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.

```r
summary(continuous$x_error)
```

```
##      Min.  1st Qu.   Median     Mean  3rd Qu.      Max.
##  0.000016  3.532000  6.629000  6.374000  9.321000 11.960000
```

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

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## -7.1750 -4.7810 -2.5500 -2.8470 -0.6909  0.0000
```

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

```
##      Min.  1st Qu.   Median     Mean  3rd Qu.      Max.
##  0.000016  3.599000  7.102000  7.028000 10.480000 13.950000
```

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

```
##        Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -0.0643400  0.0000050  0.0001593  0.0475200  0.0248100  0.3840000
```

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

```
##        Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -0.3316000 -0.0119000 -0.0001312 -0.0315000 -0.0000029  0.0735600
```

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

```
##      Min.  1st Qu.   Median     Mean  3rd Qu.      Max.
## 0.0000001 0.0000077 0.0002543 0.0591900 0.0364800 0.4488000
```

```r
if (params$robot >= 2) {
    summary(external_data_averages)
}
```
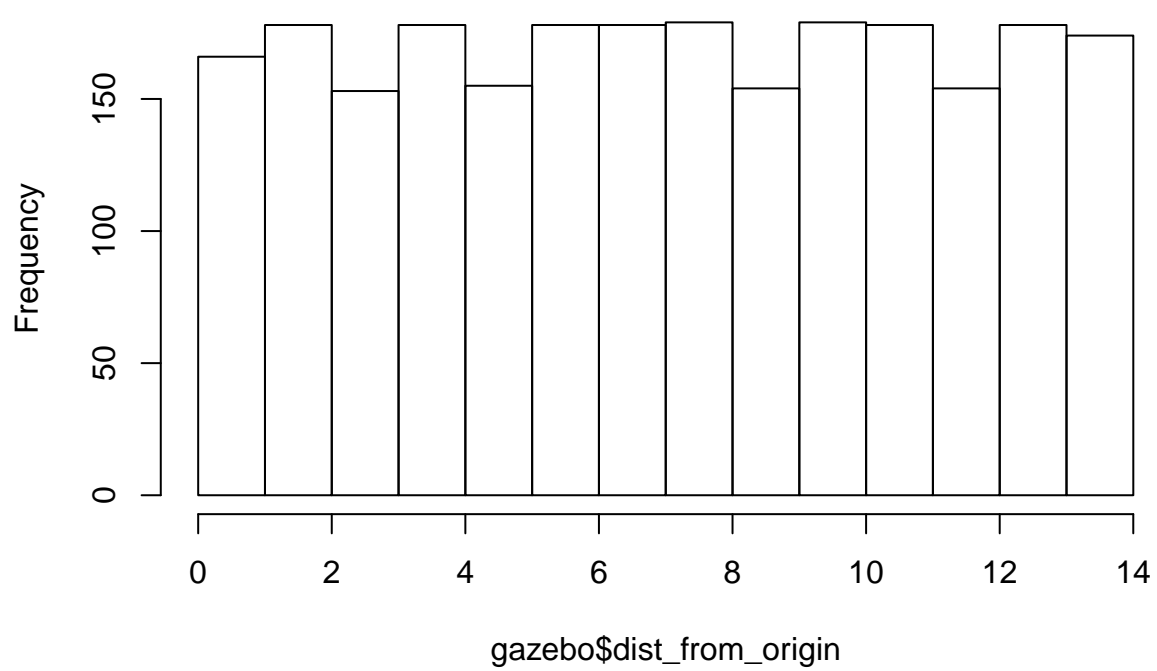
Shown below are plots representing the robot's motion and error over time.

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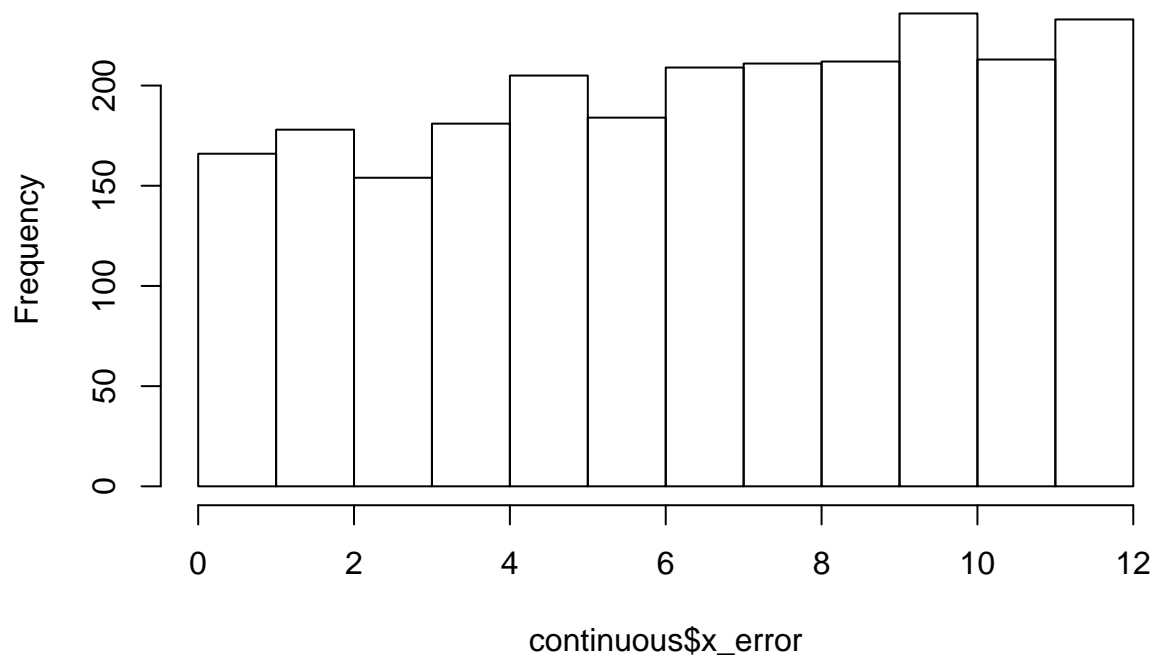
Ground truth visited locations of robots
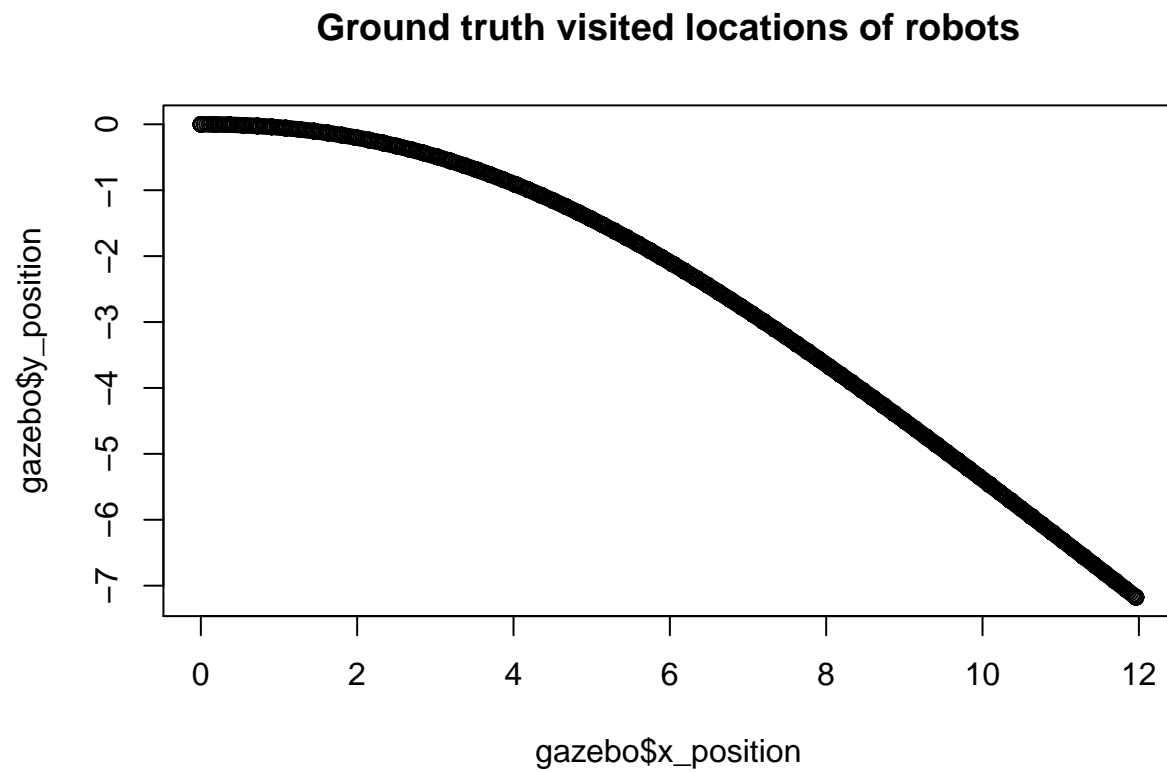

