

# five\_mobile\_noisy\_false Experiment Report

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This is a summary of the data from the five\_mobile\_noisy\_false 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.
## -7.206e-02 -1.875e-04 -7.100e-07 -2.978e-05  2.463e-04  7.484e-02

summary(continuous$y_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## -7.261e-02 -2.384e-04 -1.930e-06 -4.866e-05  1.946e-04  7.747e-02

summary(continuous$dist_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## 4.000e-08 2.870e-06 4.442e-04 8.831e-03 1.151e-02 7.866e-02

summary(discrete$x_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## -22.19000 -0.09113  0.00000  0.10740  0.03515  92.35000

summary(discrete$y_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## -85.88000 -0.06284  0.00000 -0.11060  0.06166  24.46000

summary(discrete$dist_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## 0.00000  0.00271  0.12000  3.99800  6.15300 126.10000

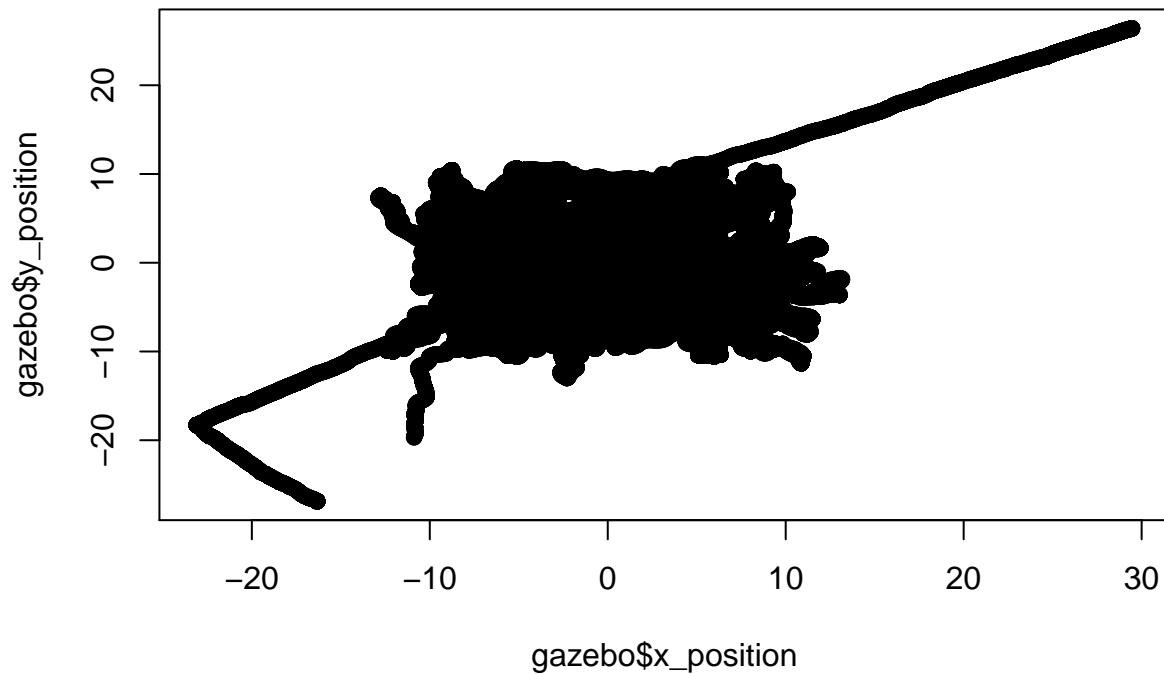
if (params$robot >= 2) {
  summary(external_data_averages)
}

