one_stationary_noisy_true Experiment Report

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This is a summary of the data from the one_stationary_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.
## -1.893e-02 -2.968e-03 -3.943e-05 -3.702e-05  2.896e-03  1.790e-02
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.        Max.
## -2.017e-02 -2.999e-03 -5.518e-05 -3.727e-05  2.928e-03  1.785e-02
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.        Max.
## 4.351e-05  3.324e-03  5.168e-03  5.506e-03  7.327e-03  2.017e-02
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.        Max.
## 1.442e-06  3.341e-06  5.228e-06  5.476e-06  7.609e-06  9.504e-06
```

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

```
##       Min.    1st Qu.     Median       Mean    3rd Qu.        Max.
## 1.527e-10  2.510e-08  5.486e-08  6.802e-08  1.006e-07  2.360e-07
```

```
summary(discrete$dist_error)
```
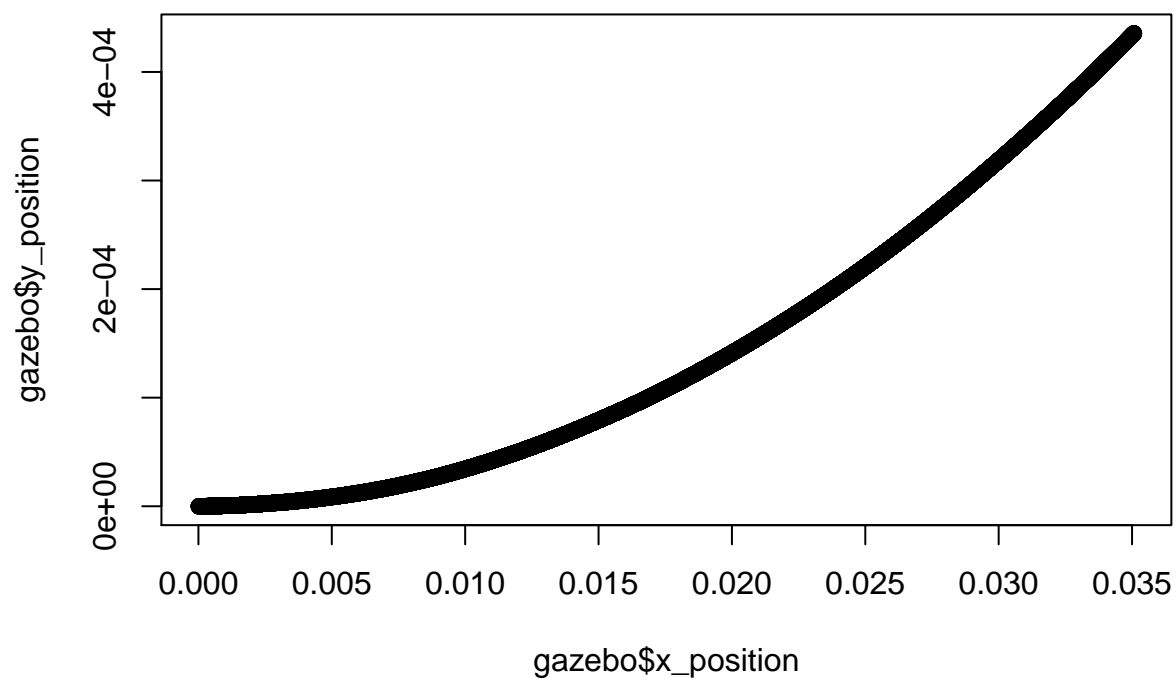
```
##       Min.    1st Qu.     Median       Mean    3rd Qu.        Max.
## 1.442e-06  3.341e-06  5.229e-06  5.476e-06  7.609e-06  9.506e-06
```