```r
hist(gazebo$dist_from_origin,
     main = "Distance from origin vs. time")
```
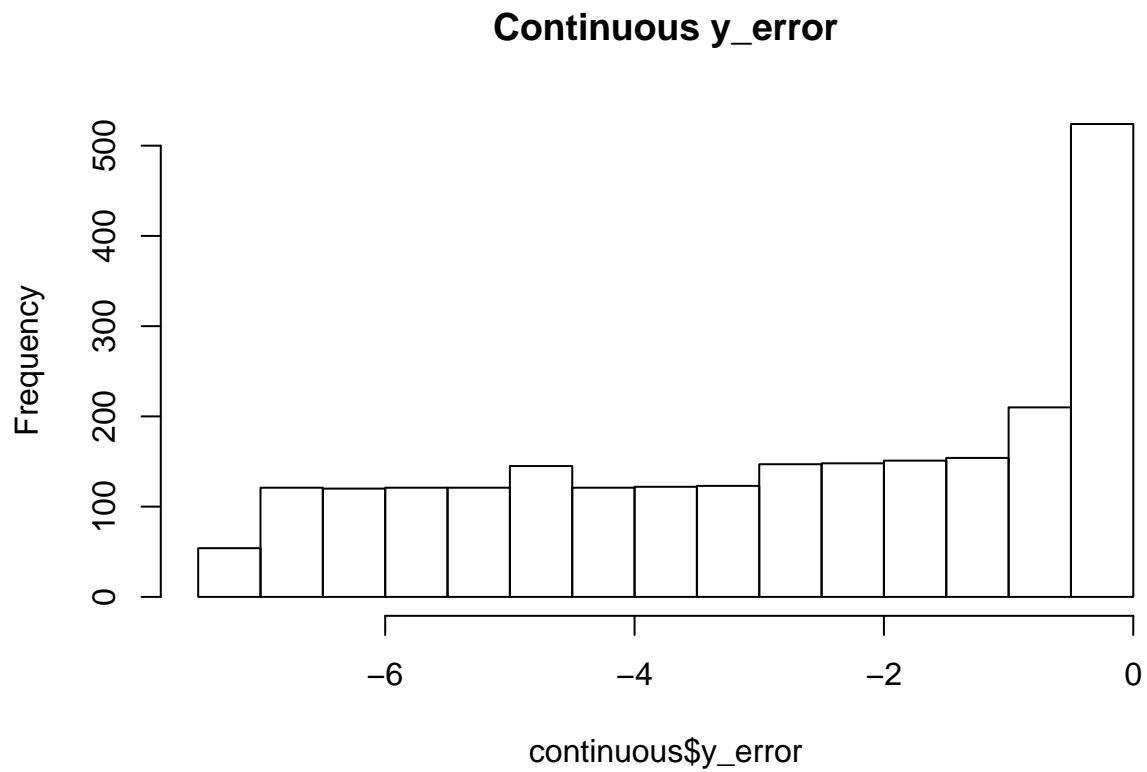
Distance from origin vs. time

gazebo$dist_from_origin

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

