

one_stationary Experiment Report

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This is a summary of the data from the one_stationary 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.
## -2.400e-07  1.483e-02  2.965e-02  2.965e-02  4.448e-02  5.930e-02

summary(continuous$y_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## -1.000e-10  3.823e-05  1.509e-04  2.047e-04  3.449e-04  6.213e-04

summary(continuous$dist_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## 2.400e-07  1.483e-02  2.965e-02  2.965e-02  4.448e-02  5.931e-02

summary(discrete$x_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## -2.400e-07  1.483e-02  2.965e-02  2.965e-02  4.448e-02  5.930e-02

summary(discrete$y_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## -1.000e-10  3.823e-05  1.509e-04  2.047e-04  3.449e-04  6.213e-04

summary(discrete$dist_error)

##      Min.    1st Qu.     Median      Mean     3rd Qu.     Max.
## 2.400e-07  1.483e-02  2.965e-02  2.965e-02  4.448e-02  5.931e-02

summary(external_data_averages)

##      Length Class Mode
## [1,]    1   -none- numeric
```

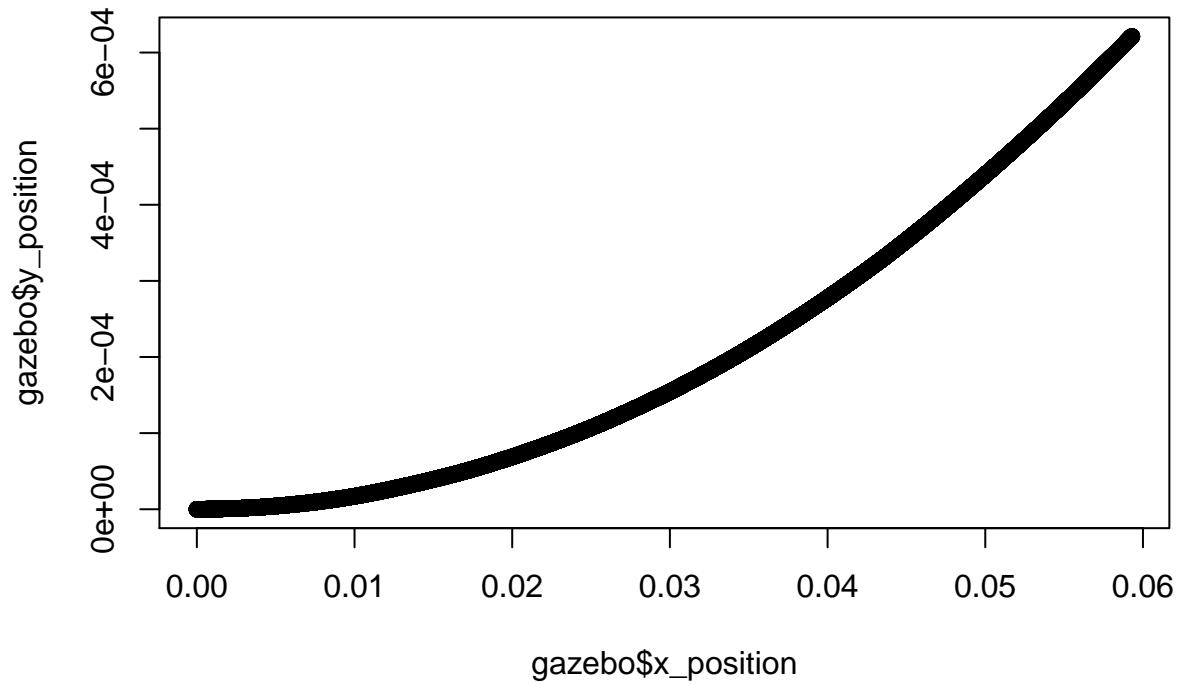
Shown below are plots representing the robot's motion and error over time.

