

# 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.
## -13.6900 -2.0860 -0.1020 -0.6529  0.3389 10.9200

summary(continuous$y_error)

##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
## -13.69000 -0.26680  0.11650 -0.05718  0.81680 13.33000

summary(continuous$dist_error)

##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
##  0.0000  0.3327  0.8957  5.3470 10.9500 14.3000

summary(discrete$x_error)

##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
## -14.9100 -3.2950 -1.0310 -1.7150 -0.5907  9.7160

summary(discrete$y_error)

##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
## -3.728  -1.930  -1.531   3.919 10.710 23.300

summary(discrete$dist_error)

##      Min. 1st Qu. Median     Mean 3rd Qu.     Max.
##  0.000  2.110  2.566   7.766 14.100 24.110

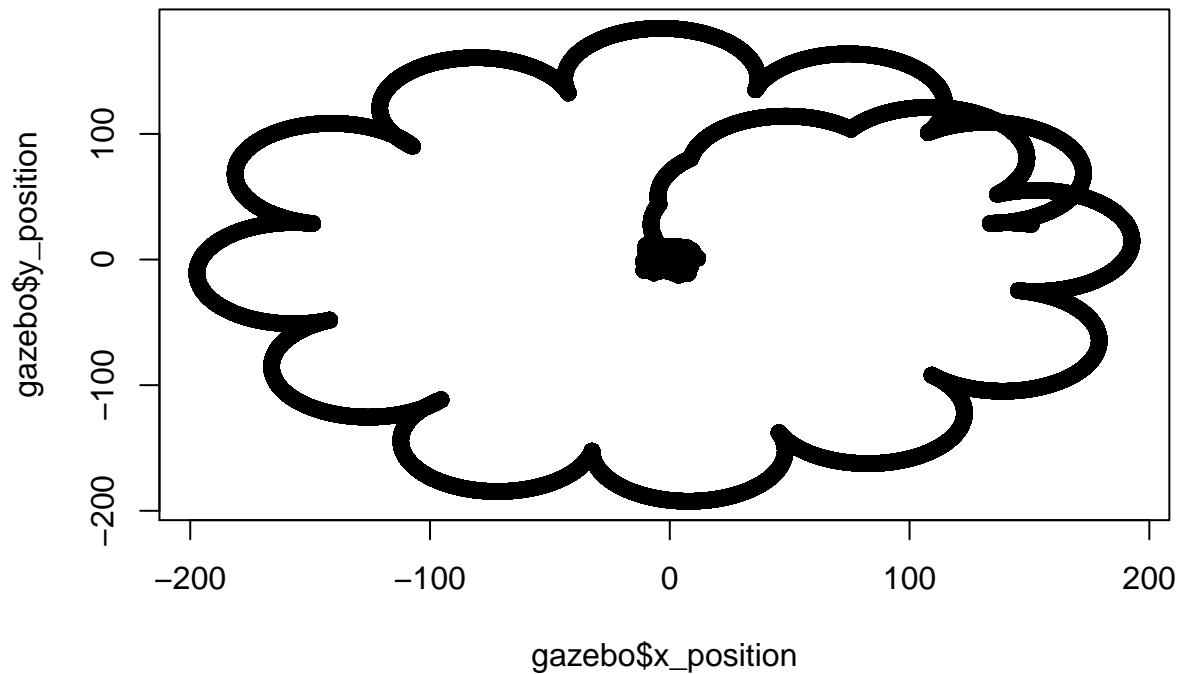
if (params$robot >= 2) {
  summary(external_data_averages)
}