##      Length Class Mode
## [1,] 1     -none- numeric
## [2,] 1     -none- numeric
## [3,] 1     -none- numeric
## [4,] 1     -none- numeric
## [5,] 1     -none- numeric
```

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

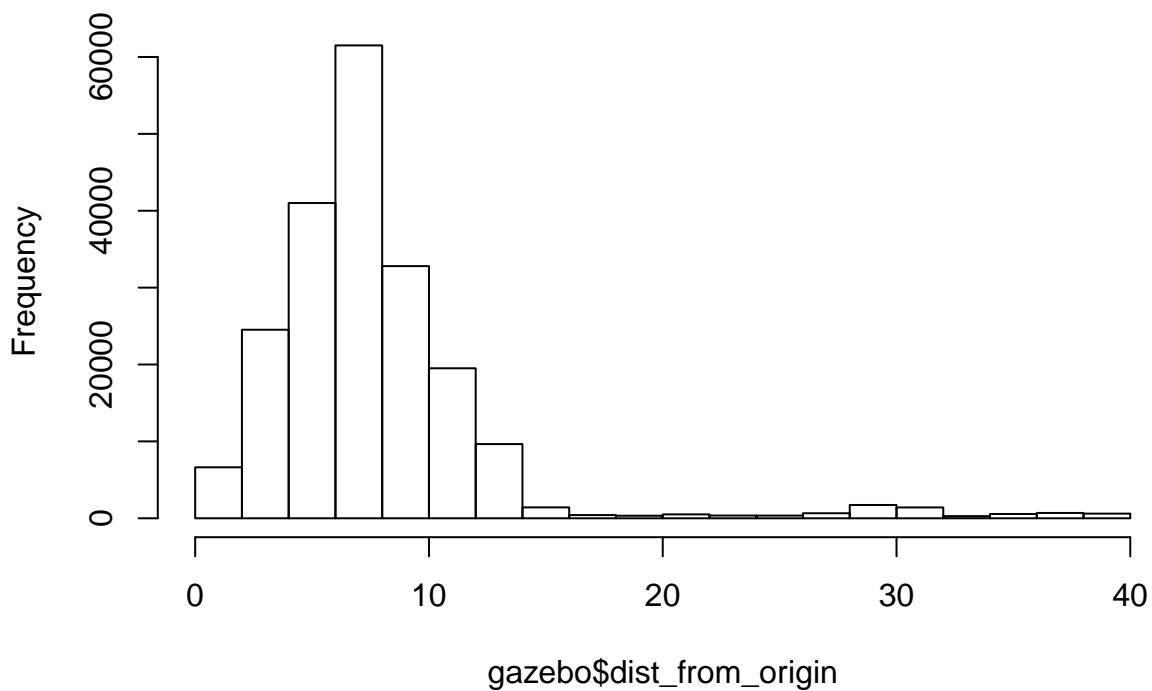
```
plot(gazebo$x_position, gazebo$y_position,
