

two_mobile Experiment Report

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This is a summary of the data from the two_mobile 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.
## -0.98070 -0.40150 -0.19170 -0.23690 -0.02373  0.14840
```

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

```
##      Min.   1st Qu.   Median     Mean  3rd Qu.    Max.
## -0.54180 -0.25140 -0.02361 -0.08977  0.06782  0.26310
```

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

```
##      Min.   1st Qu.   Median     Mean  3rd Qu.    Max.
## 0.0000001 0.1092000 0.3276000 0.3418000 0.4838000 0.9857000
```

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

```
##      Min.   1st Qu.   Median     Mean  3rd Qu.    Max.
## -0.80970 -0.02245  0.60000  0.79960  1.66000  2.01700
```

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

```
##      Min.   1st Qu.   Median     Mean  3rd Qu.    Max.
## -0.49080 -0.22370  0.00000 -0.05375  0.08874  0.30210
```

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

```
##      Min.   1st Qu.   Median     Mean  3rd Qu.    Max.
## 0.0000001 0.1475000 0.9324000 0.9725000 1.6790000 2.0280000
```

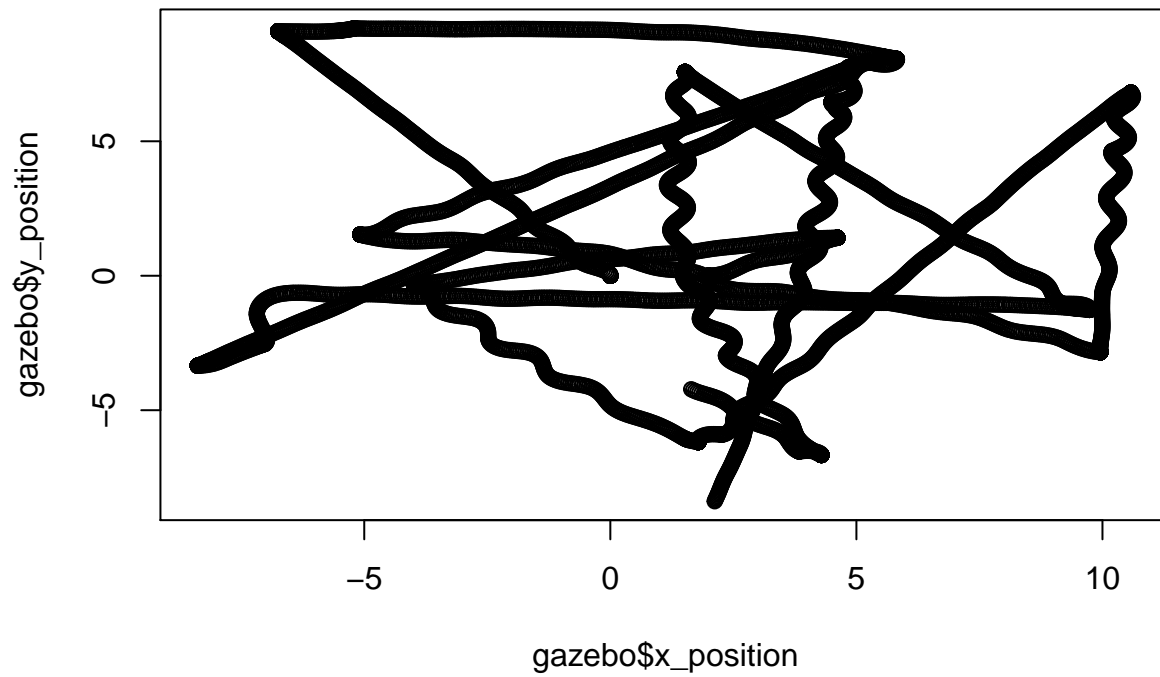
```
if (params$robot >= 2) {
  summary(external_data_averages)
}
```

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

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

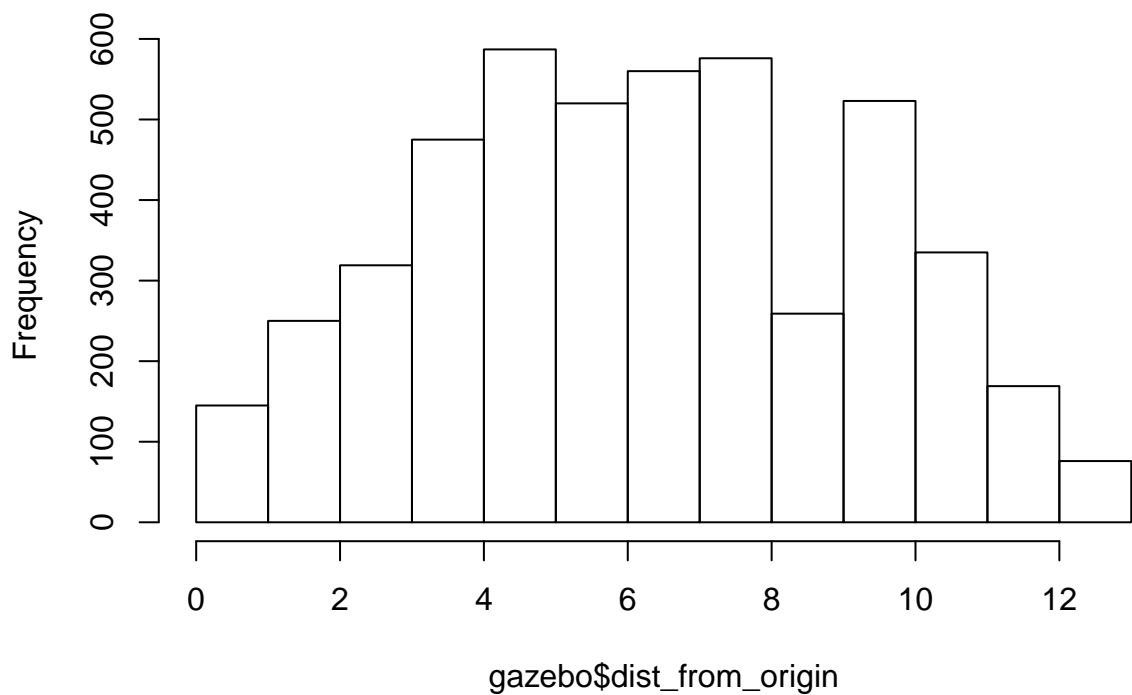