##      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



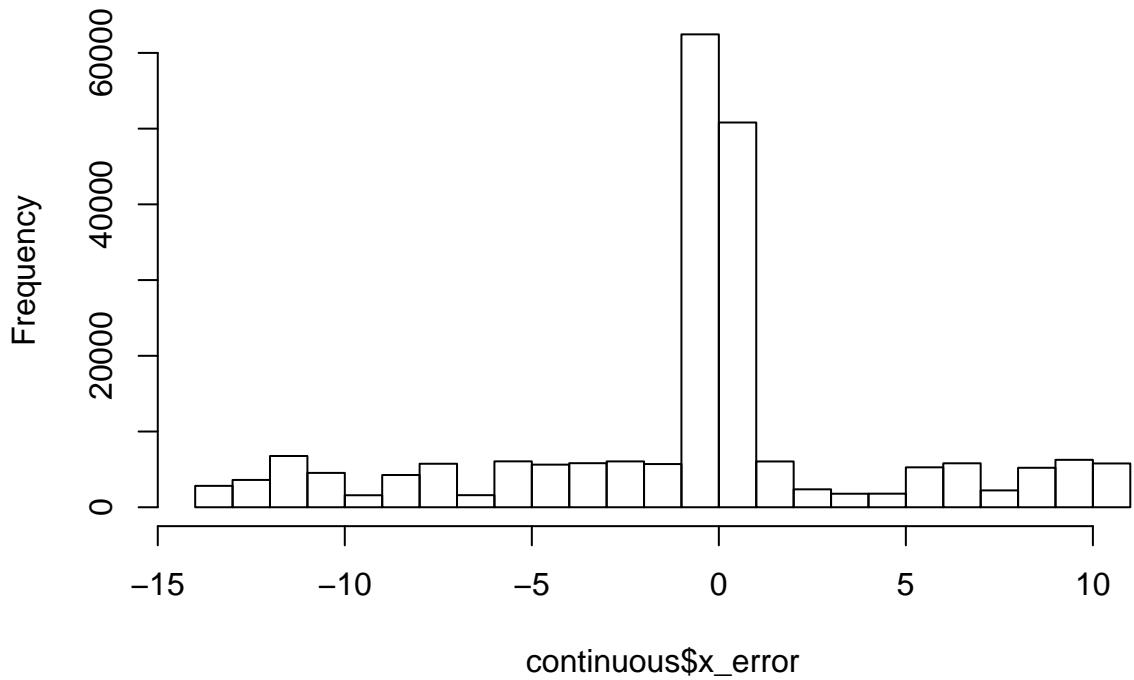
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

**Distance from origin vs. time**



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

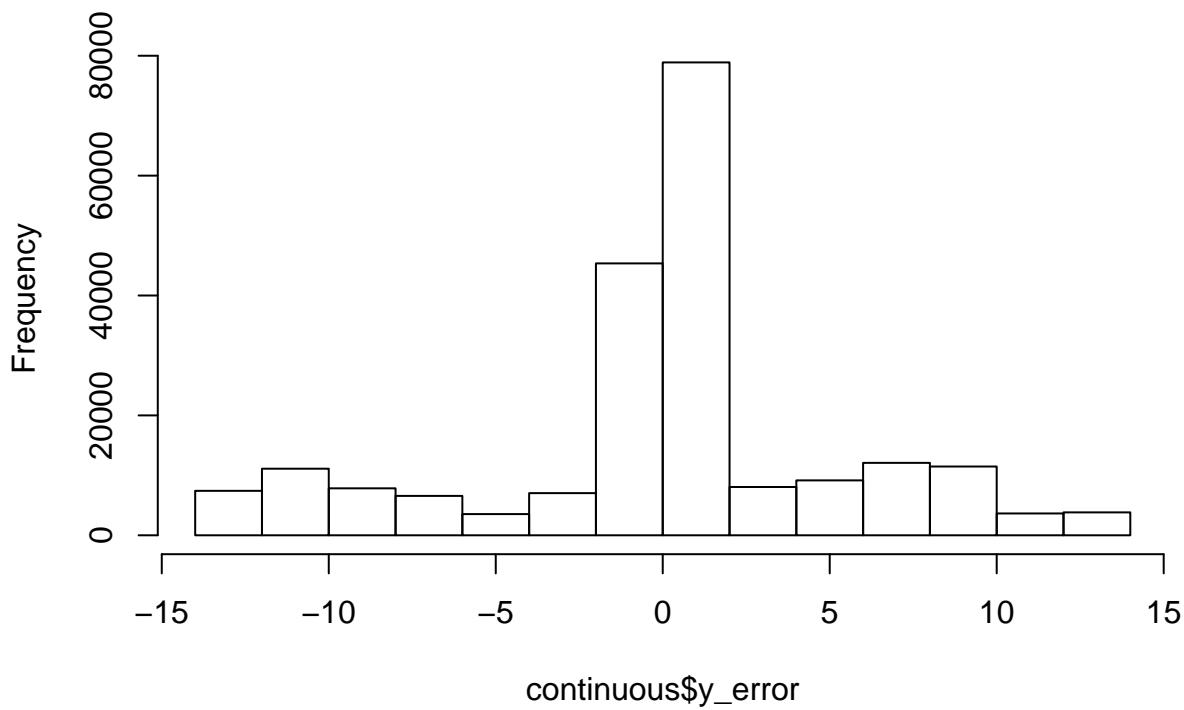
### Continuous x\_error



```
continuous$x_error
```