  main = "Ground truth visited locations of robots")
```

## Ground truth visited locations of robots



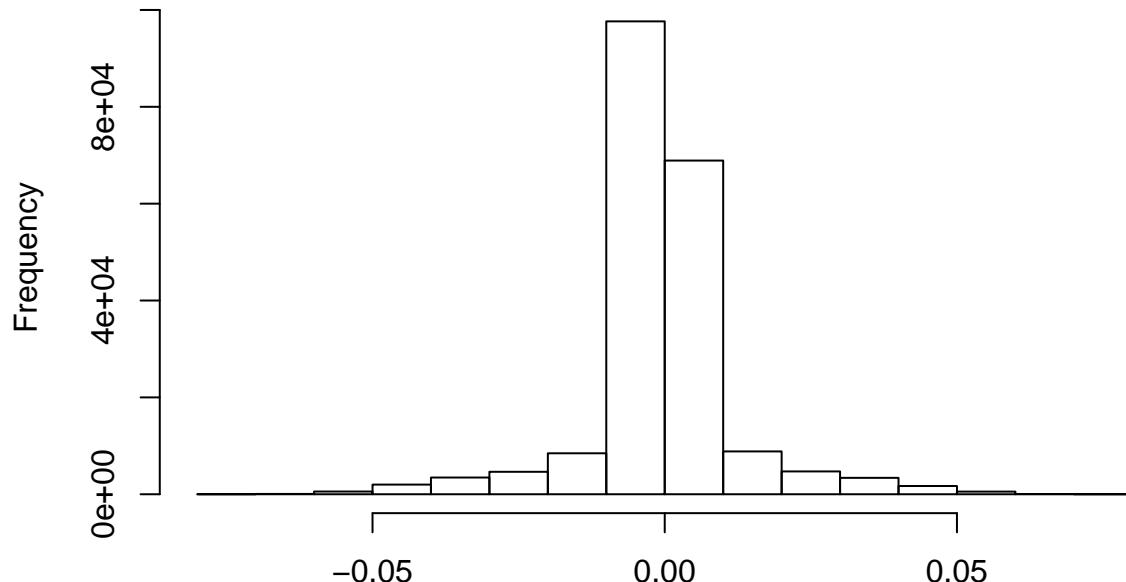
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time



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

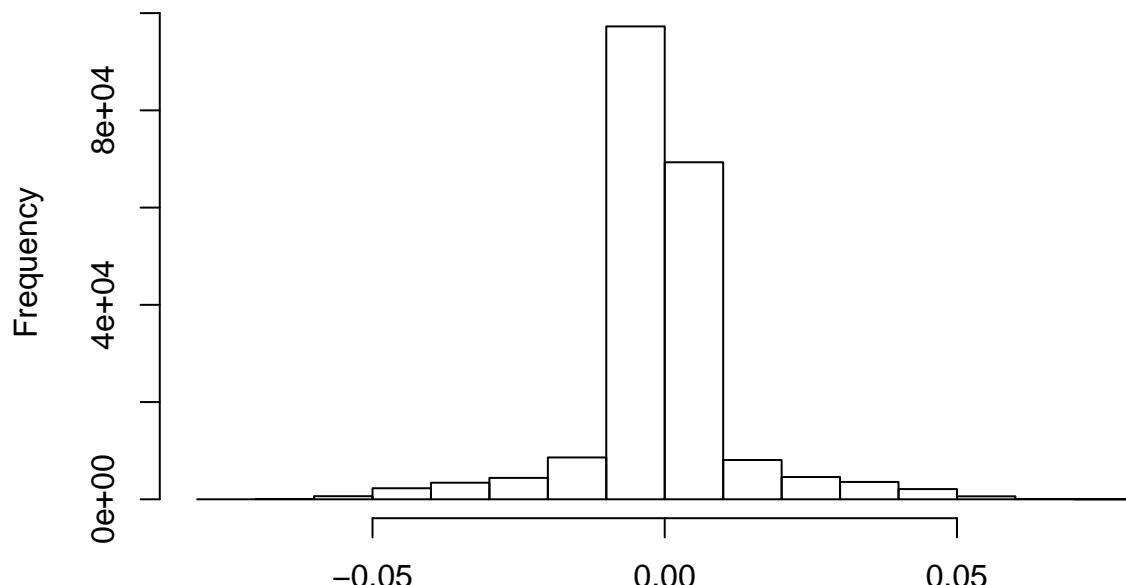