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

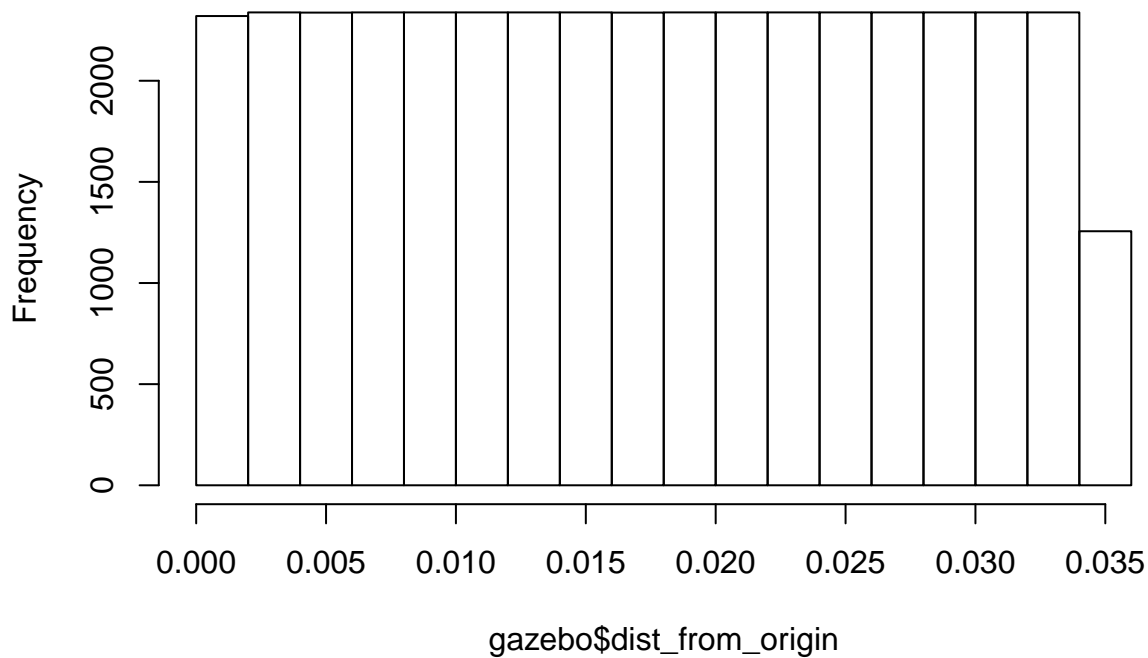Shown below are plots representing the robot's motion and error over time.

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

Ground truth visited locations of robots
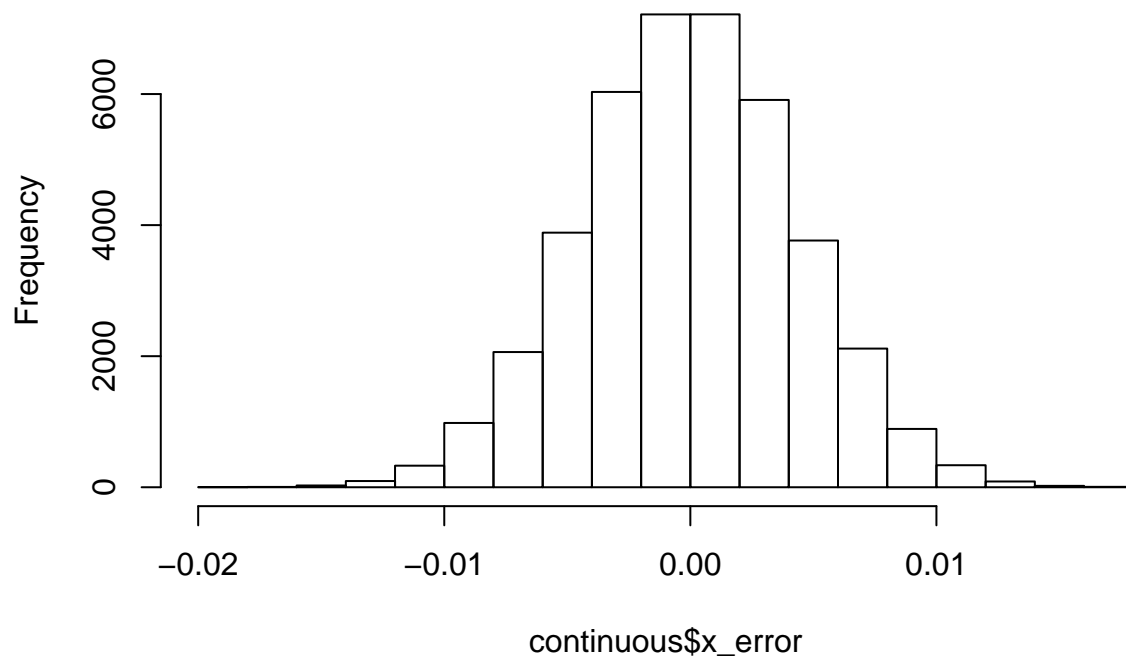


```
hist(gazebo$dist_from_origin,
     main = "Distance from origin vs. time")
```
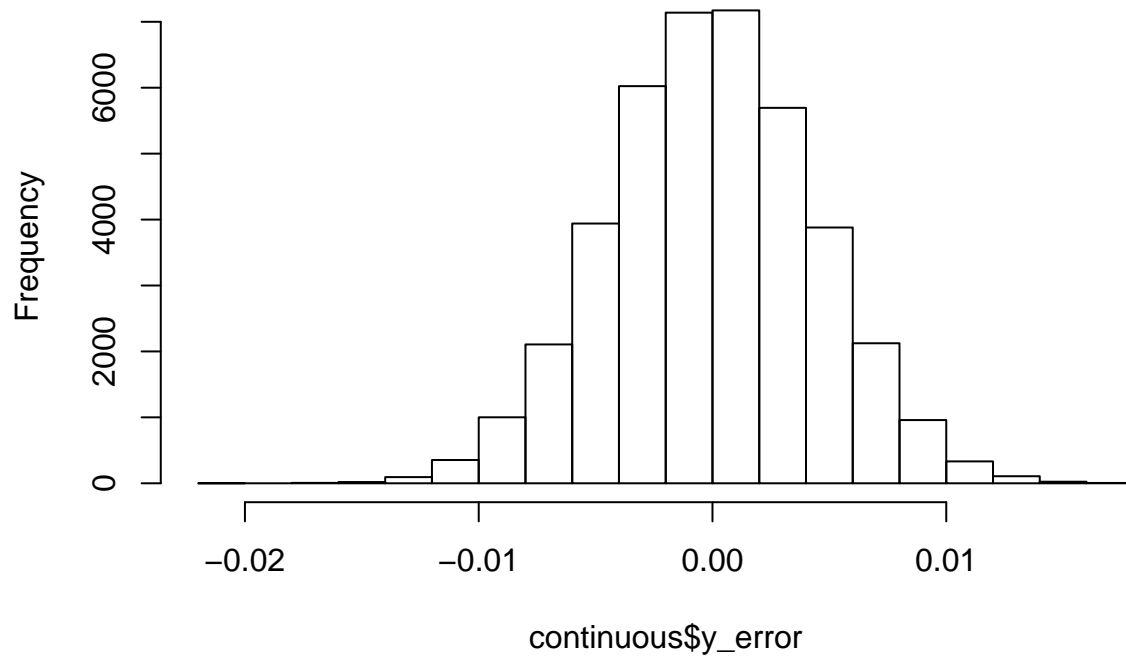
Distance from origin vs. time