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

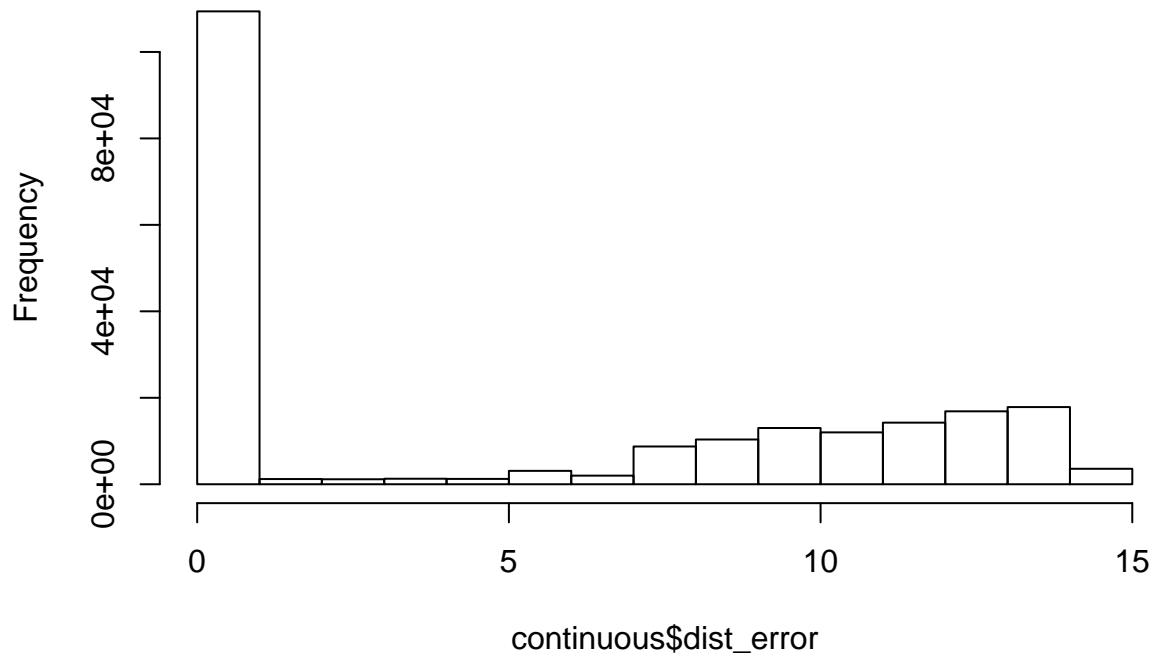
### Continuous y\_error



```
continuous$y_error
```