```
plot(gazebo$x_position, gazebo$y_position,
     main = "Ground truth visited locations of robots")
```

Ground truth visited locations of robots



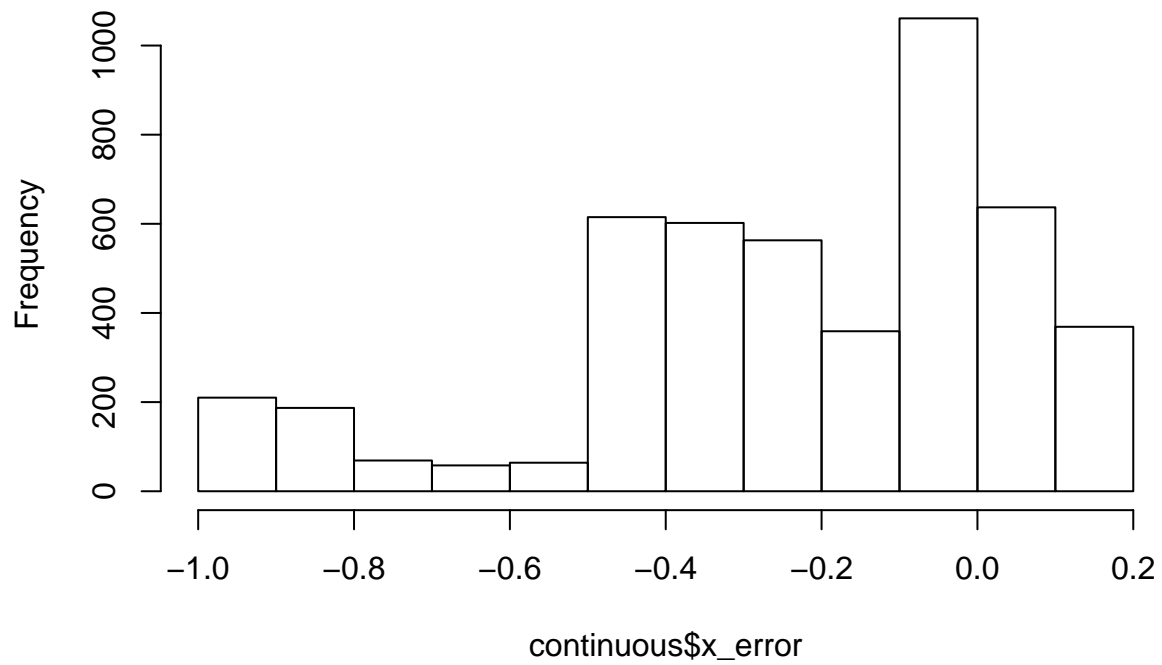
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time



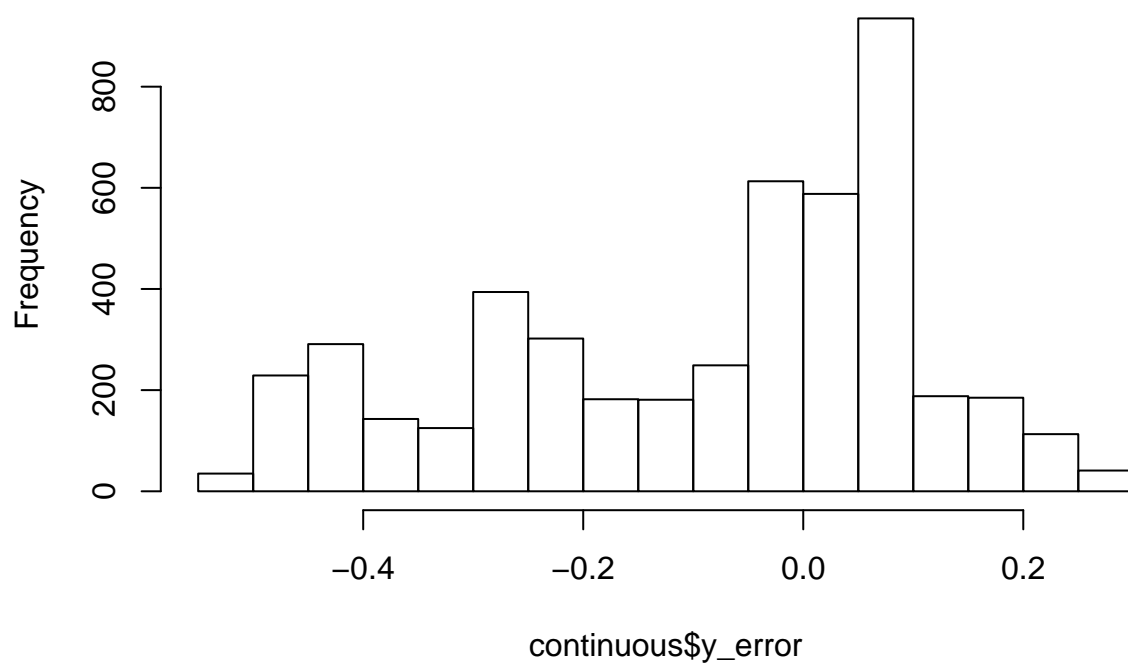
```
hist(continuous$x_error,  
     main = "Continuous x_error")
```

Continuous x_error



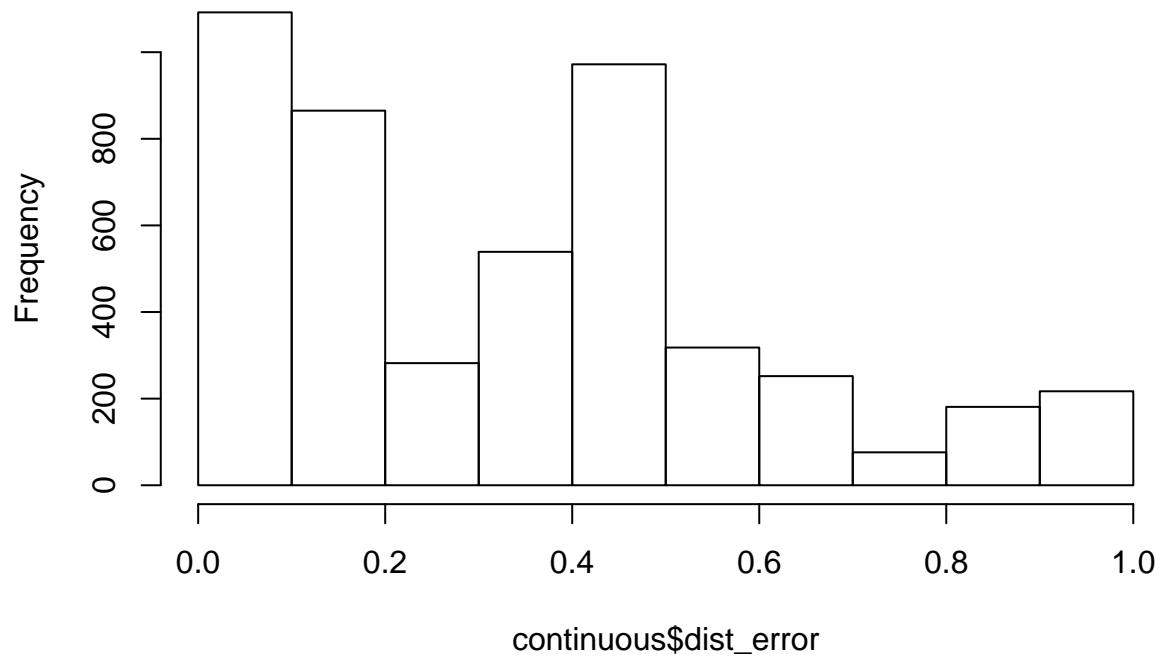
```
hist(continuous$y_error,  
