

one_mobile Experiment Report

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This is a summary of the data from the one_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.
## -0.18190 -0.01398  0.01151  0.03219  0.06360  0.36610

summary(continuous$y_error)

##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
## -0.325700 -0.049300 -0.005186 -0.010960  0.021670  0.285800

summary(continuous$dist_error)

##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
## 0.000000 0.02945  0.06475  0.09741  0.15150  0.45200

summary(discrete$x_error)

##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
## -0.153400 -0.007321  0.029930  0.051130  0.086720  0.393500

summary(discrete$y_error)

##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
## -0.2968000 -0.0352500  0.0005471  0.0044850  0.0351300  0.3083000

summary(discrete$dist_error)

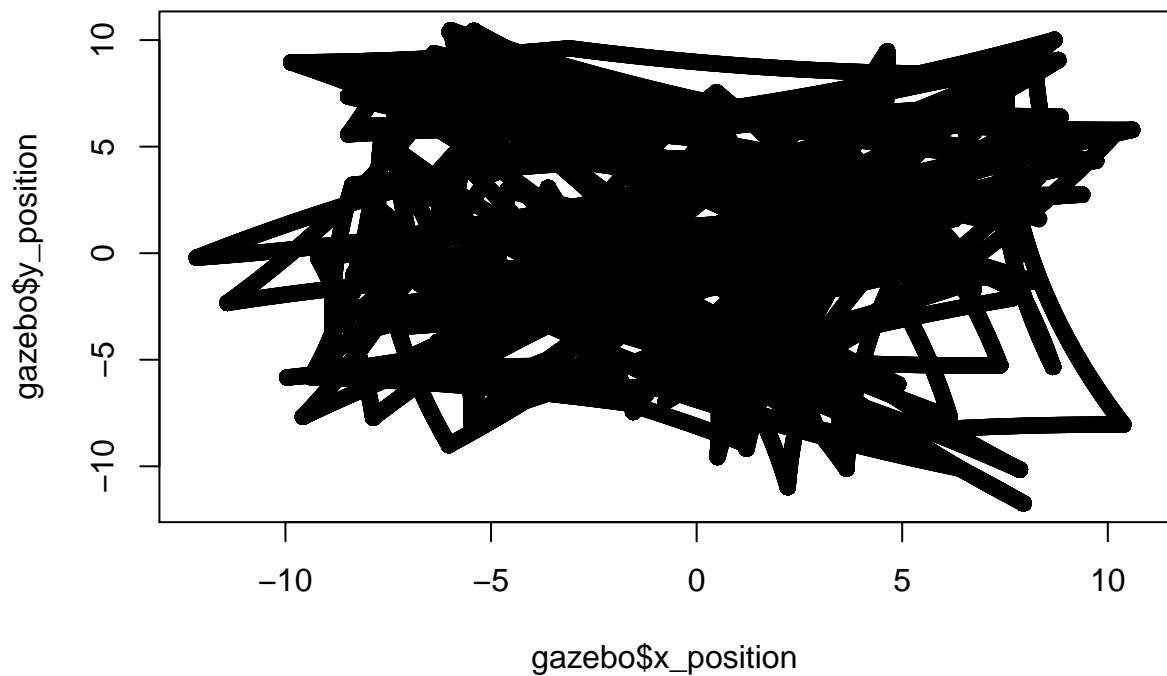
##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
## 0.000000 0.03360  0.07037  0.10390  0.16190  0.48880