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

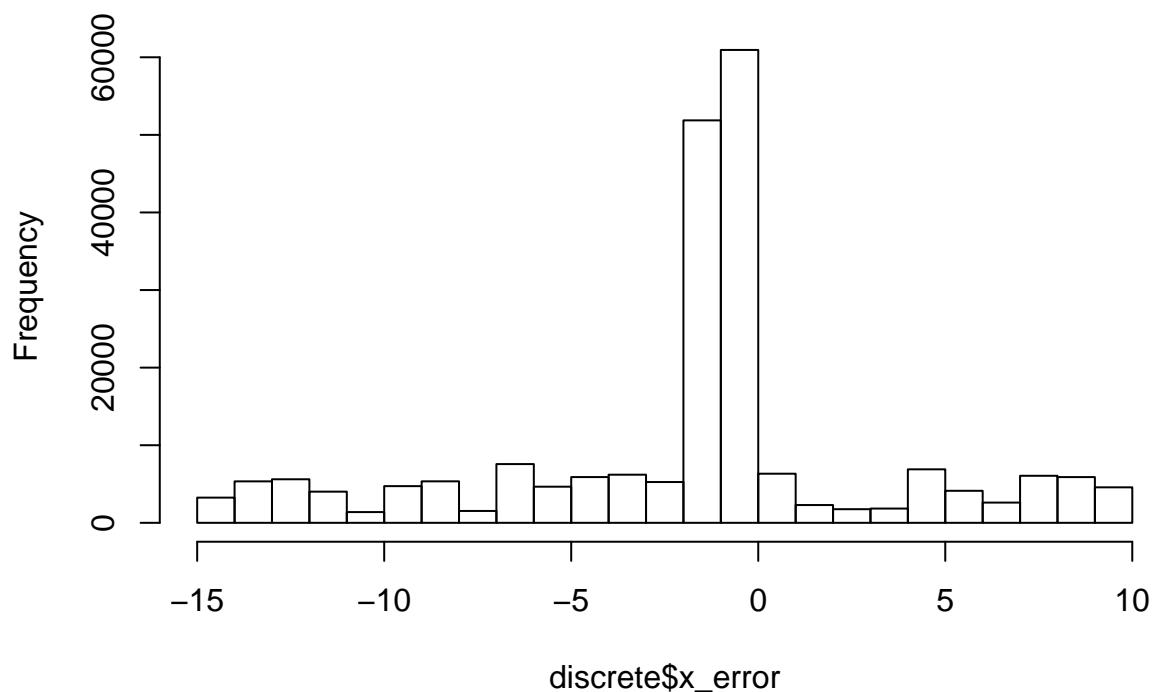
### Continuous total distance error



continuous\$dist\_error

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

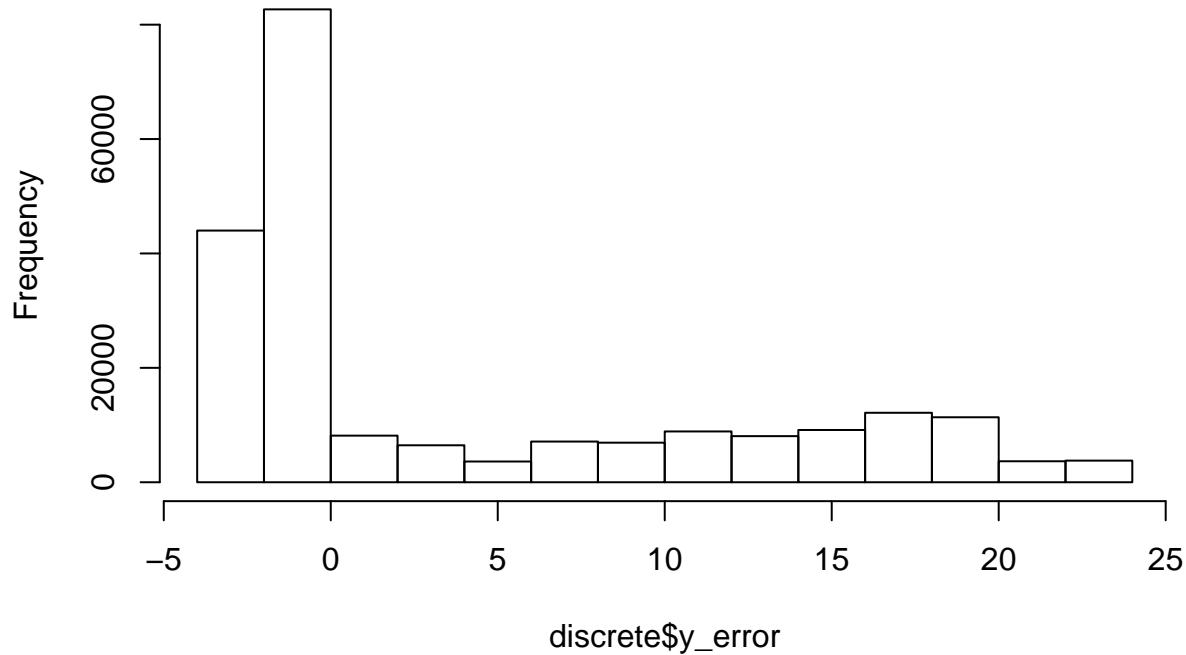
### Discrete x\_error



discrete\$x\_error

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

## Discrete y\_error



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

## Discrete total distance error

