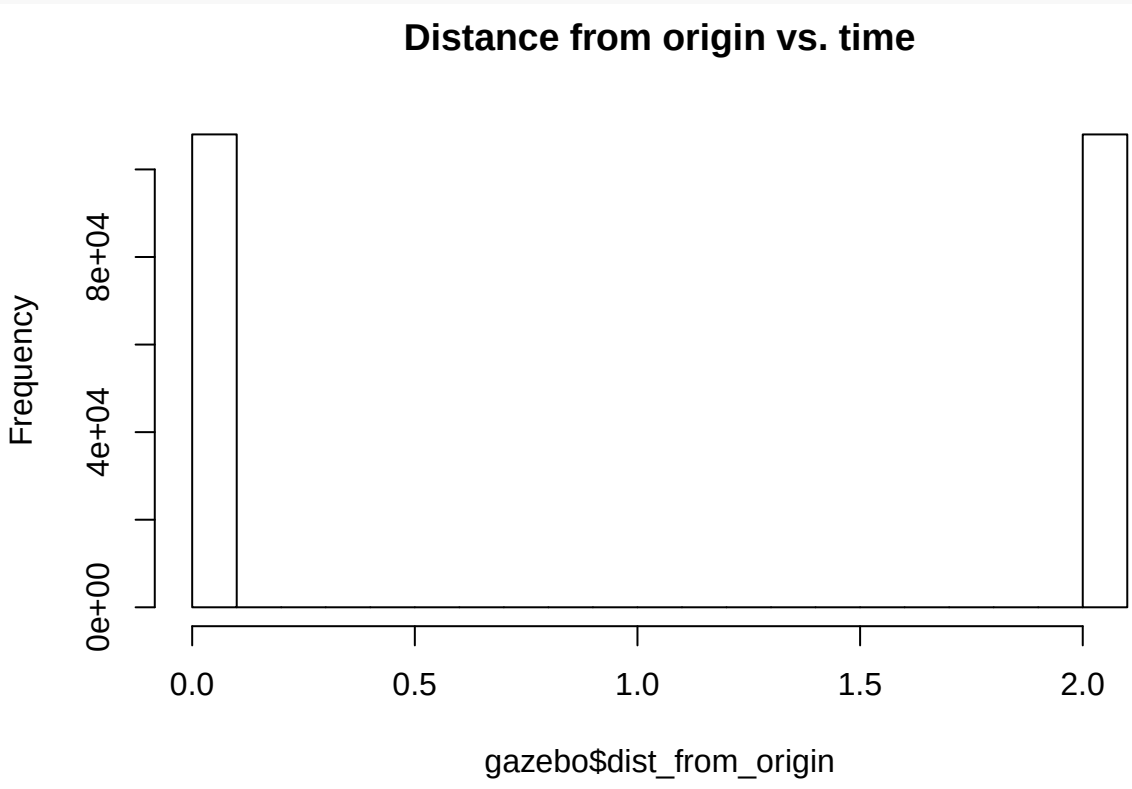
```
##      Length Class  Mode
## [1,] 1      -none- numeric
## [2,] 1      -none- numeric
```

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

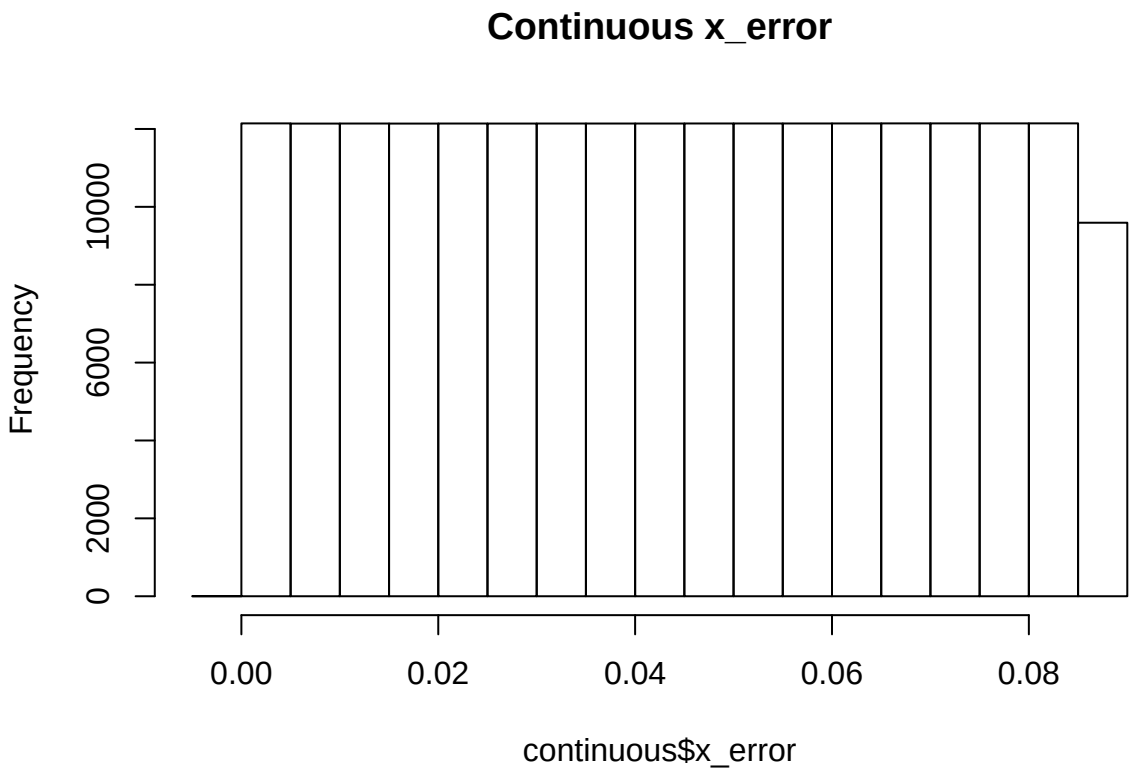