Continuous x_error

continuous$x_error

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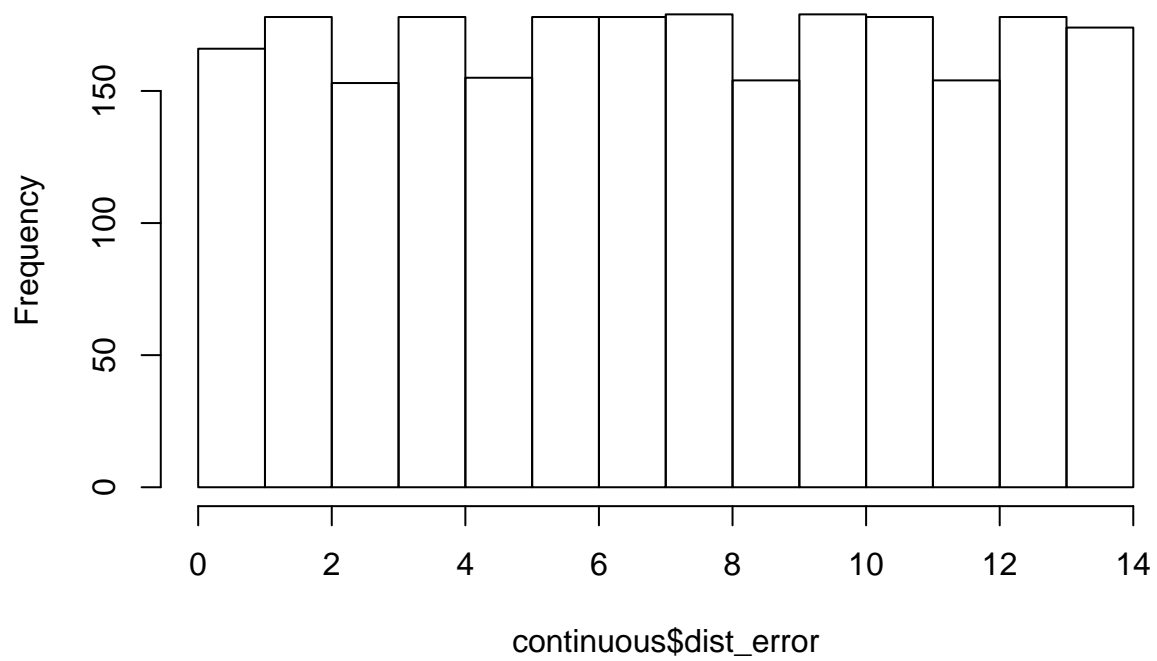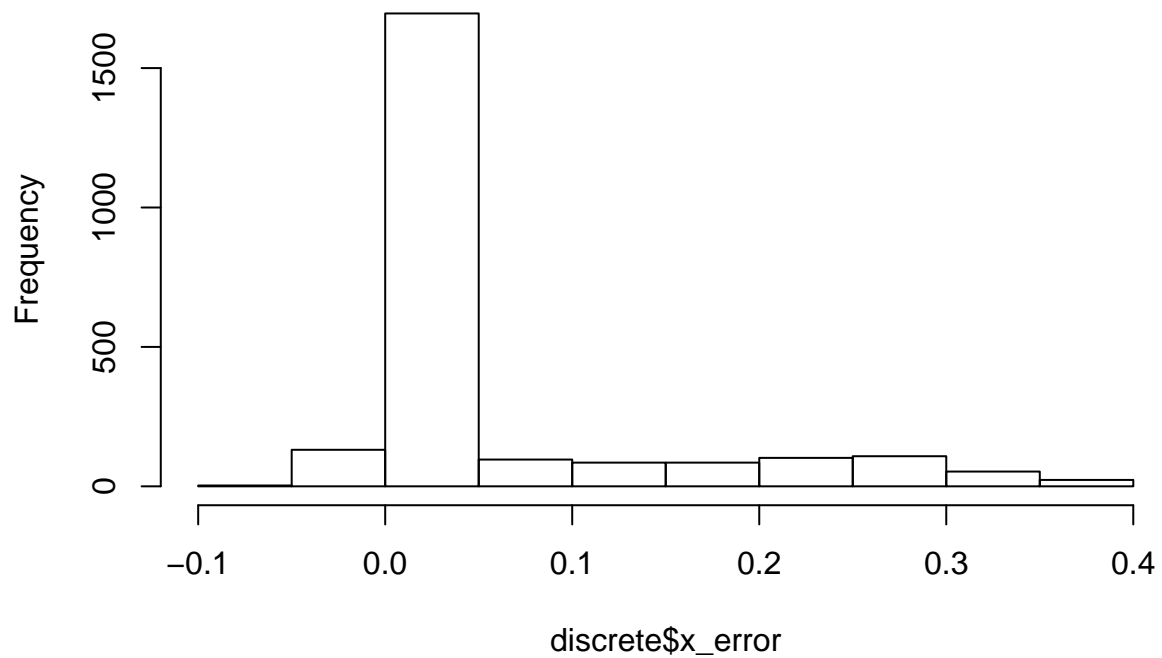
Continuous y_error