```
message("ground truth")

## ground truth

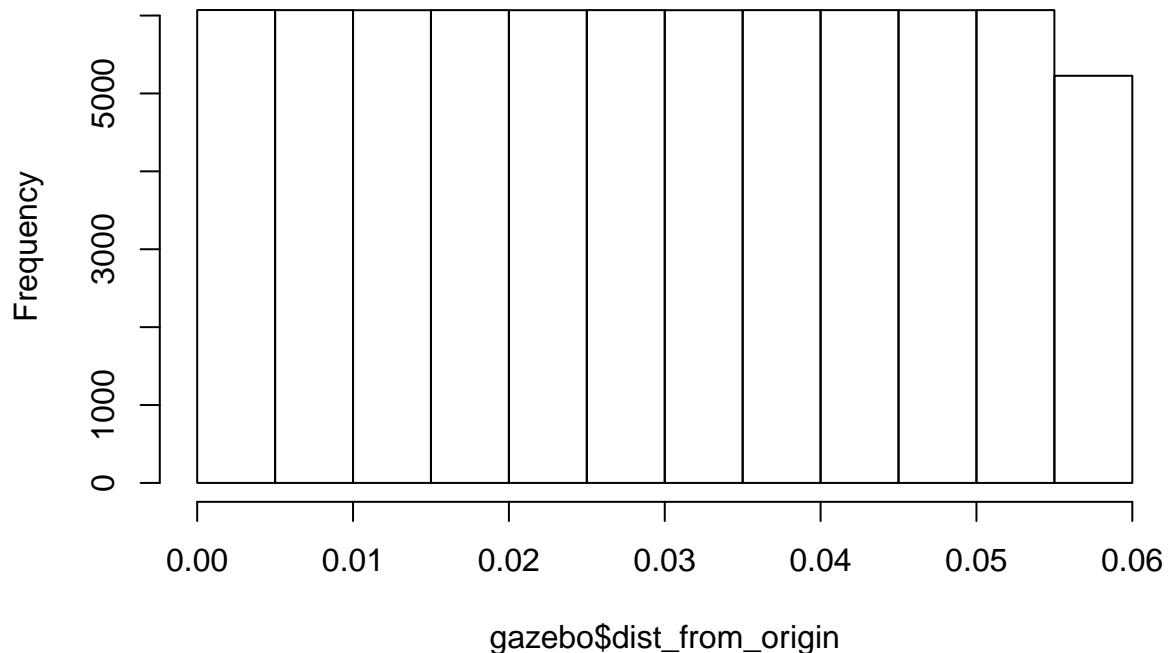
plot(gazebo$x_position, gazebo$y_position)
title("Ground truth visited locations of robot")
```

Ground truth visited locations of robot



```
message("dist from origin")
## dist from origin
hist(gazebo$dist_from_origin)
title("Distance from origin vs. time")
```

Histogram of gazebo\$dist_from_origin

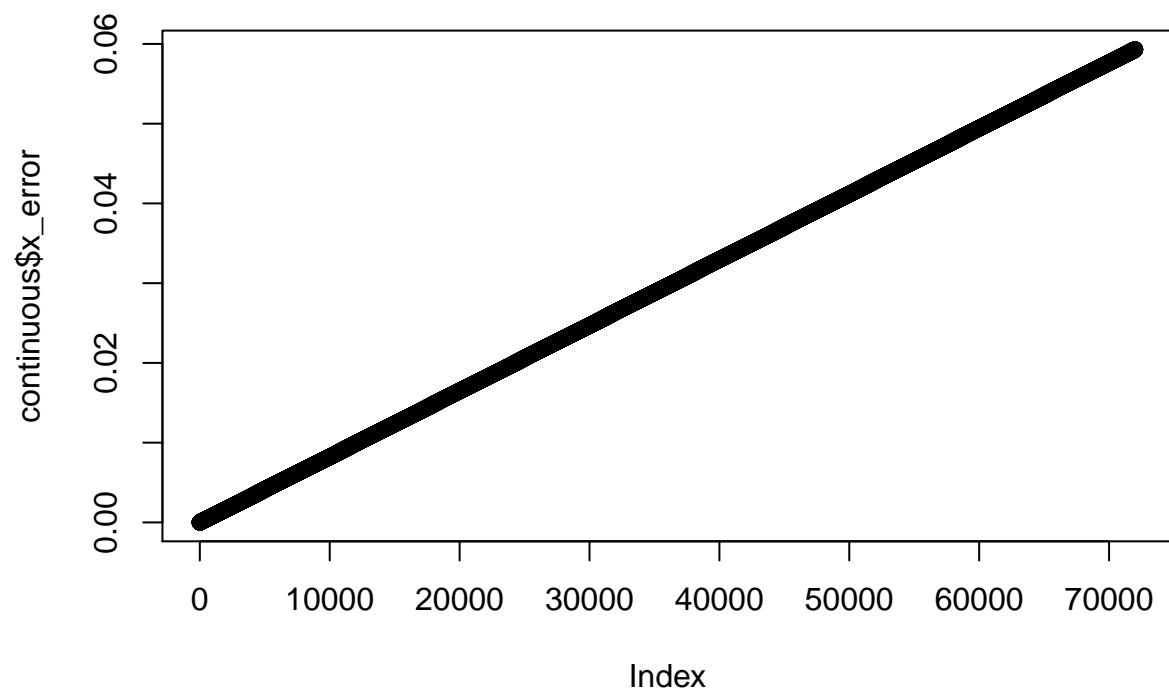