```
plot(gazebo$x_position, gazebo$y_position,
     main = "Ground truth visited locations of robots")
```



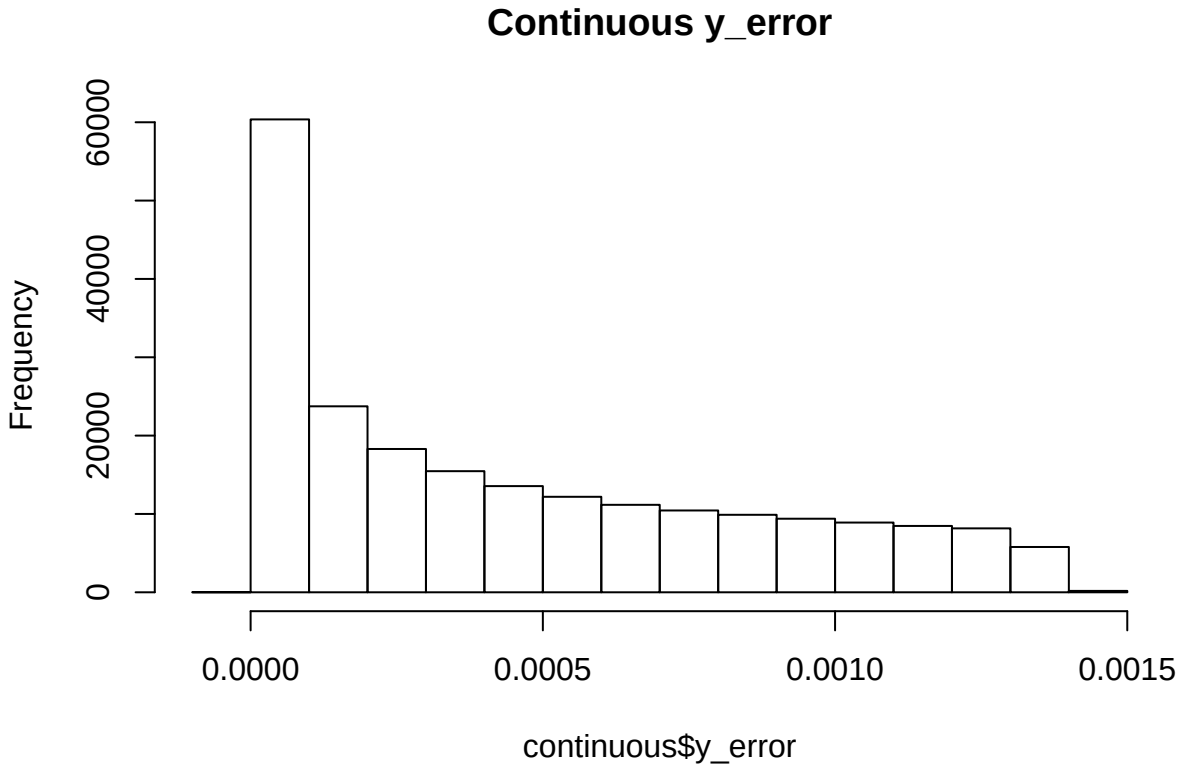

```
hist(gazebo$dist_from_origin,
     main = "Distance from origin vs. time")