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

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

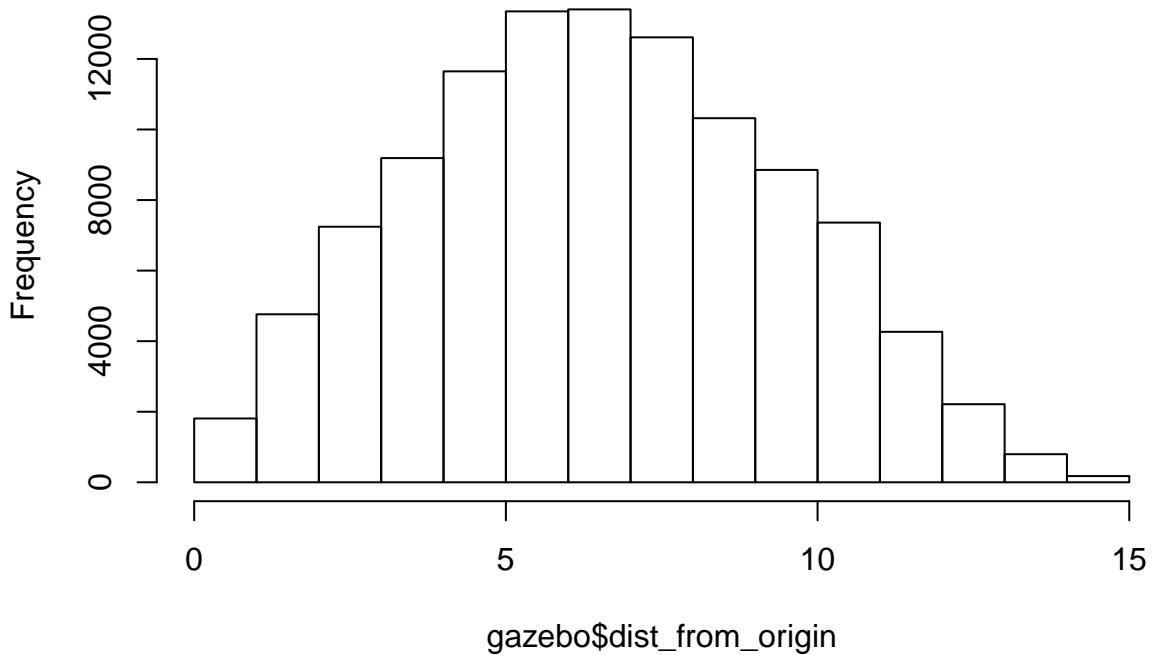
```
plot(gazebo$x_position, gazebo$y_position,
  main = "Ground truth visited locations of robots")
```

Ground truth visited locations of robots



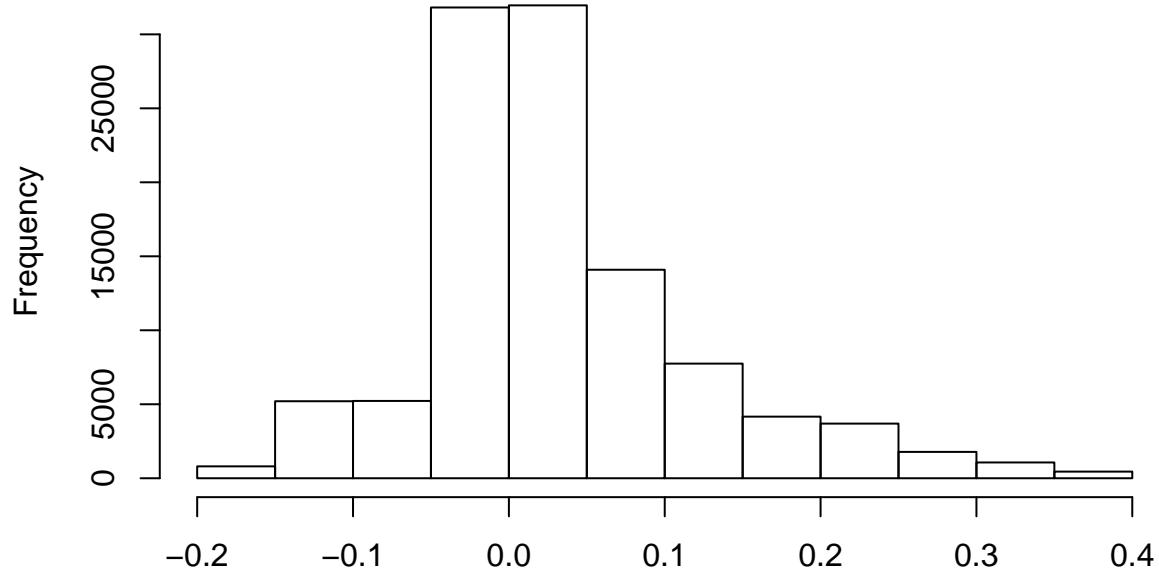
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time



