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.
## 2.225e-06 2.404e-06 2.654e-06 2.613e-06 2.812e-06 6.558e-06
```

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

```
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## 7.563e-11 3.964e-10 6.029e-10 6.731e-10 8.948e-10 2.611e-09
```

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

```
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## 2.225e-06 2.404e-06 2.654e-06 2.613e-06 2.812e-06 6.558e-06
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -5.131e-06  4.565e-06  8.834e-06  1.335e-02  3.012e-02  3.015e-02
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -3.647e-03 -3.018e-03  0.000e+00 -1.406e-03  1.000e-09  6.020e-07
```

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

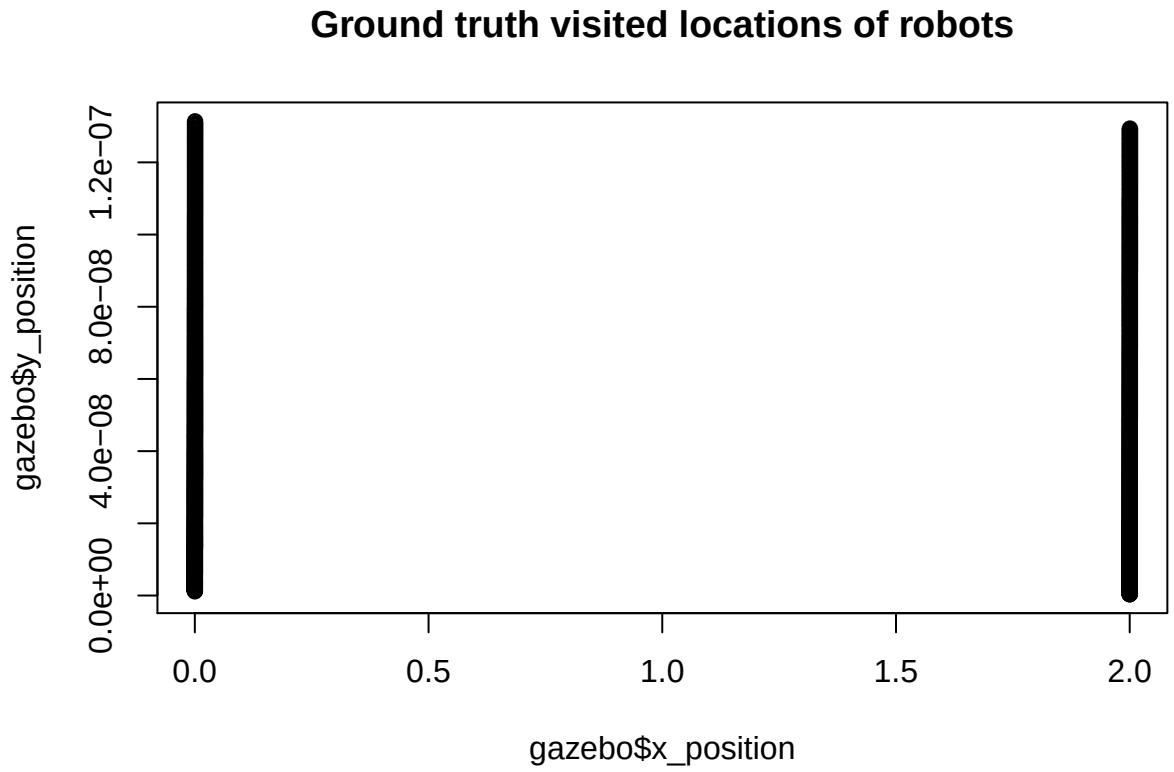
```
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## 7.180e-07 4.569e-06 8.834e-06 1.342e-02 3.027e-02 3.037e-02
```

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

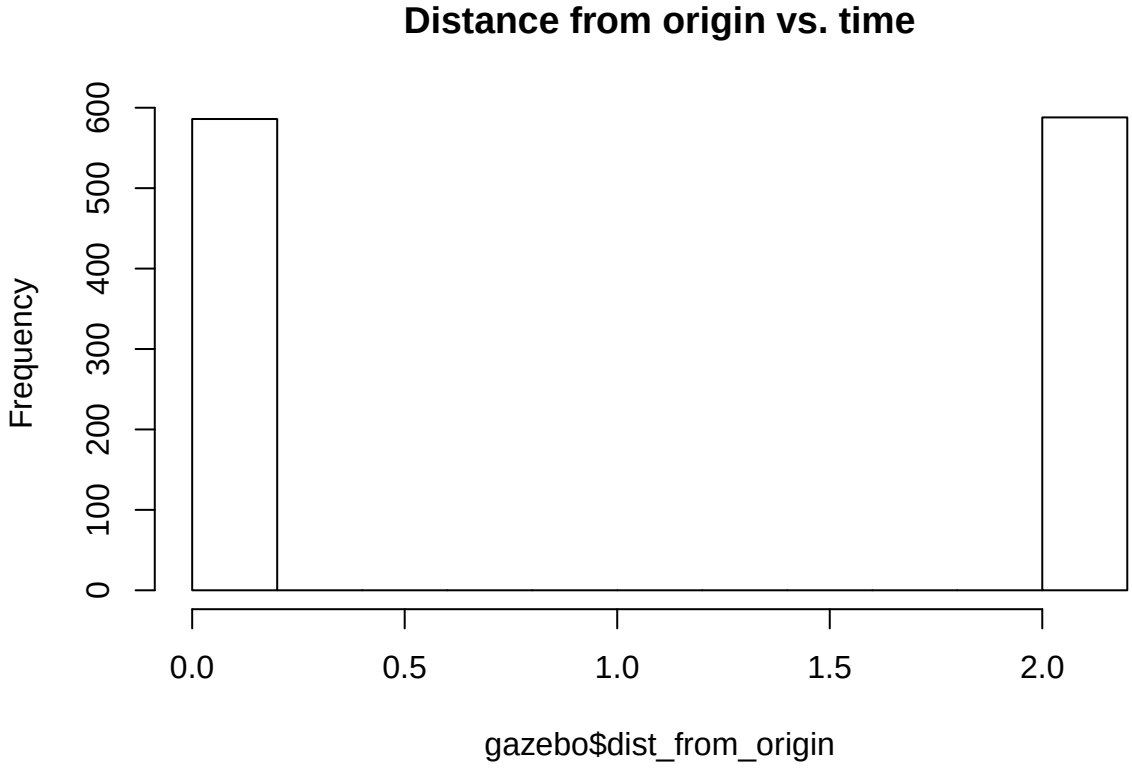
```
##      Length Class  Mode
## [1,] 1      -none- numeric
## [2,] 1      -none- numeric
```