```



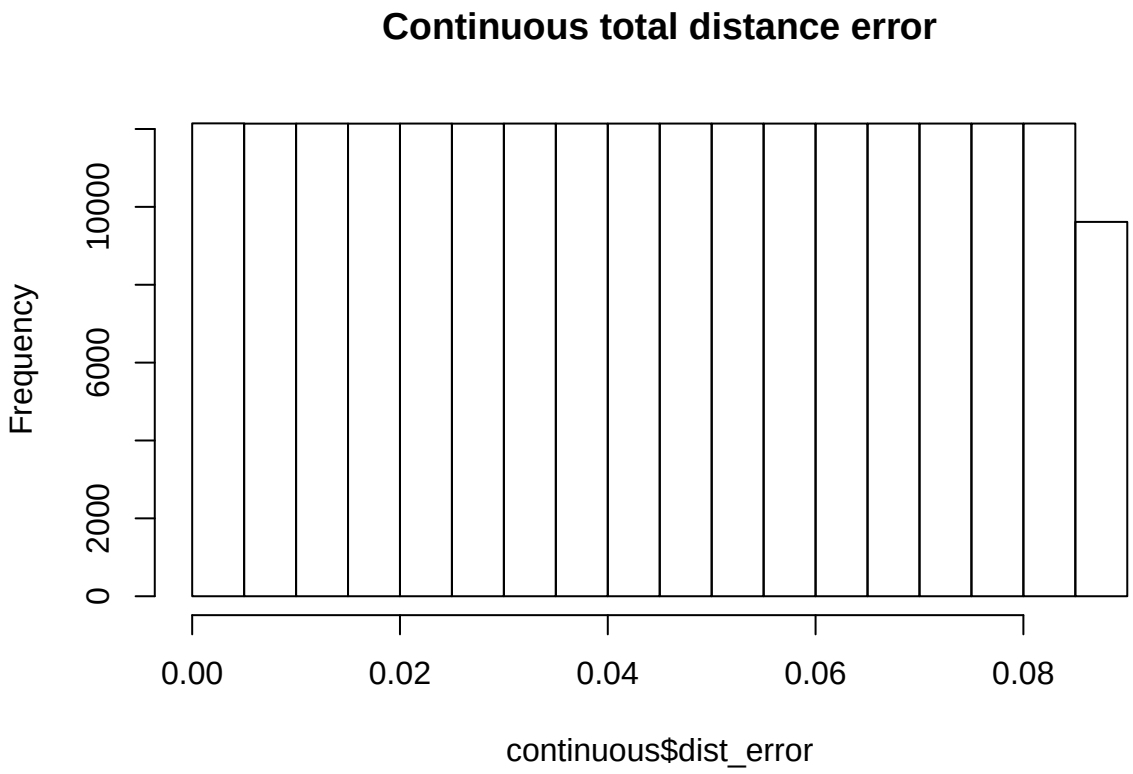

```
hist(continuous$x_error,
     main = "Continuous x_error")
```



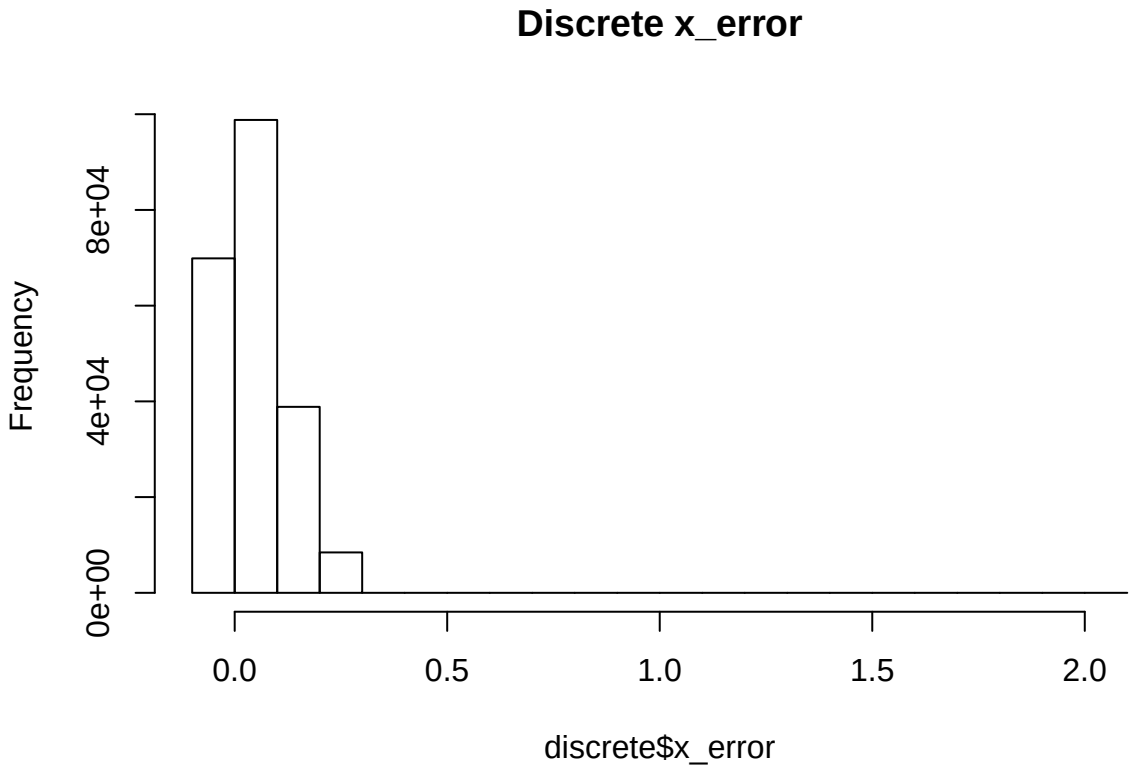

```
hist(continuous$y_error,