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

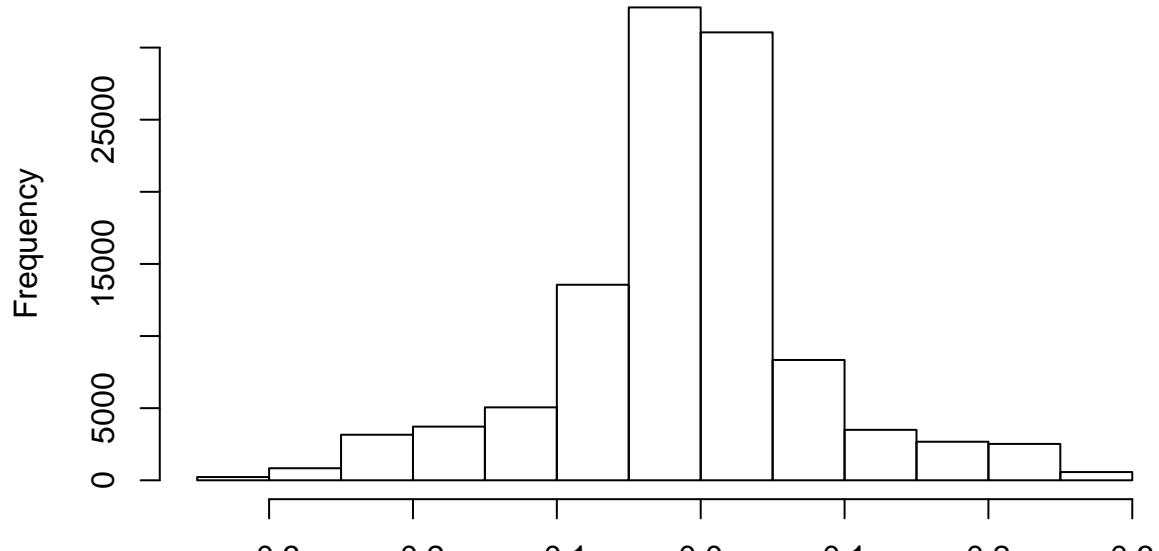
Continuous x_error



continuous\$x_error

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

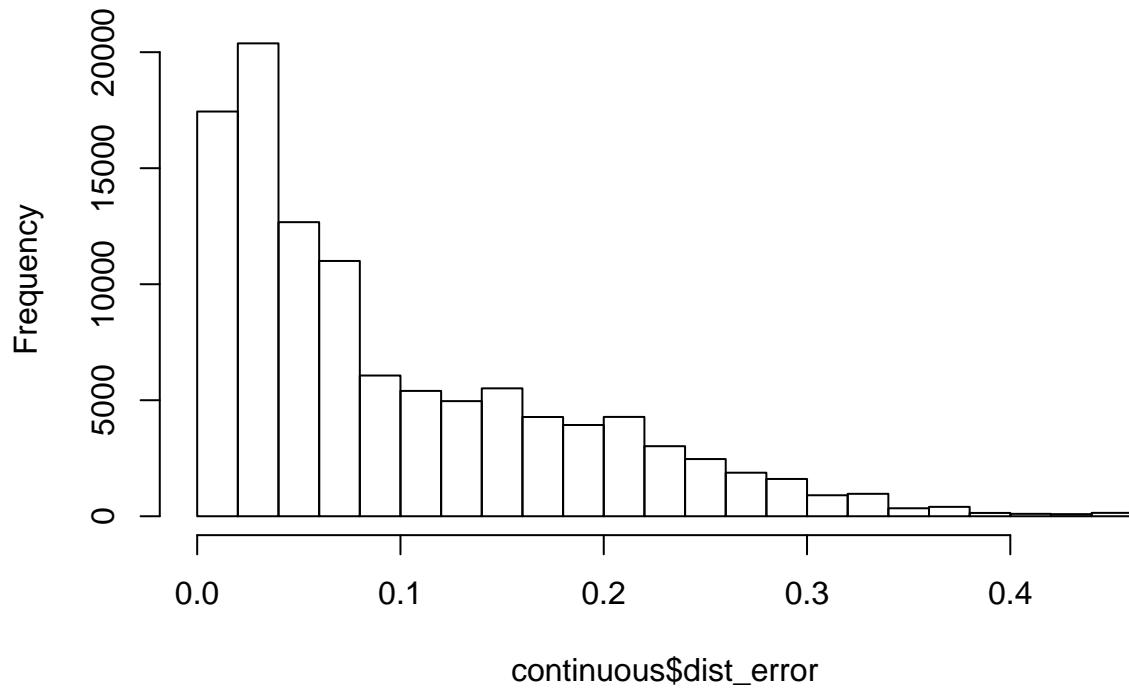
Continuous y_error



continuous\$y_error

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

