

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.
## -4.988e-07  2.573e-04  5.145e-04  5.144e-04  7.716e-04  1.029e-03
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## -5.031e-10  3.329e-08  9.574e-08  1.249e-07  1.633e-07  4.838e-07
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## 3.630e-07  2.573e-04  5.145e-04  5.144e-04  7.716e-04  1.029e-03
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## -0.21470 -0.21350  0.21240  0.01279  0.21360  2.00000
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## -1.880e-03 -9.941e-04  9.000e-10 -3.103e-04  3.483e-04  9.320e-04
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## 0.0000003  0.2130000  0.2135000  0.2238000  0.2142000  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")
```

Ground truth visited locations of robots



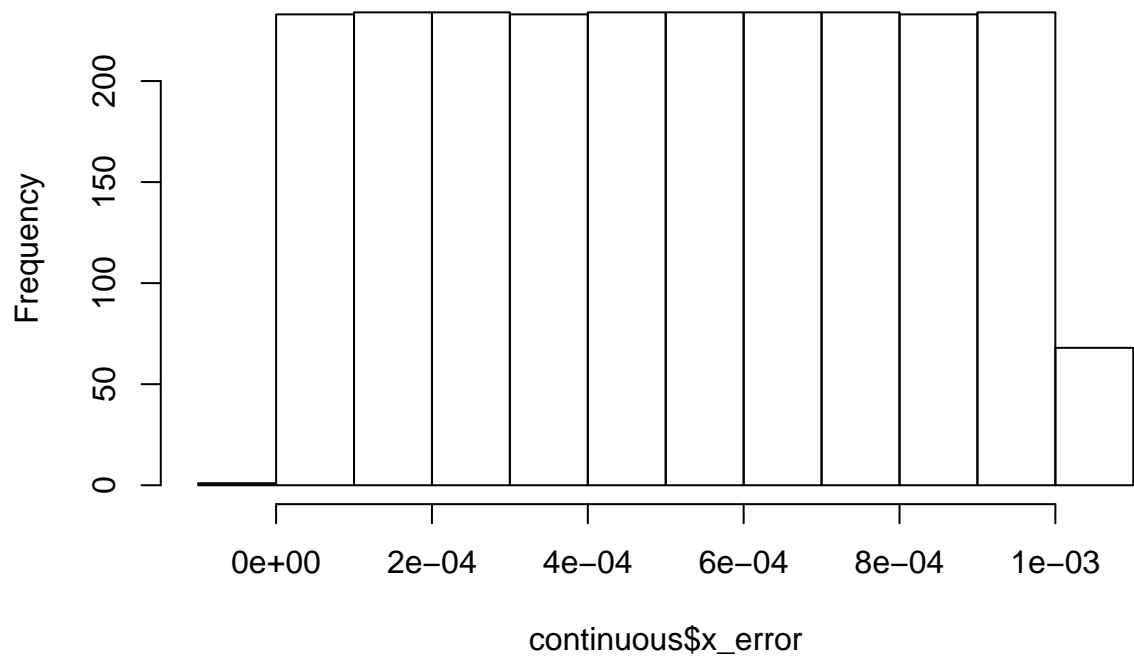
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time



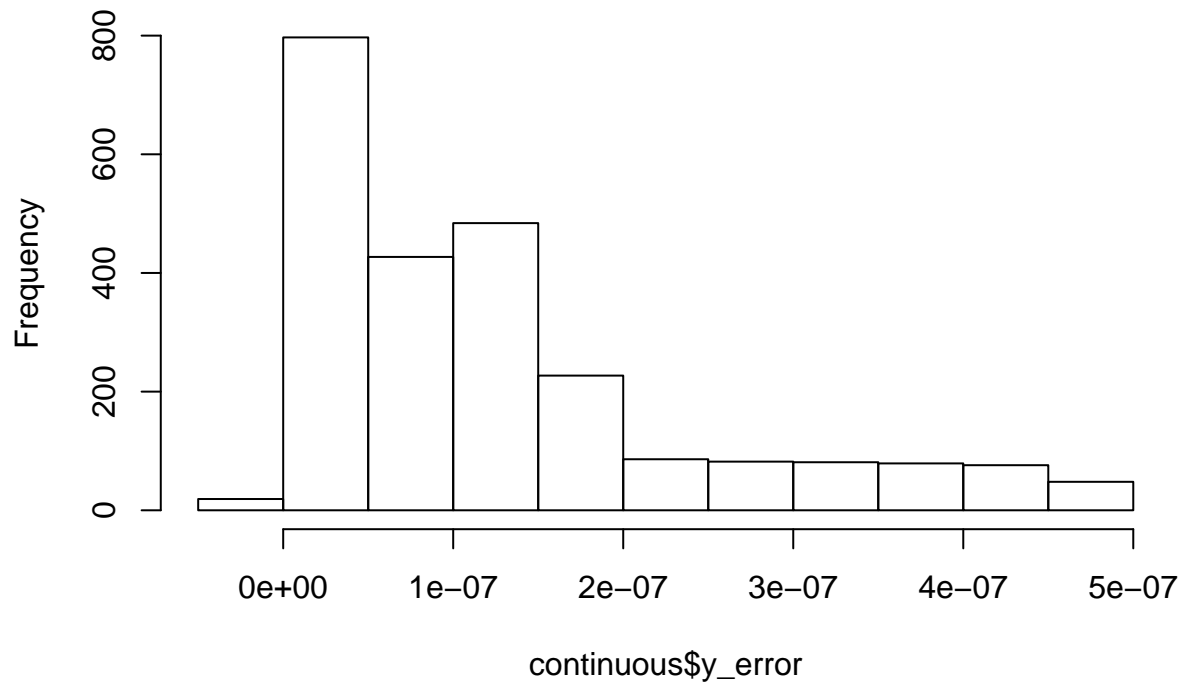
```
hist(continuous$x_error,  
     main = "Continuous x_error")
```

Continuous x_error



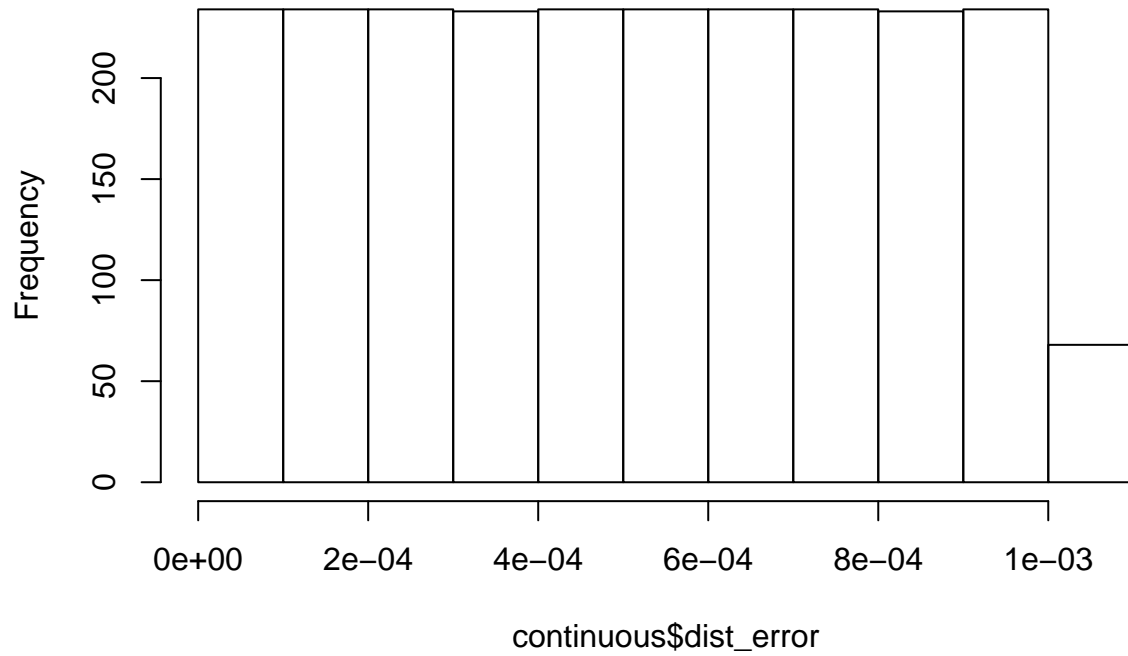
