

one_stationary_imu_yaw Experiment Report

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June 24, 2016

This is a summary of the data from the one_stationary_imu_yaw 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.
## -1.608e-07  4.917e-04  9.846e-04  9.845e-04  1.477e-03  1.970e-03
```

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

```
##      Min.      1st Qu.      Median      Mean      3rd Qu.      Max.
## -7.690e-11  7.718e-08  2.502e-07  3.134e-07  5.054e-07  8.918e-07
```

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

```
##      Min.      1st Qu.      Median      Mean      3rd Qu.      Max.
##  1.608e-07  4.917e-04  9.846e-04  9.845e-04  1.477e-03  1.970e-03
```

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

```
##      Min.      1st Qu.      Median      Mean      3rd Qu.      Max.
## -1.608e-07  4.917e-04  9.846e-04  9.845e-04  1.477e-03  1.970e-03
```

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

```
##      Min.      1st Qu.      Median      Mean      3rd Qu.      Max.
## -7.690e-11  7.718e-08  2.502e-07  3.134e-07  5.054e-07  8.918e-07
```

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

```
##      Min.      1st Qu.      Median      Mean      3rd Qu.      Max.
##  1.608e-07  4.917e-04  9.846e-04  9.845e-04  1.477e-03  1.970e-03
```

```
summary(external_data_averages)
```

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

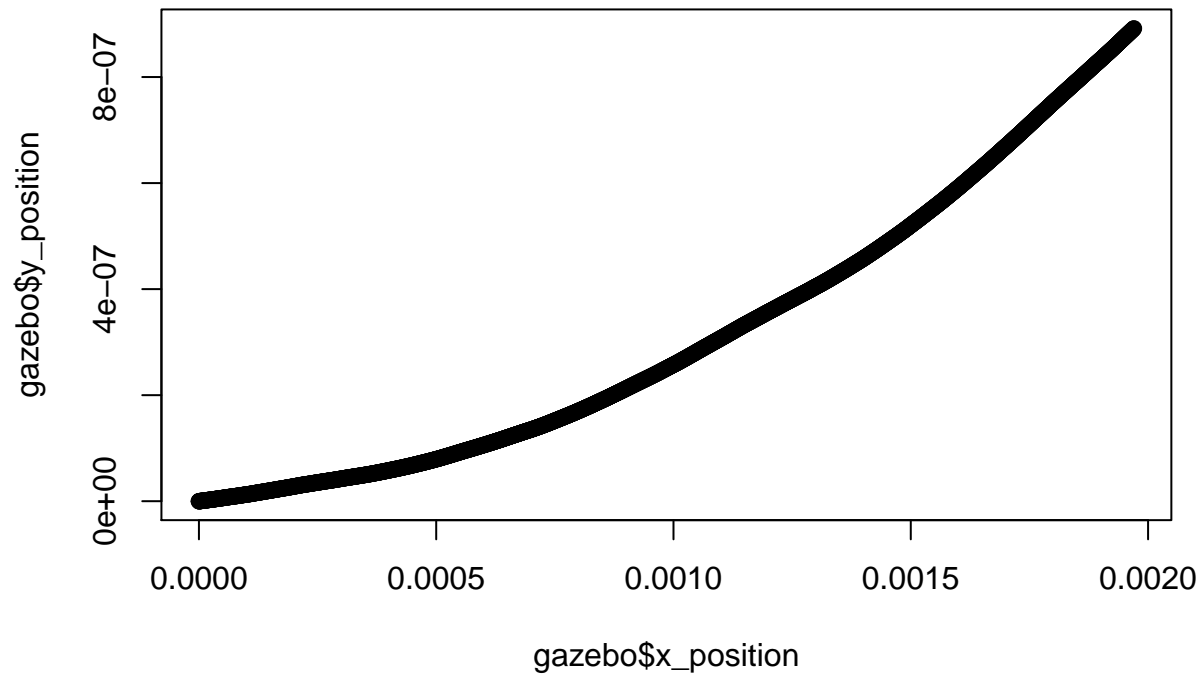
Shown below are plots representing the robot's motion and error over time.