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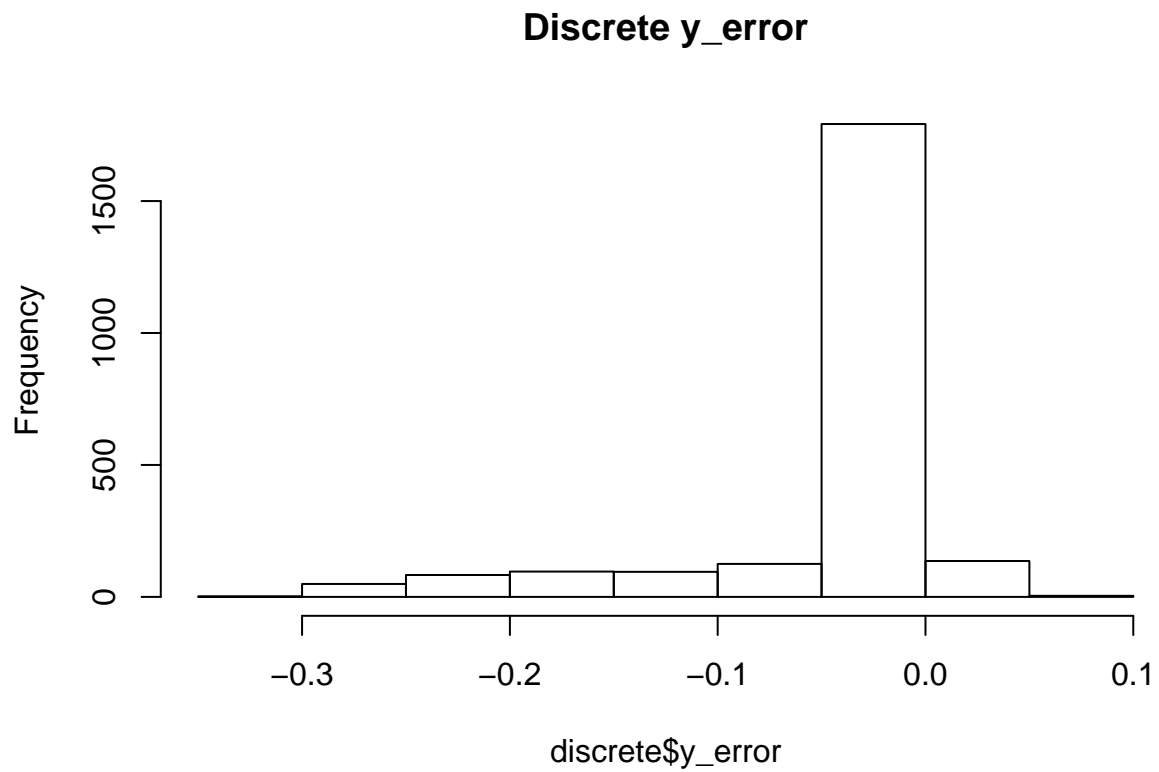
Continuous total distance error

continuous$dist_error

```r
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