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

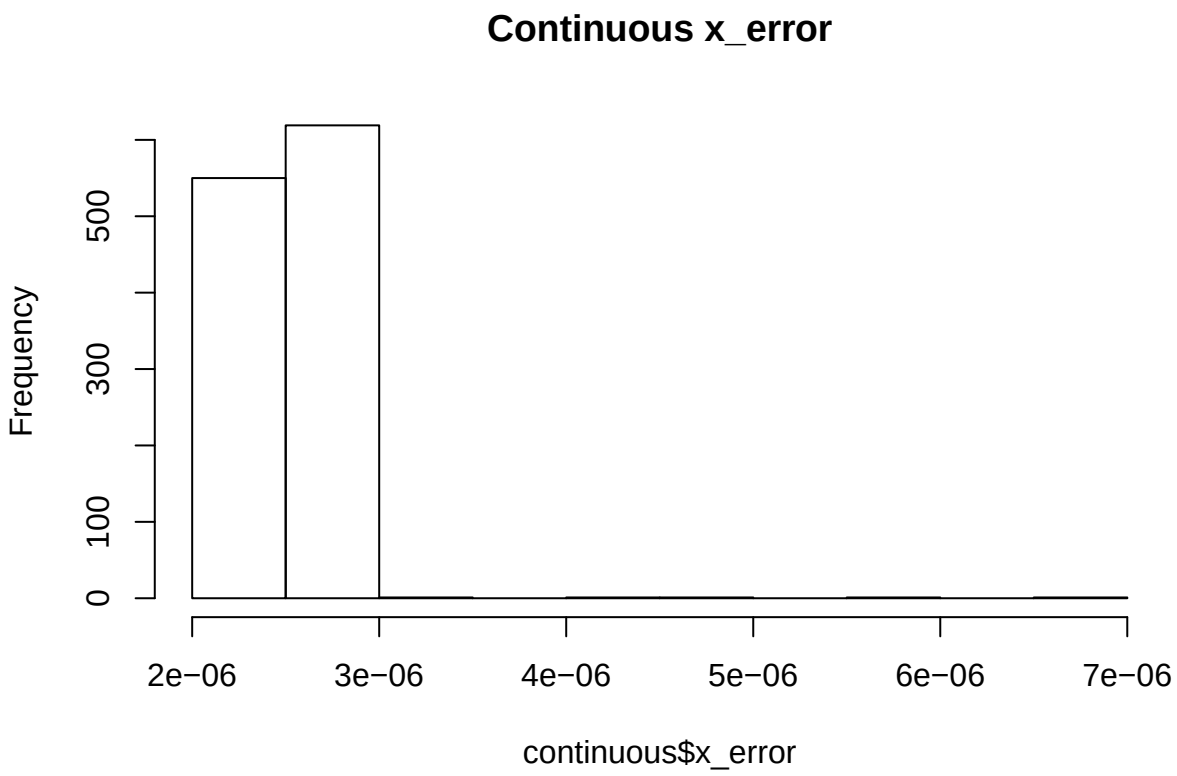
```
plot(gazebo$x_position, gazebo$y_position,
     main = "Ground truth visited locations of robots")
```



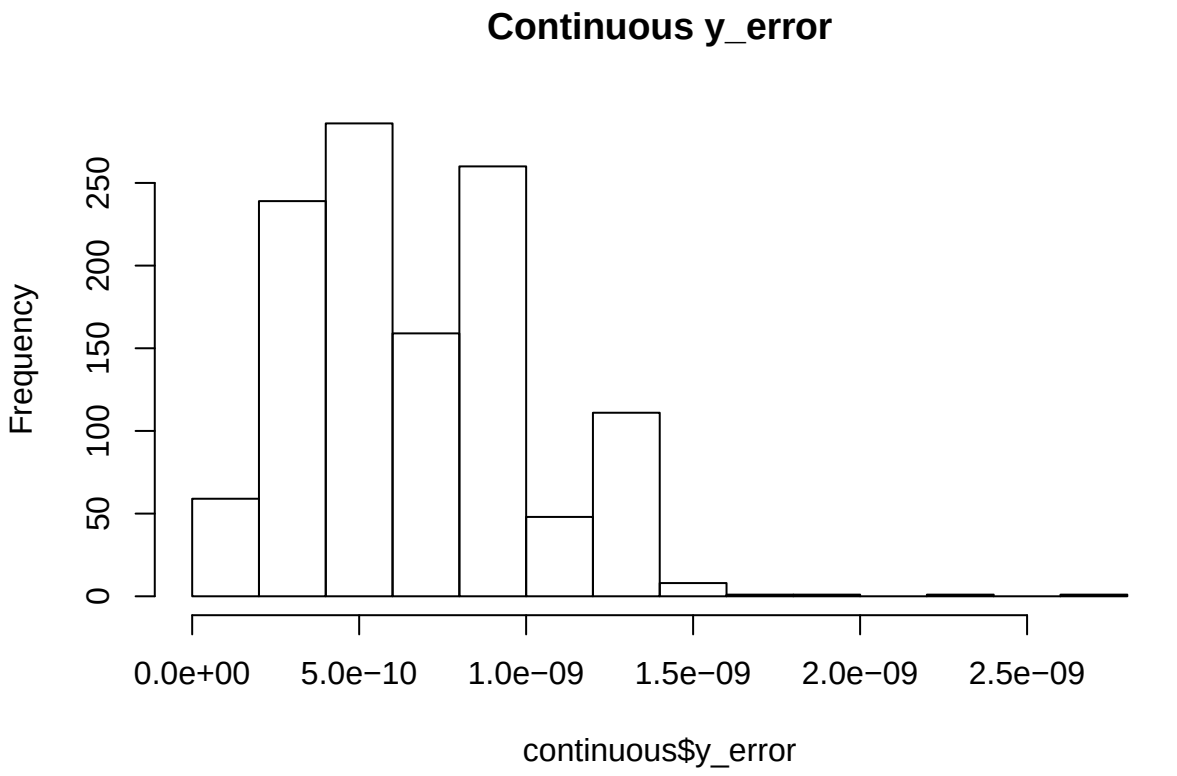

```
hist(gazebo$dist_from_origin,
     main = "Distance from origin vs. time")
```



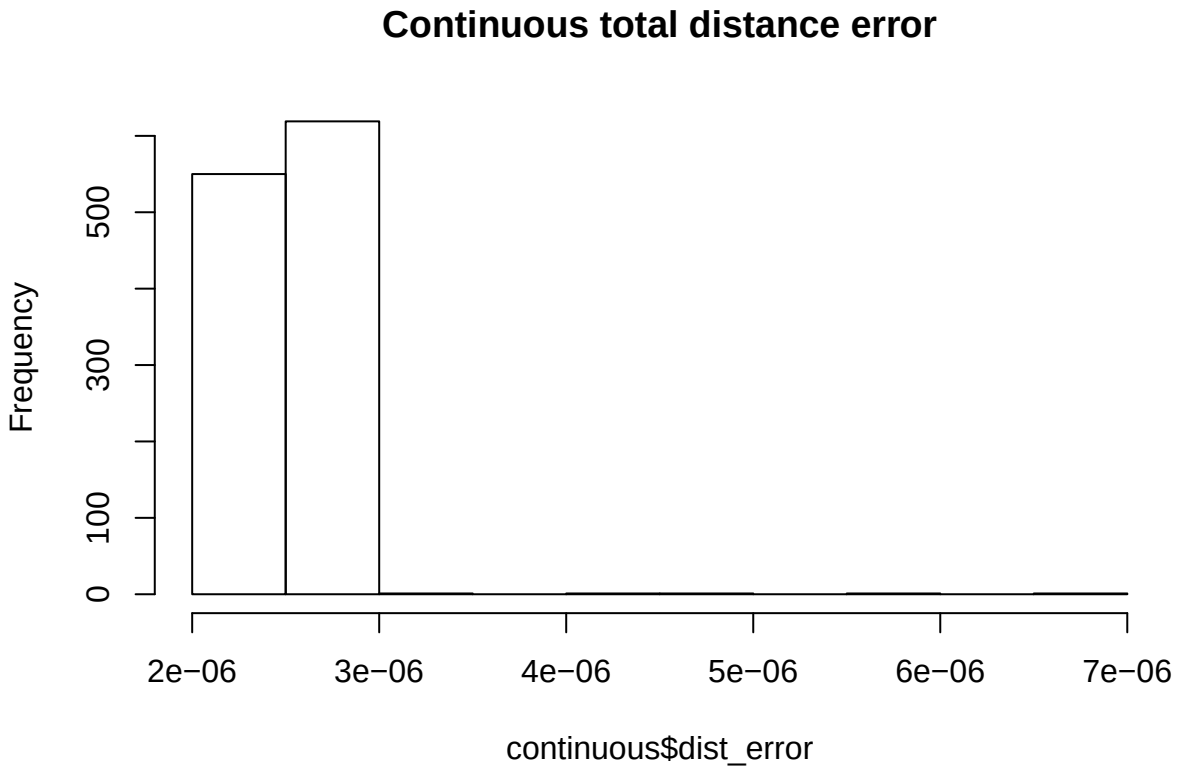