### Continuous x\_error



continuous\$x\_error

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

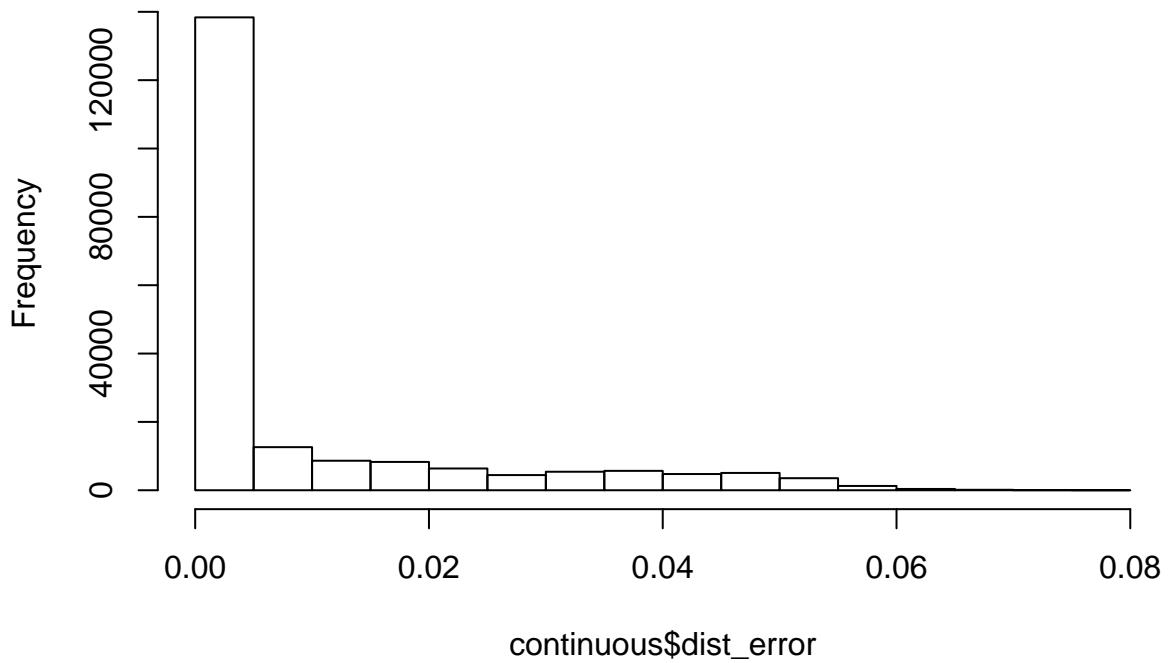
### Continuous y\_error



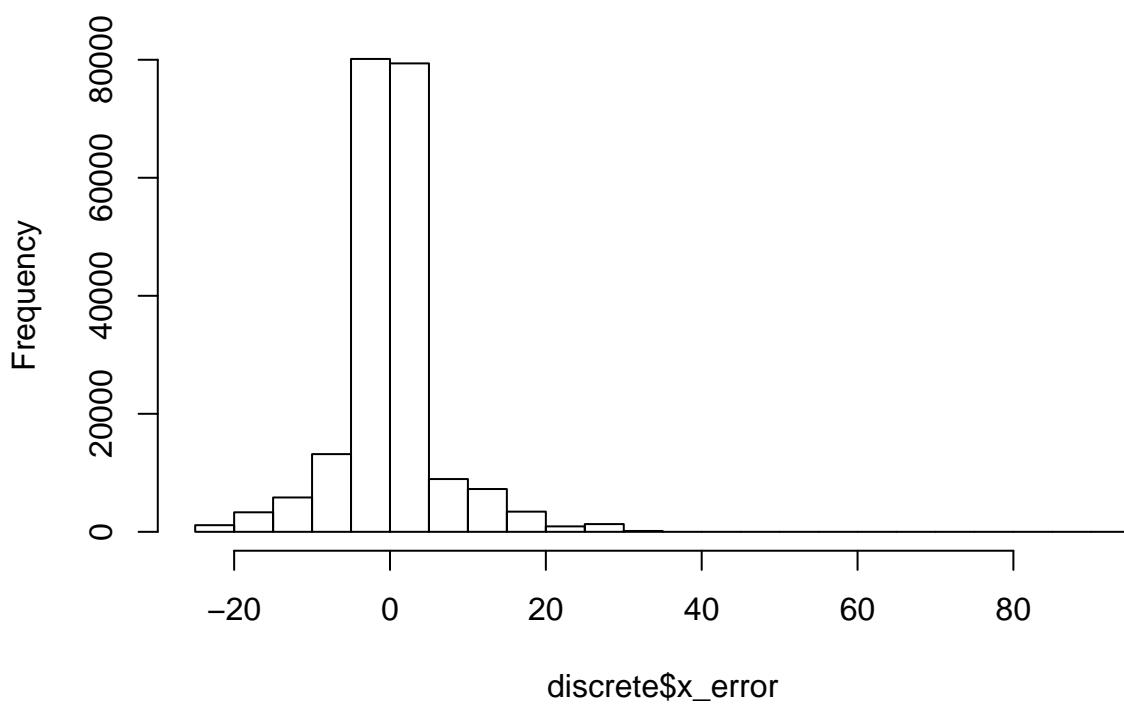
continuous\$y\_error

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

