two_mobile_noisy_true Experiment Report

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This is a summary of the data from the two_mobile_noisy_true 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.
## -7.972e-02 -8.000e-03  6.676e-05 -2.536e-05  8.048e-03  7.200e-02
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -0.0757400 -0.0076370  0.0002087  0.0003233  0.0085190  0.0859100
```

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

```
##      Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## 1.474e-05 6.302e-03 1.585e-02 2.274e-02 3.895e-02 8.682e-02
```

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

```
##      Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -1.264000 -0.007673 -0.000009 -0.002625   0.007447   7.602000
```

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

```
##        Min.    1st Qu.     Median       Mean    3rd Qu.       Max.
## -1.5210000 -0.0067420 -0.0000004  0.0019010  0.0081210  1.7050000
```

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

```
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## 0.000000 0.001495 0.016330 0.070440 0.053060 7.606000
```

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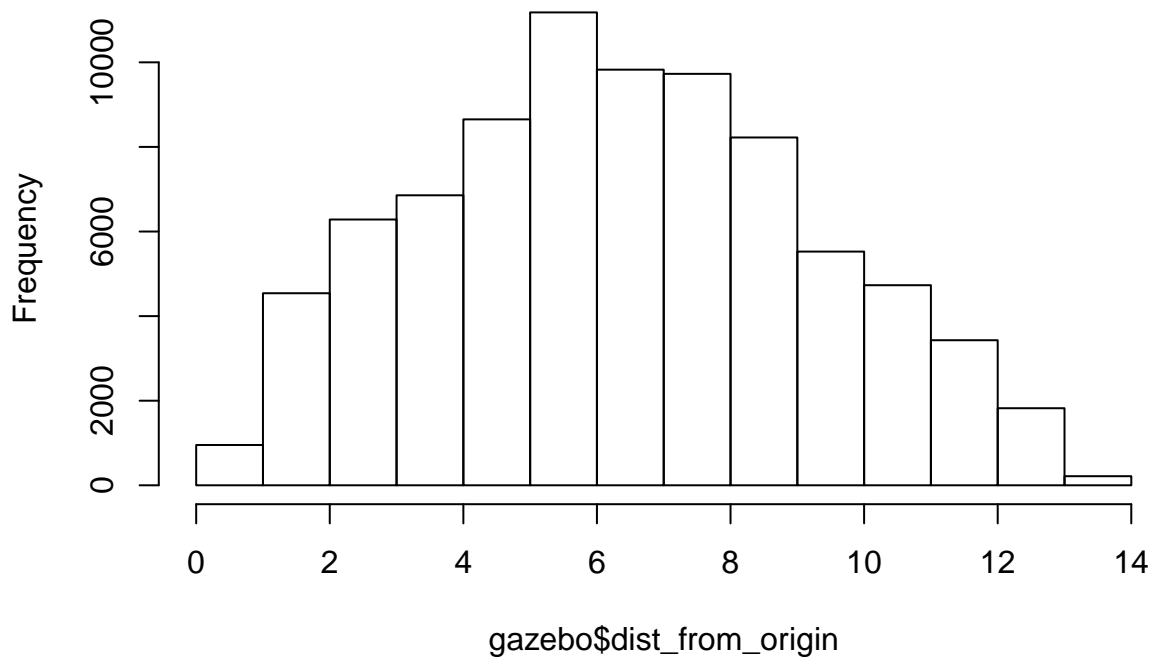
```
plot(gazebo$x_position, gazebo$y_position,
     main = "Ground truth visited locations of robots")
```

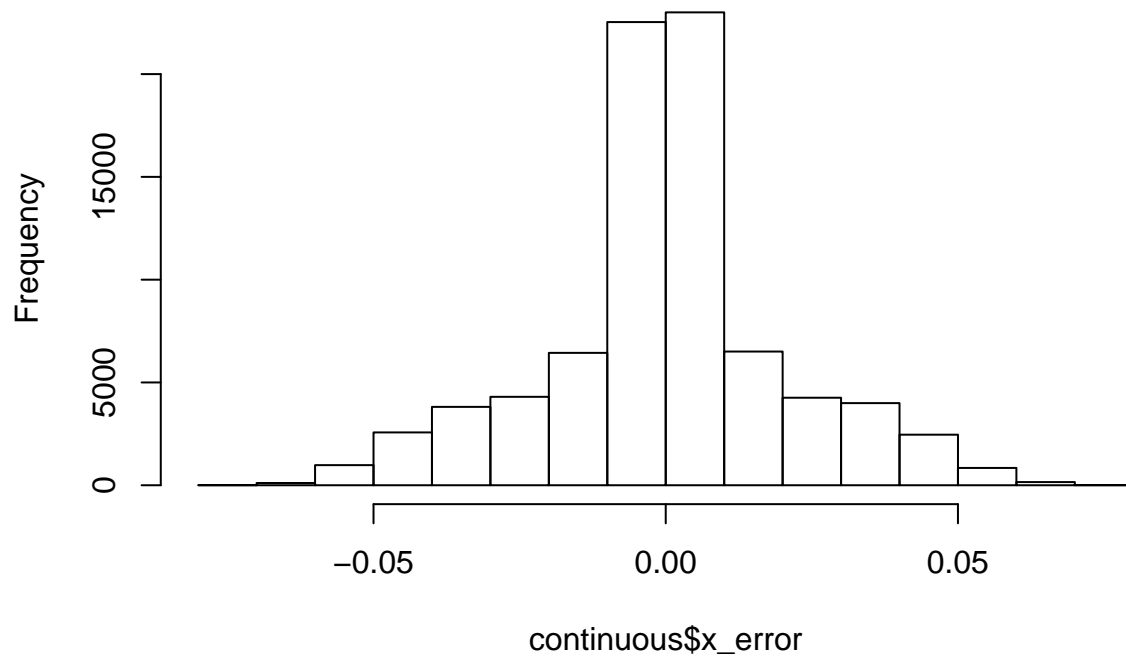## Ground truth visited locations of robots


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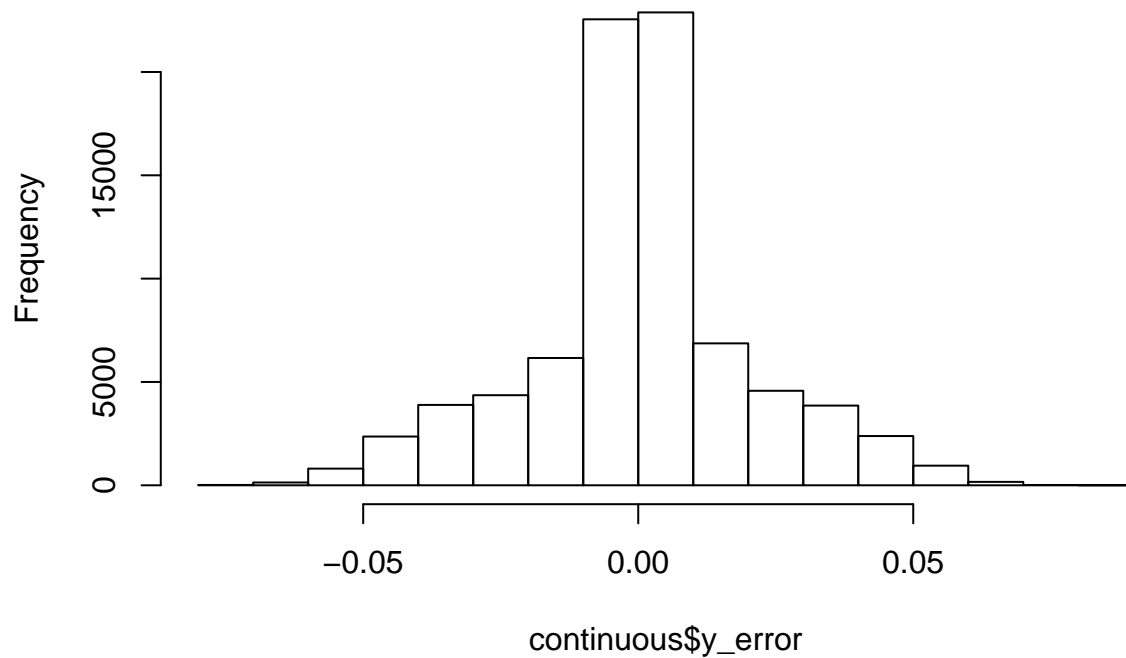
Distance from origin vs. time


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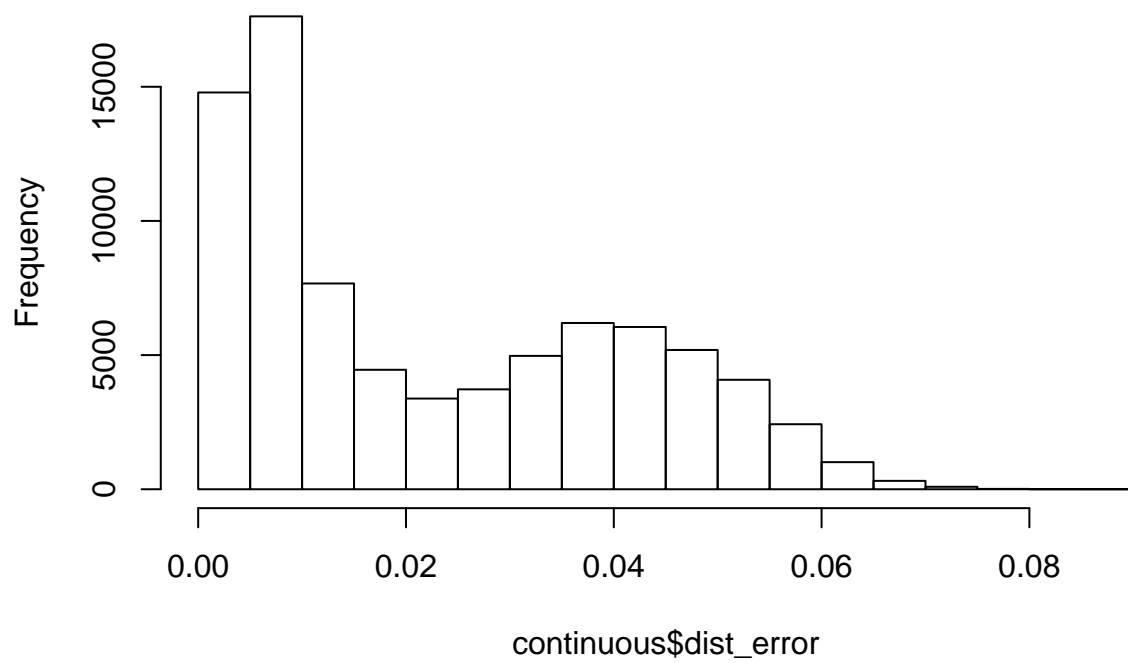
Continuous x_error