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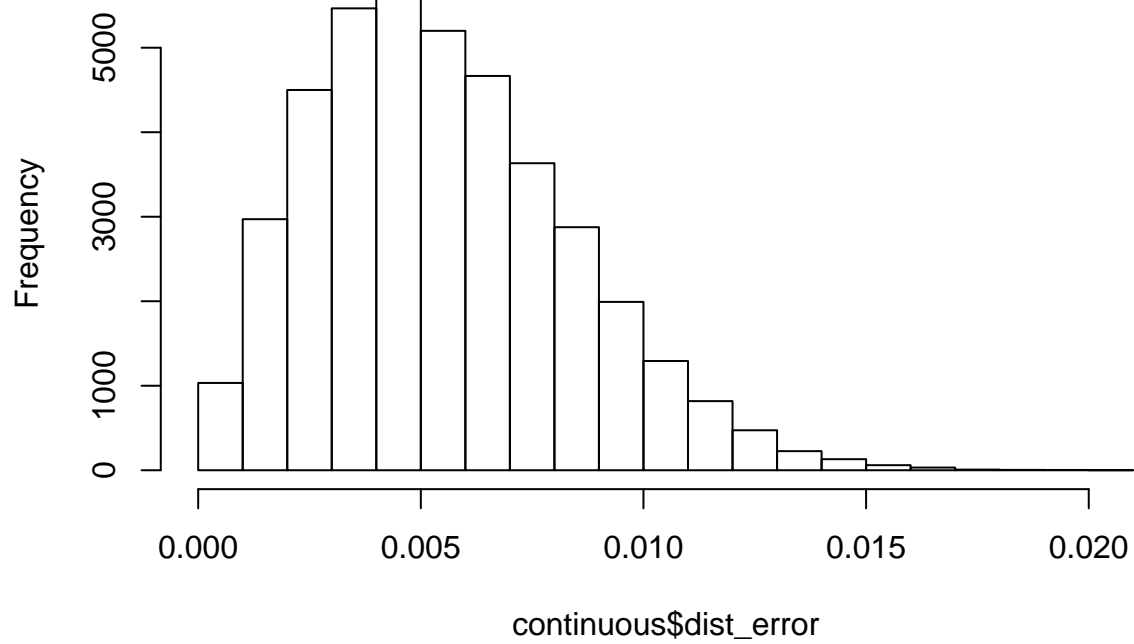
Continuous x_error

continuous$x_error

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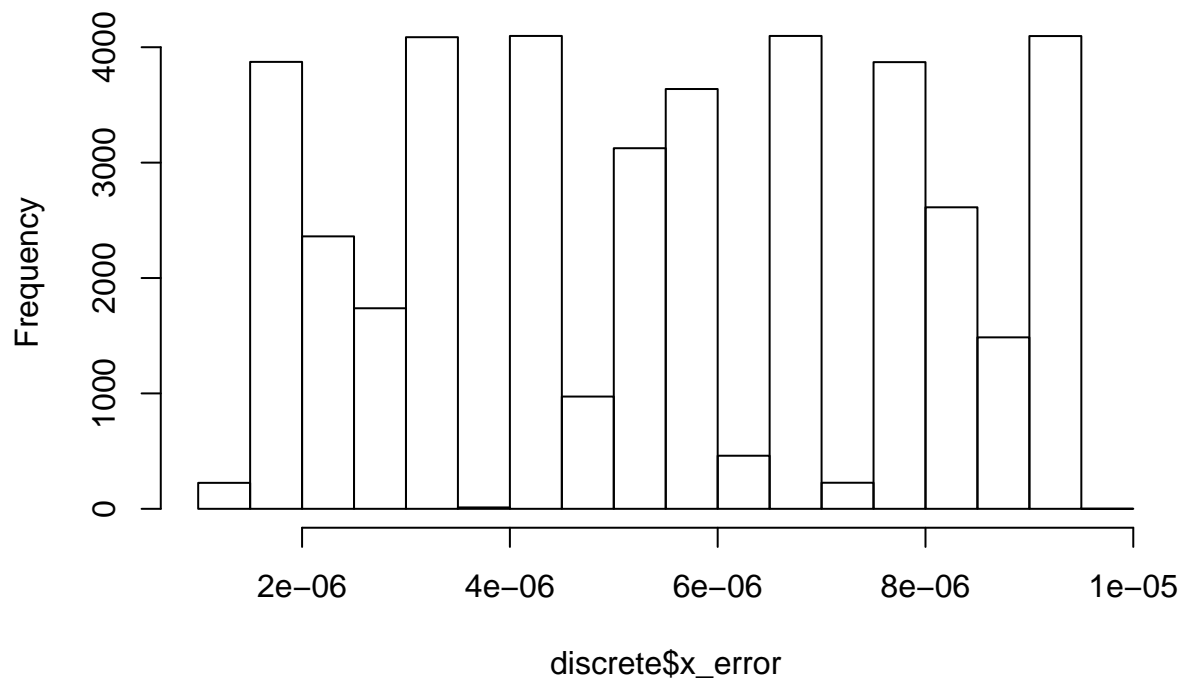
Continuous y_error

continuous$y_error

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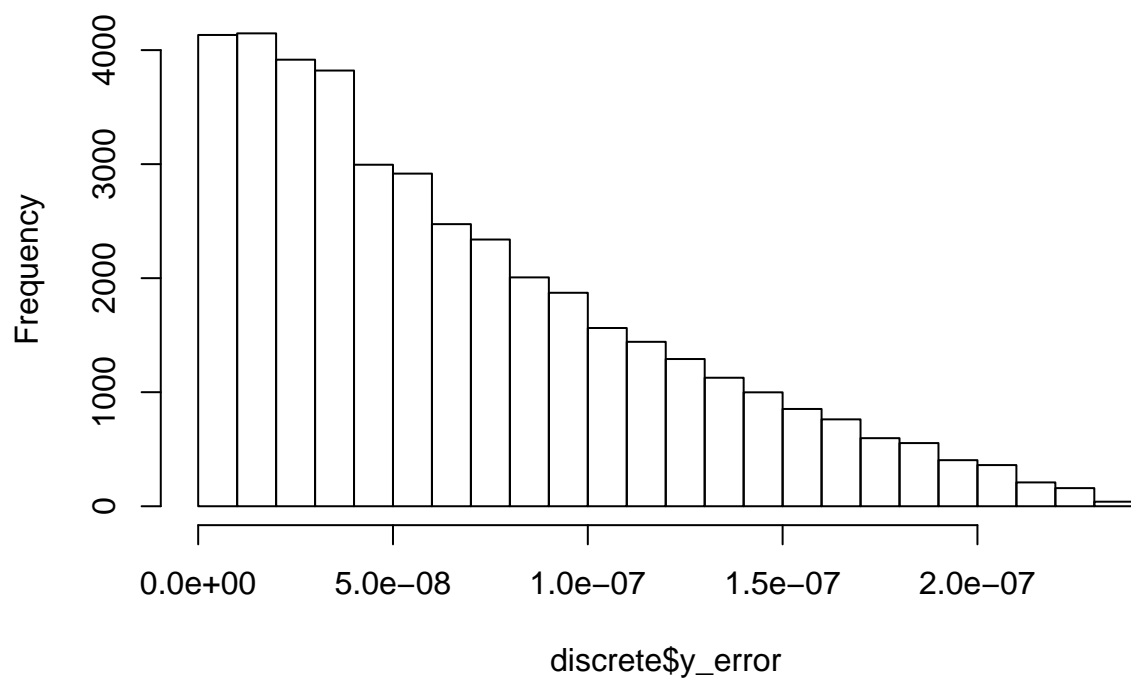
Continuous total distance error

Frequency

continuous$dist_error

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

Discrete x_error

Frequency

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