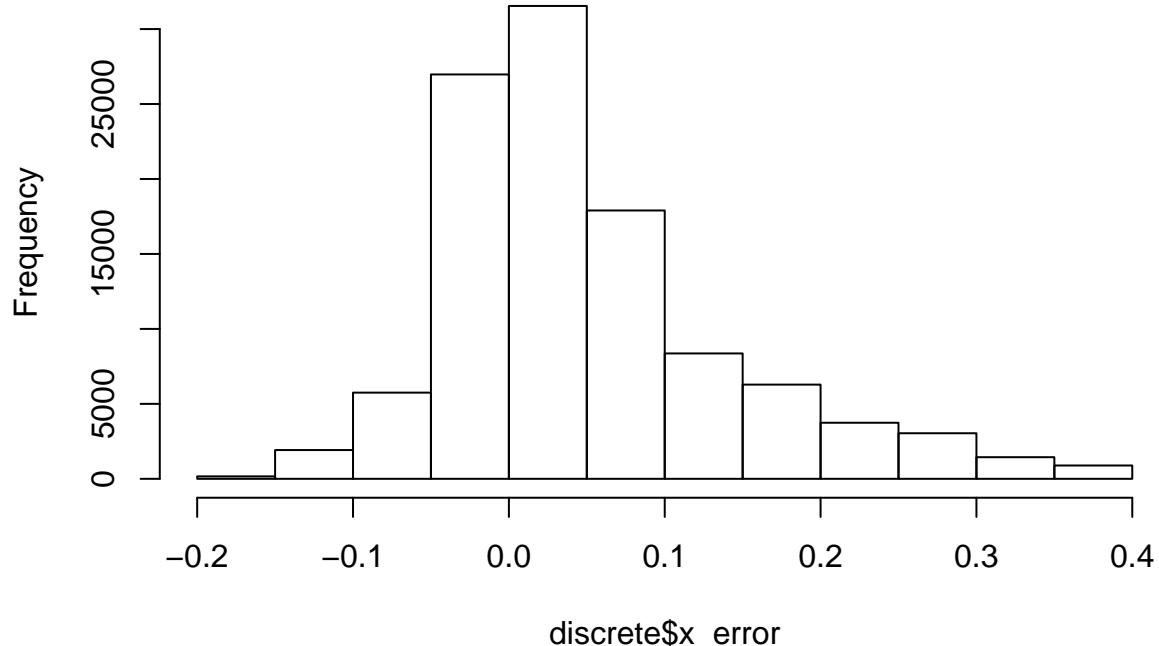
Continuous total distance error



continuous\$dist_error

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

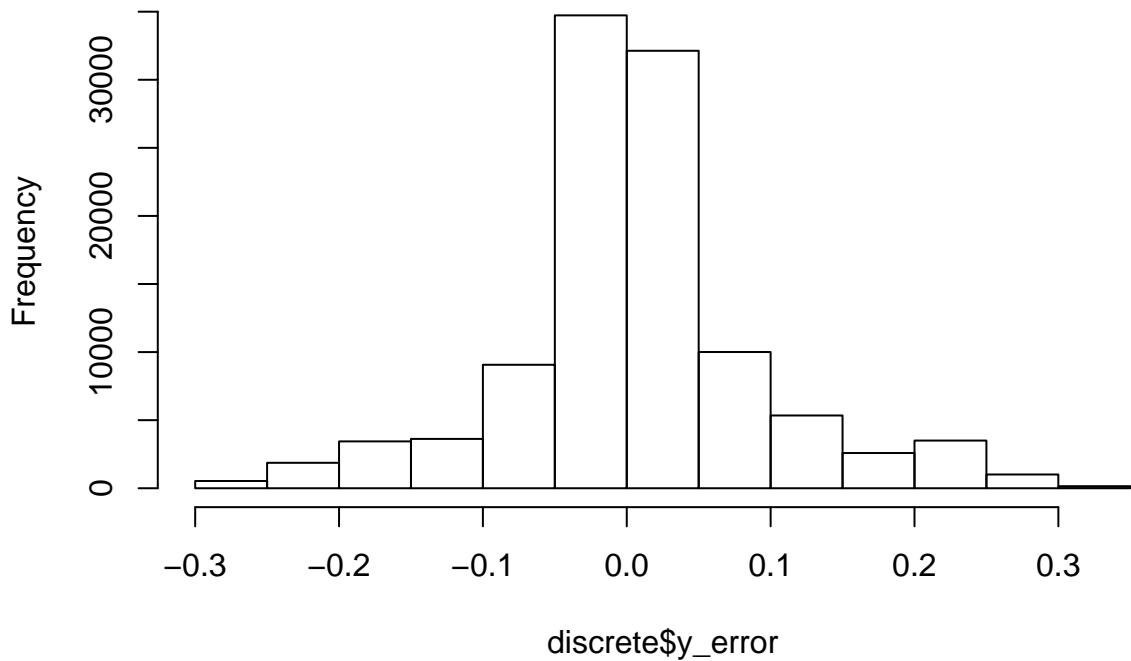
Discrete x_error



discrete\$x_error

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

Discrete y_error



Discrete total distance error