```
hist(continuous$x_error,
     main = "Continuous x_error")
```



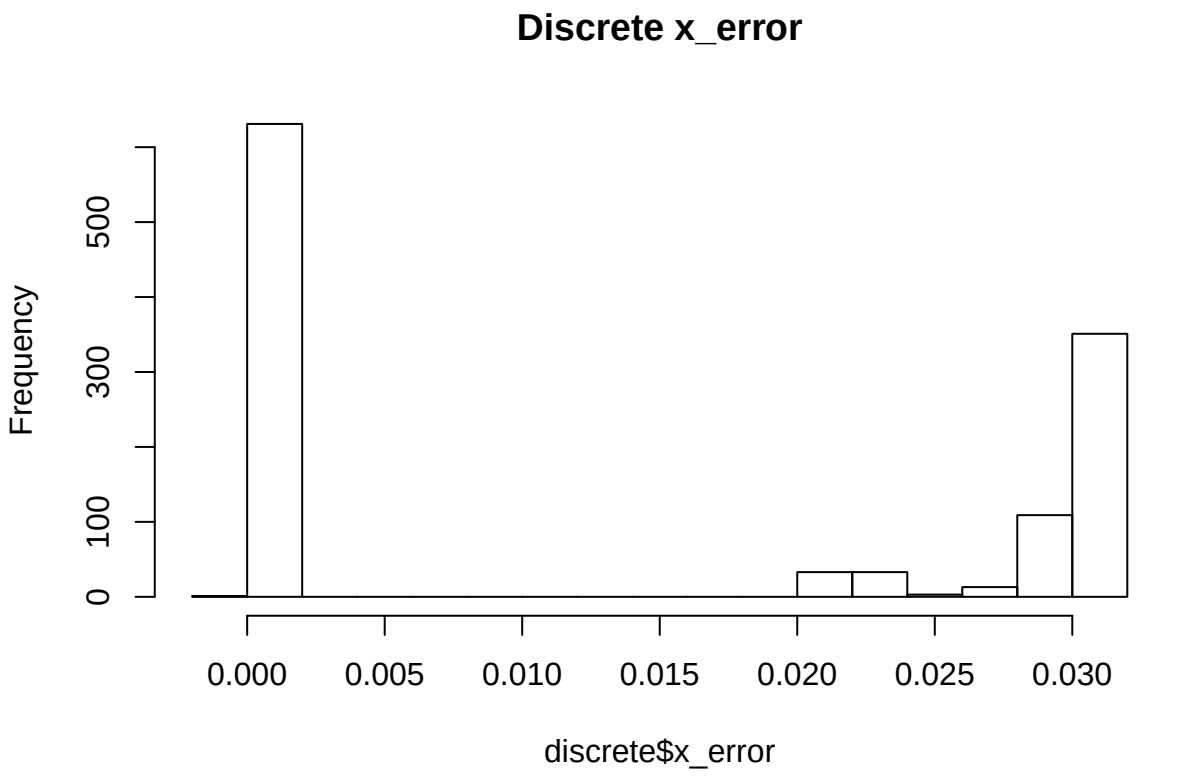

```
hist(continuous$y_error,
      main = "Continuous y_error")
```



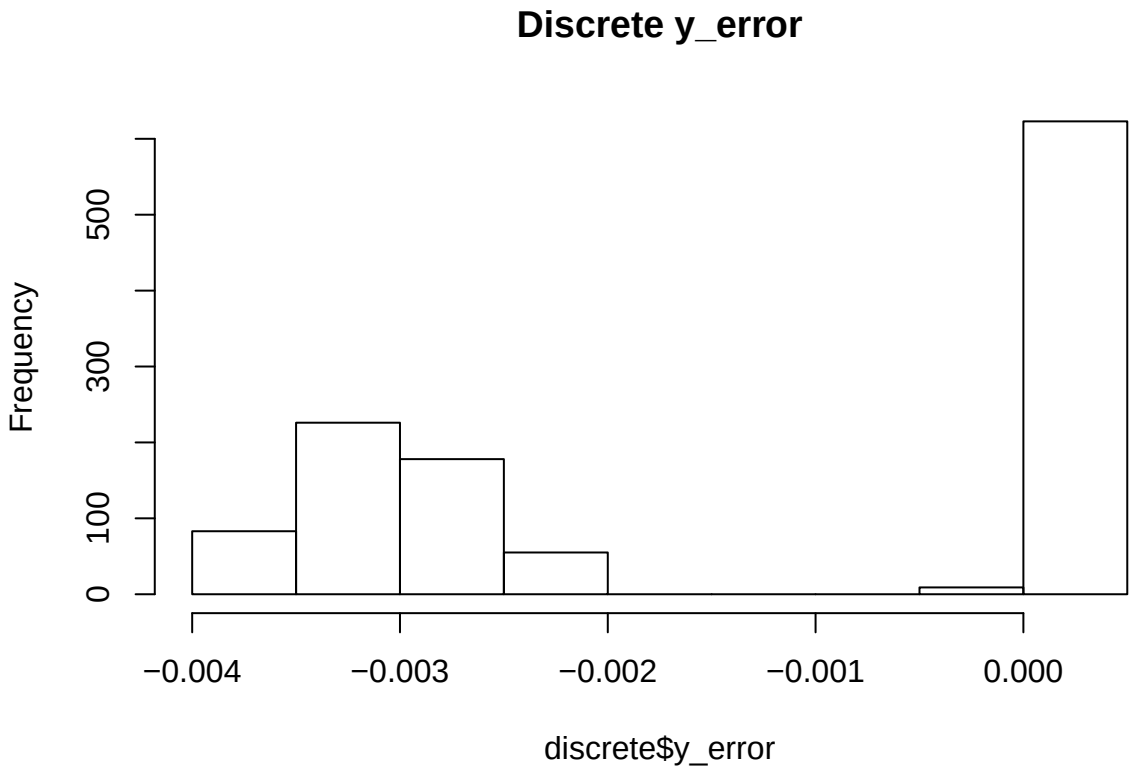

```
hist(continuous$dist_error,
     main = "Continuous total distance error")
```




```
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")
```