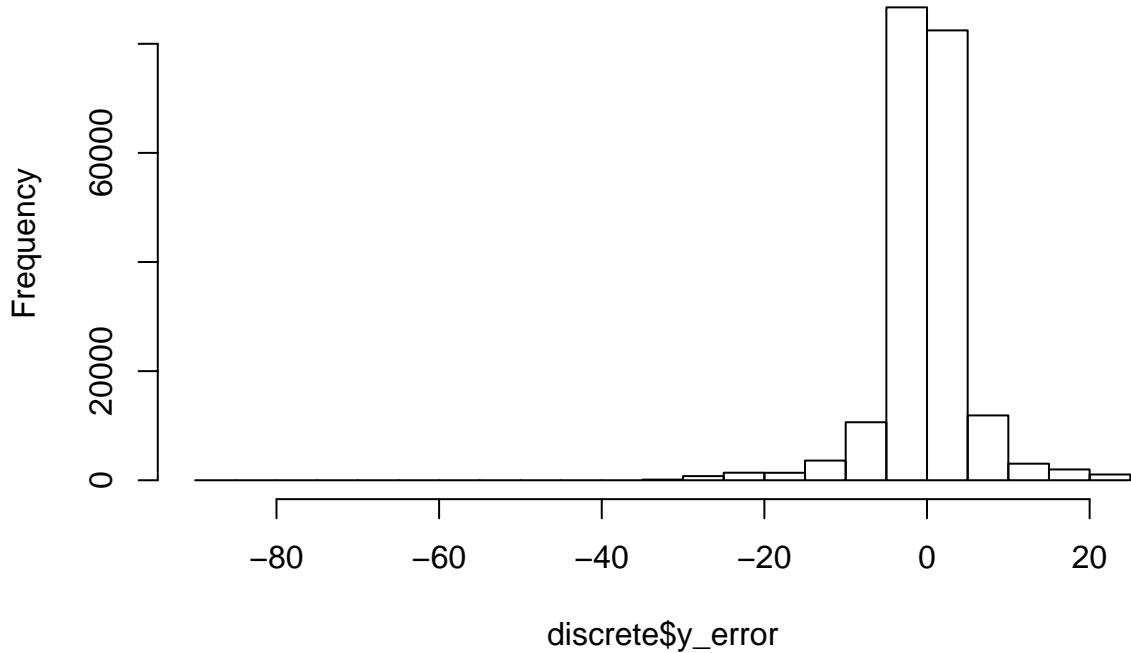
## Continuous total distance error



## Discrete x\_error



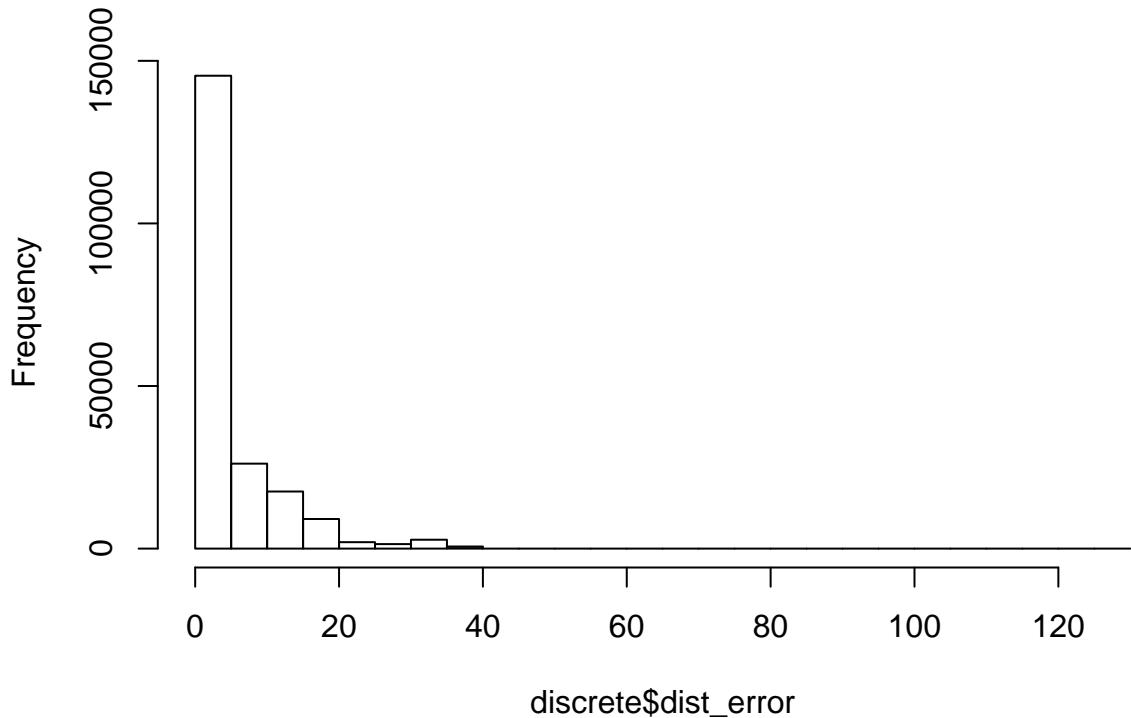
## Discrete y\_error



discrete\$y\_error

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

## Discrete total distance error



discrete\$dist\_error