```
message("continuous x")
```

```
## continuous x
```

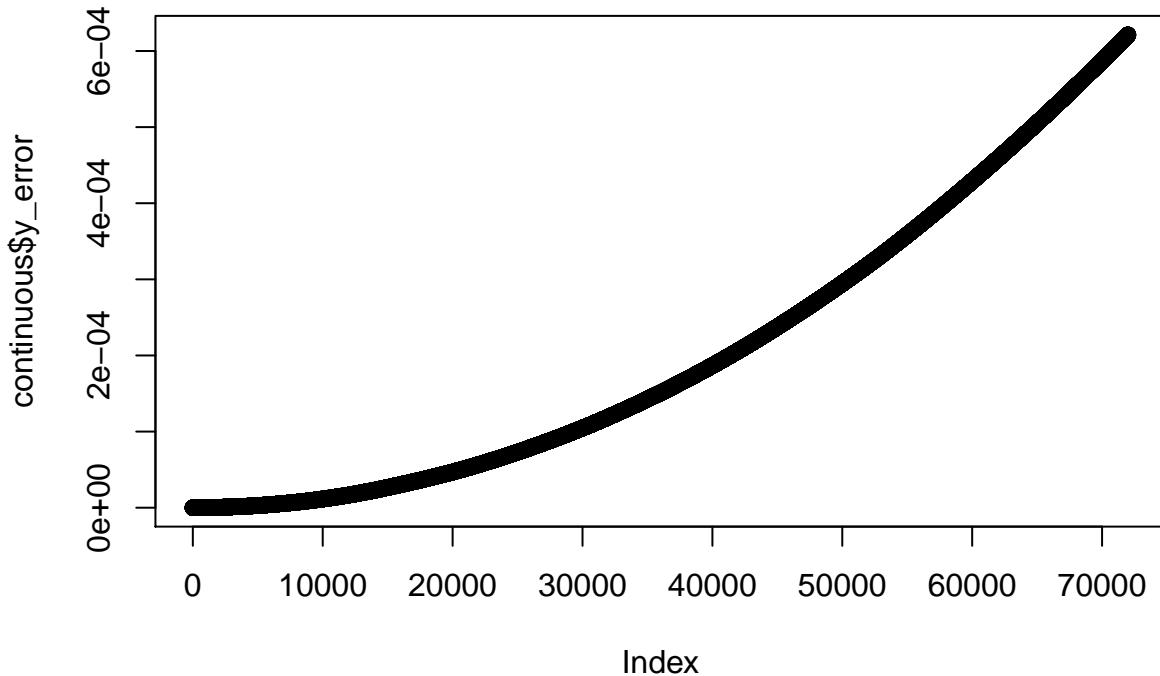
```
plot(continuous$x_error)
title("Continuous x_error over time")
```

Continuous x_error over time



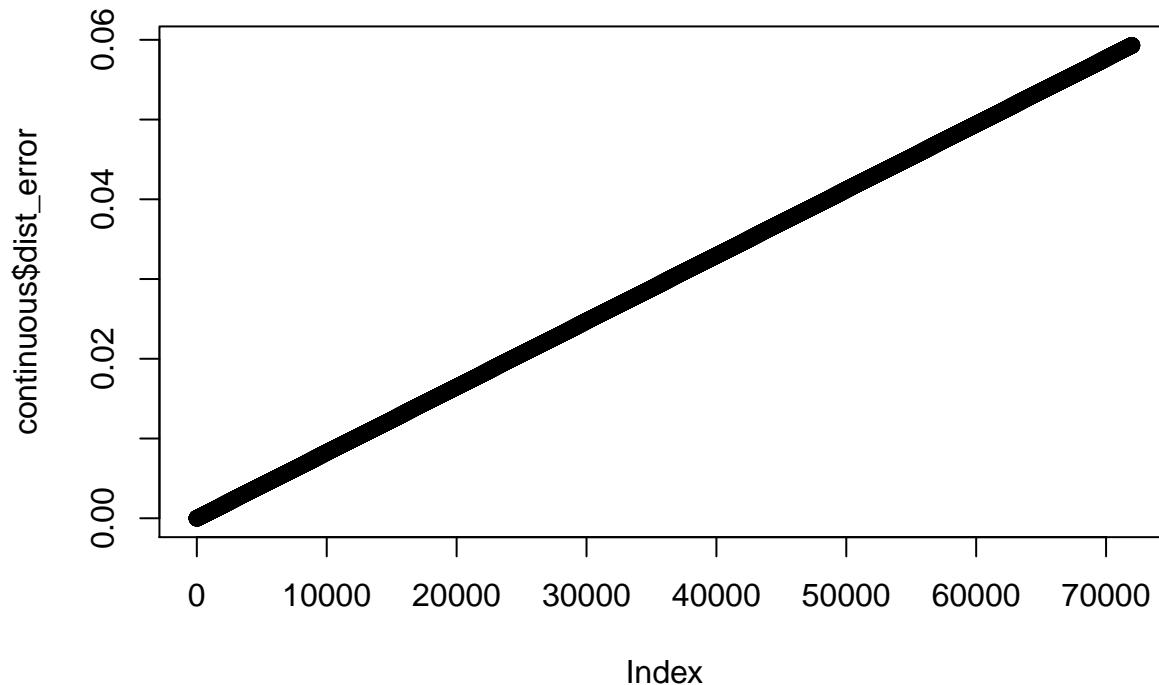
```
message("continuous y")  
  