continuous$x_error

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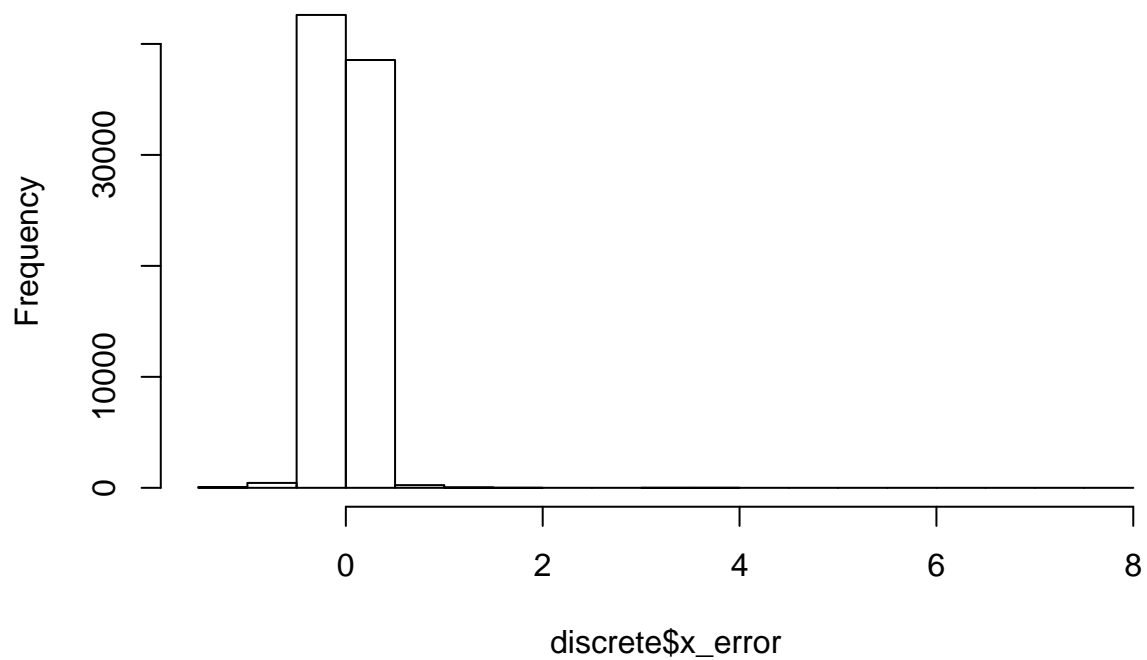
Continuous y_error

continuous$y_error

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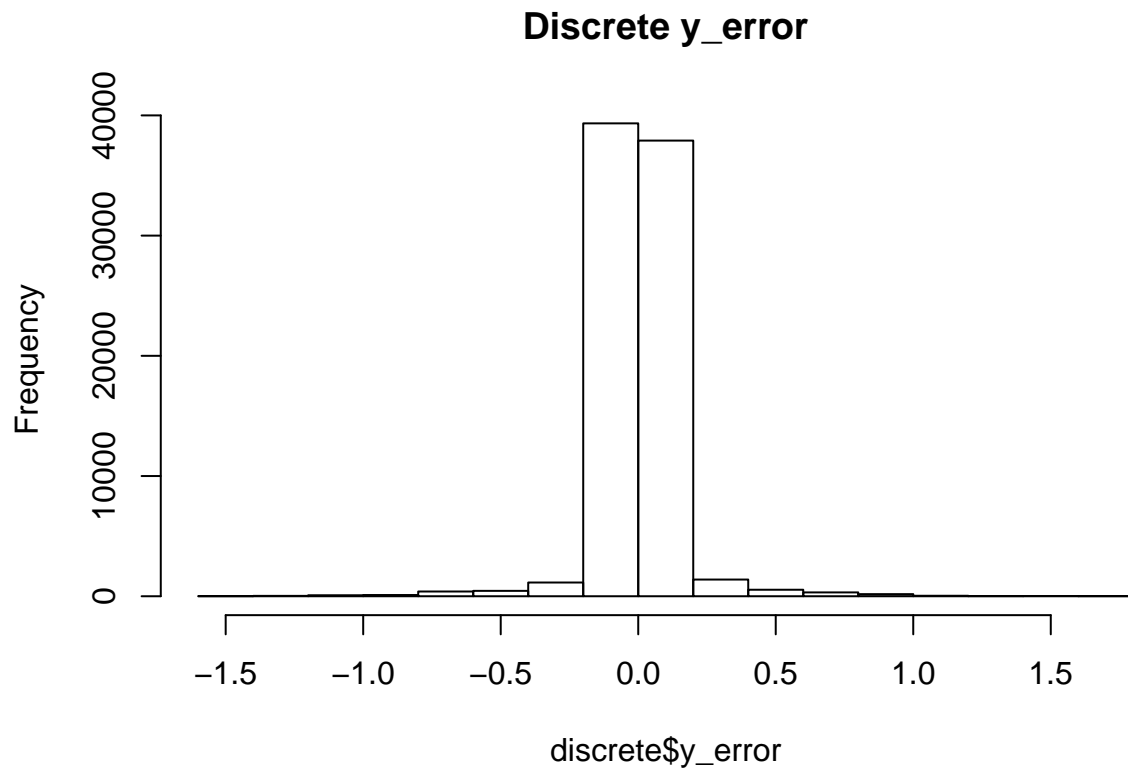
Continuous total distance error

continuous$dist_error

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

Discrete x_error

discrete$x_error

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

Discrete y_error


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

Discrete total distance error