      main = "Continuous y_error")
```



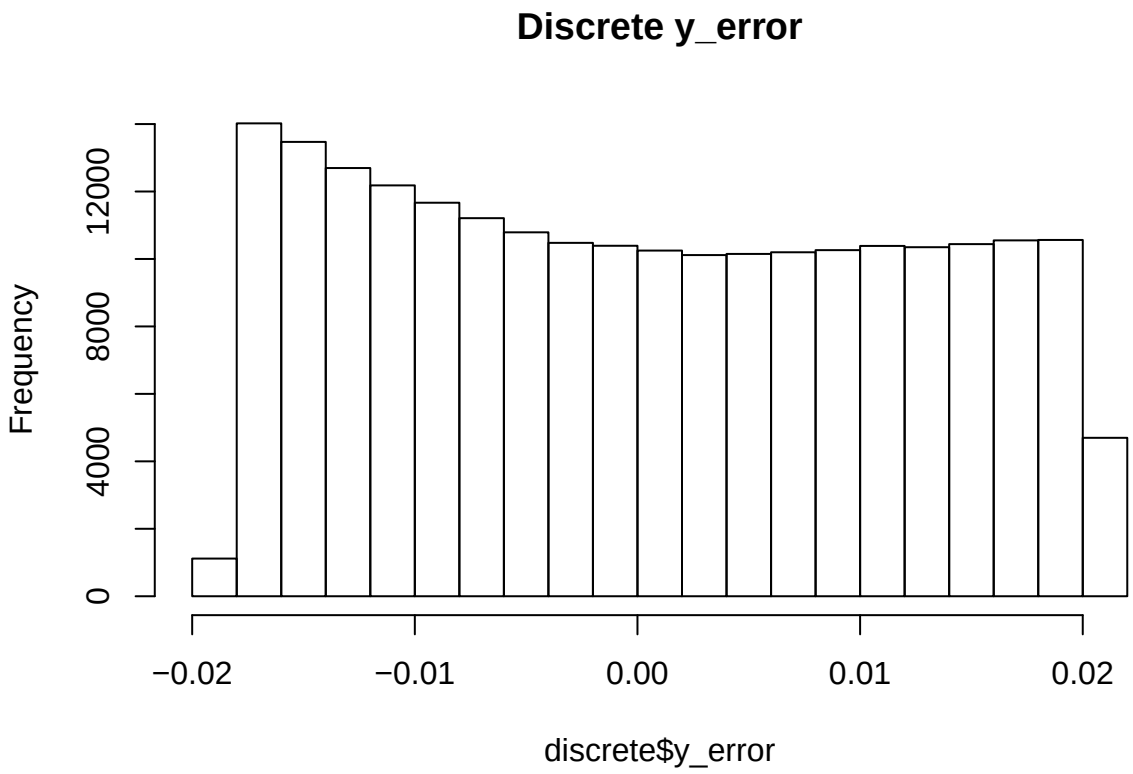

```
hist(continuous$dist_error,
     main = "Continuous total distance error")
```




```
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")
```