## continous y  
plot(continuous$y_error)  
title("Continuous y_error over time")
```

Continuous y_error over time



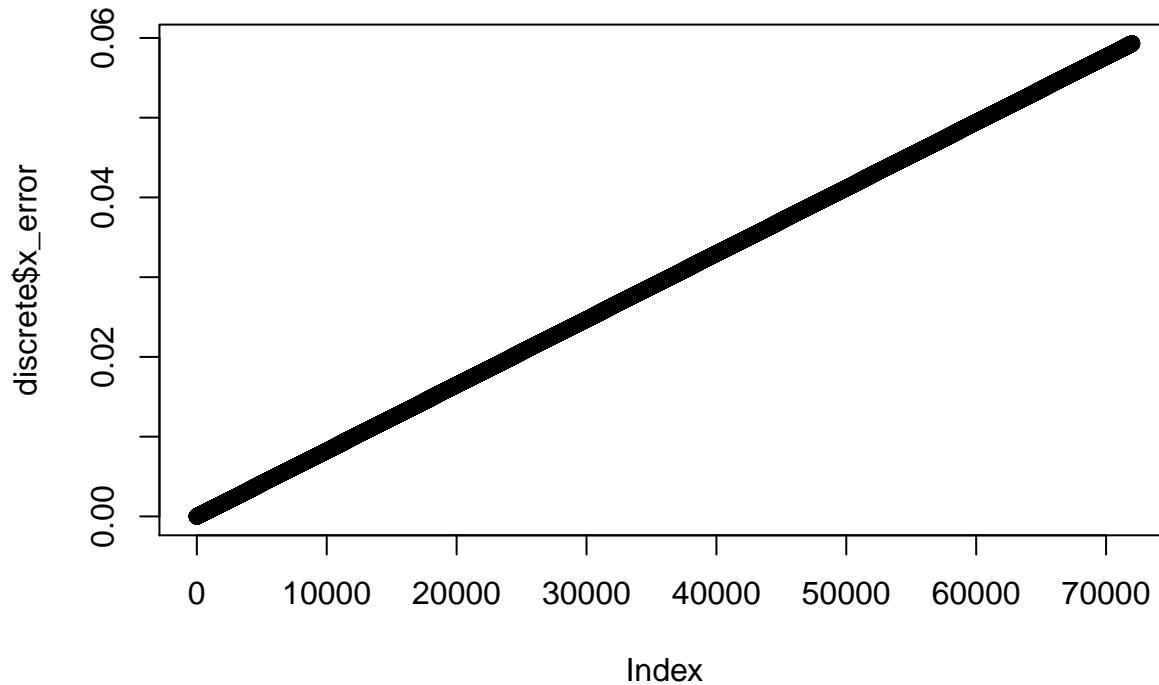
```
message("continuous dist")  
  