     main = "Continuous y_error")
```

Continuous y_error



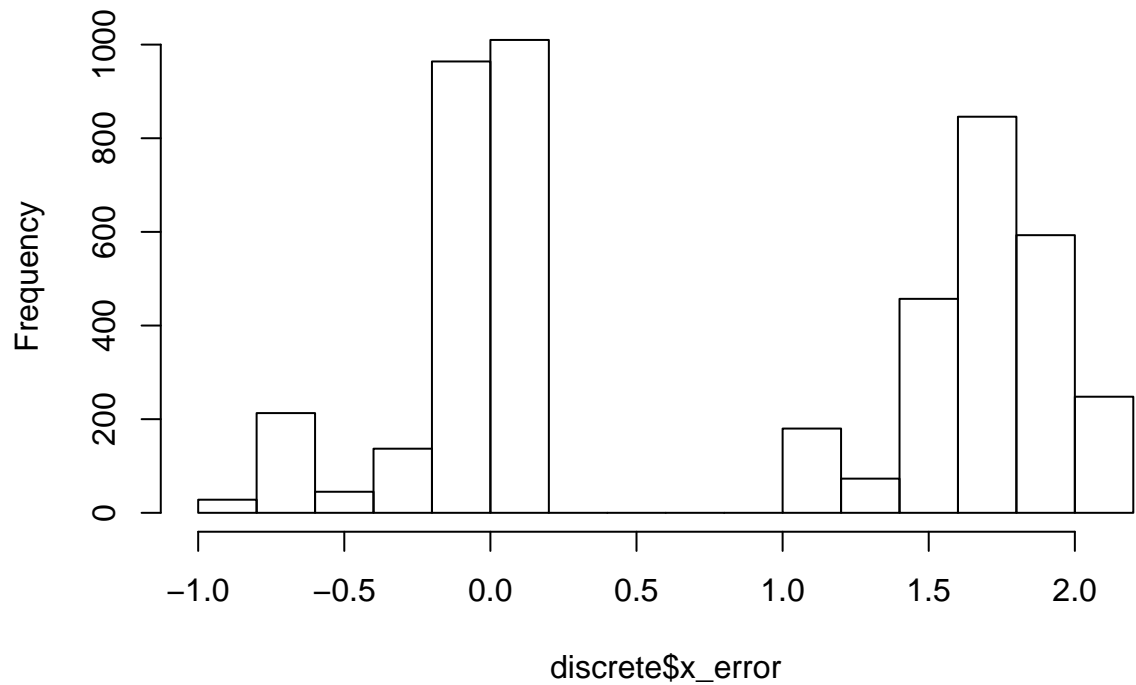
```
hist(continuous$dist_error,  
     main = "Continuous total distance error")
```

Continuous total distance error

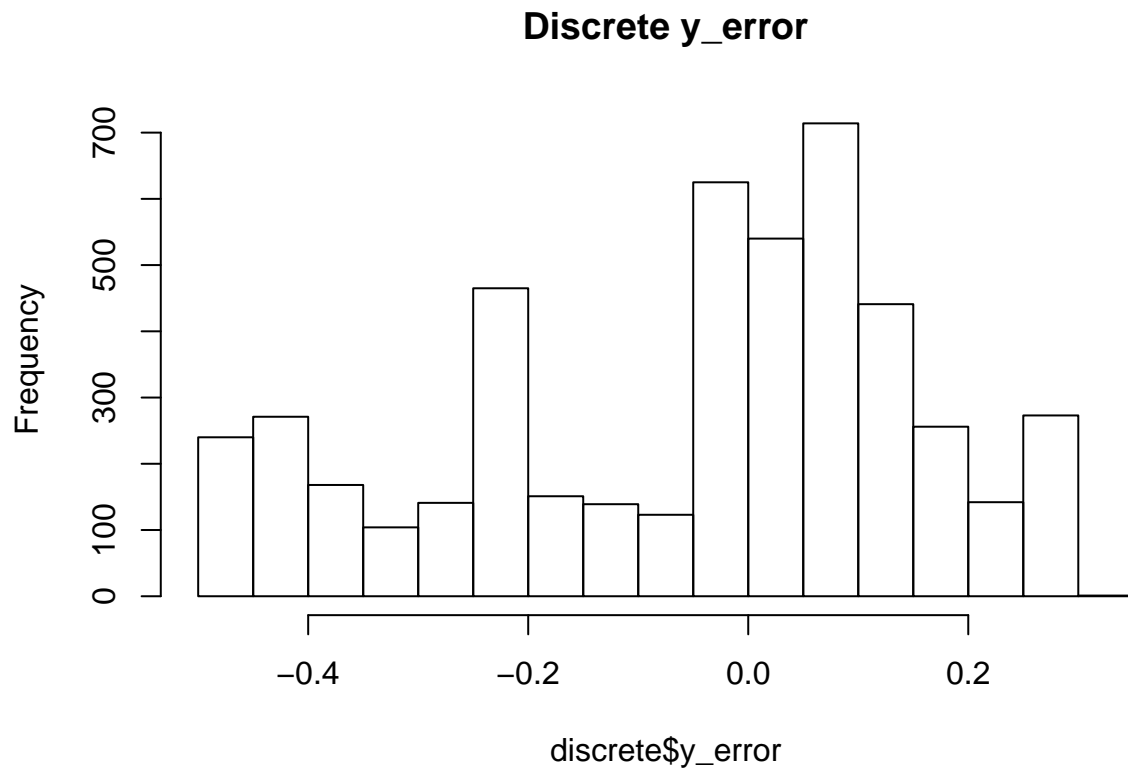


```
hist(discrete$x_error,  
      main = "Discrete x_error")
```

Discrete x_error



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



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