```
hist(continuous$y_error,  
     main = "Continuous y_error")
```

Continuous y_error



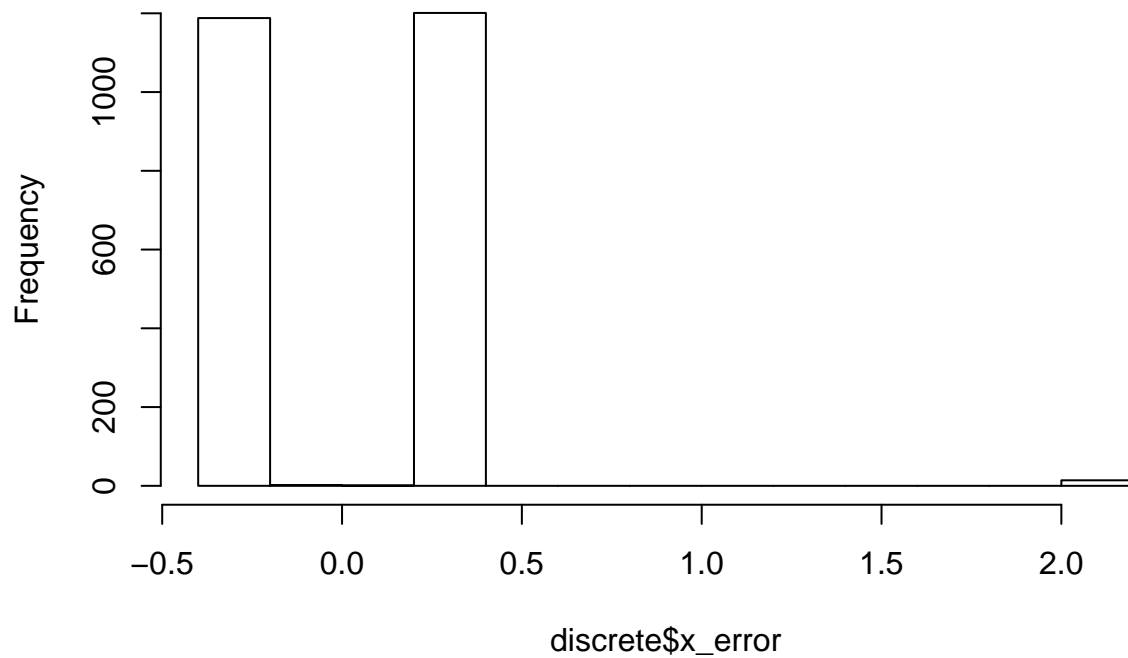
```
hist(continuous$dist_error,  
     main = "Continuous total distance error")
```

Continuous total distance error



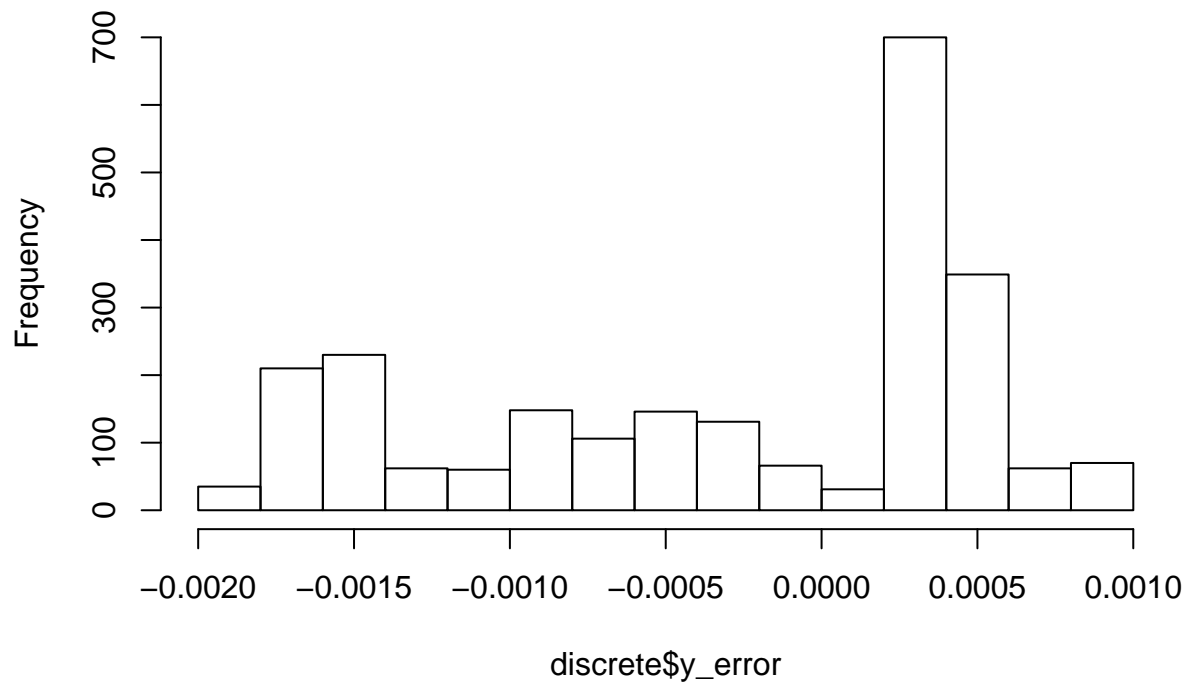
```
hist(discrete$x_error,  
     main = "Discrete x_error")
```

Discrete x_error



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

Discrete y_error



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

Discrete total distance error