## continuous dist  
plot(continuous$dist_error)  
title("Continuous total distance error over time")
```

Continuous total distance error over time



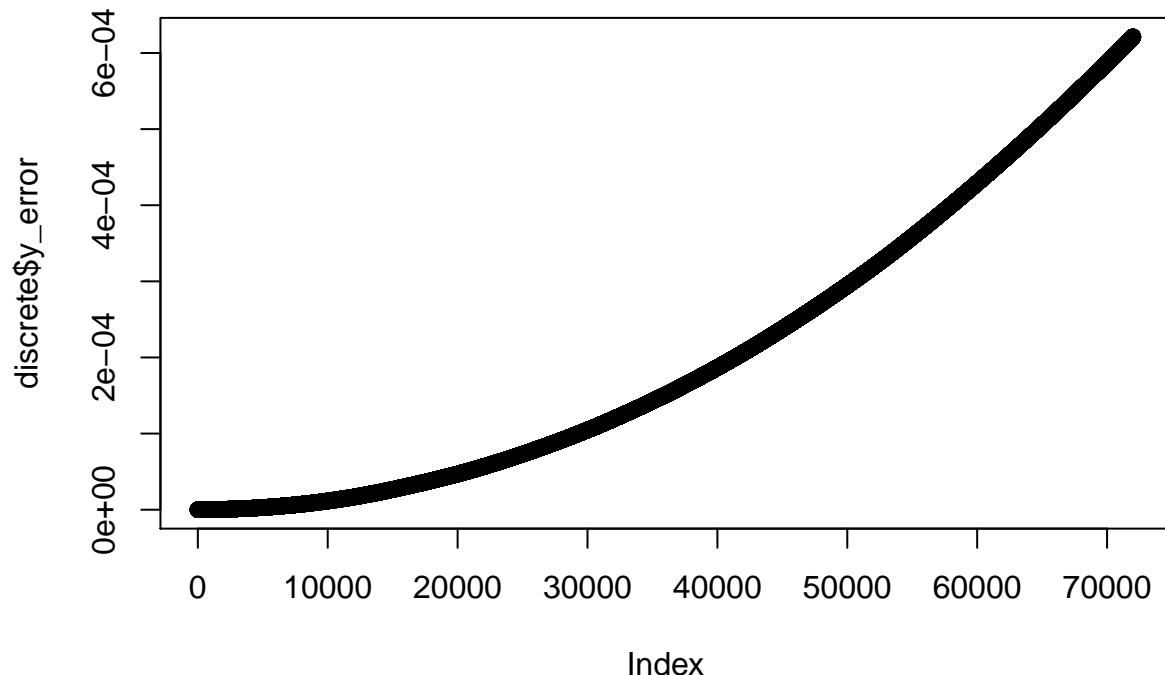
```
message("discrete x")
## discrete x
plot(discrete$x_error)
title("Discrete x_error over time")
```

Discrete x_error over time



```
message("discrete y")  
  
## discrete y  
plot(discrete$y_error)  
title("Discrete y_error over time")
```

Discrete y_error over time



```
message("discrete dist")  
  
## discrete dist  
plot (discrete$dist_error)  
title("Discrete total distance error over time")
```

Discrete total distance error over time