```
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

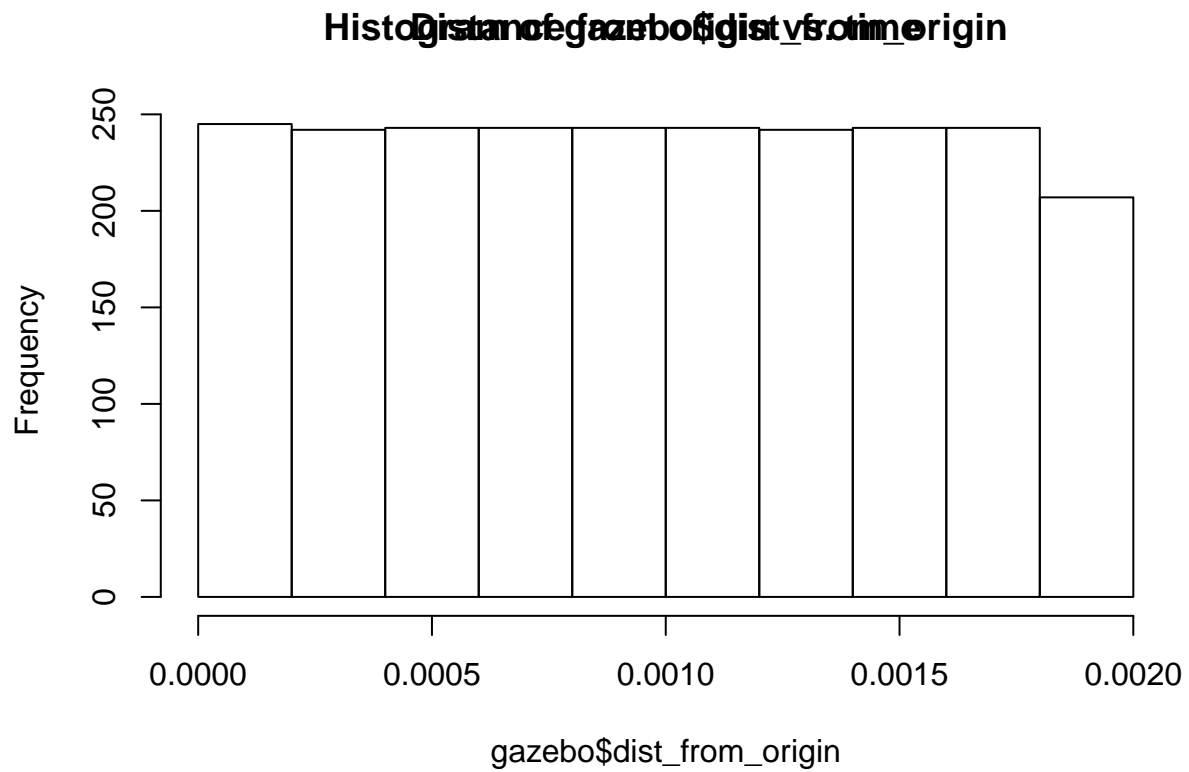


```
message("dist from origin")
```

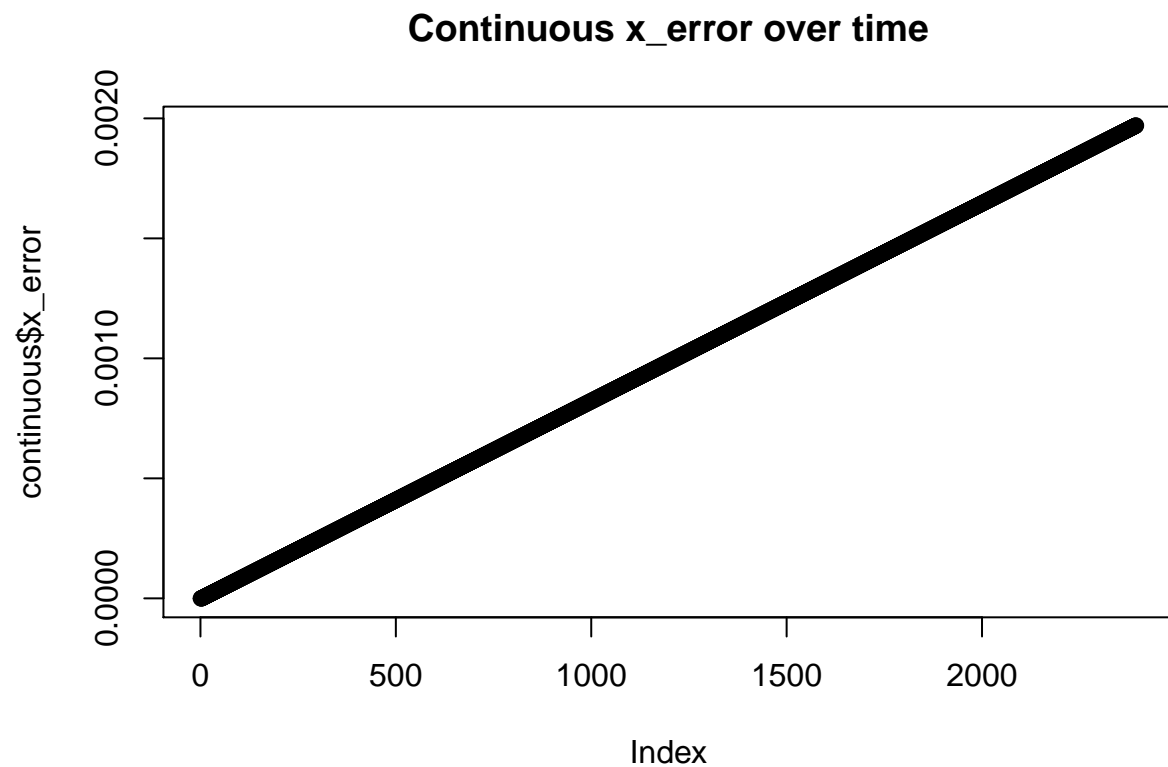
```
## dist from origin
```

```
hist(gazebo$dist_from_origin)
```

```
title("Distance from origin vs. time")
```



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

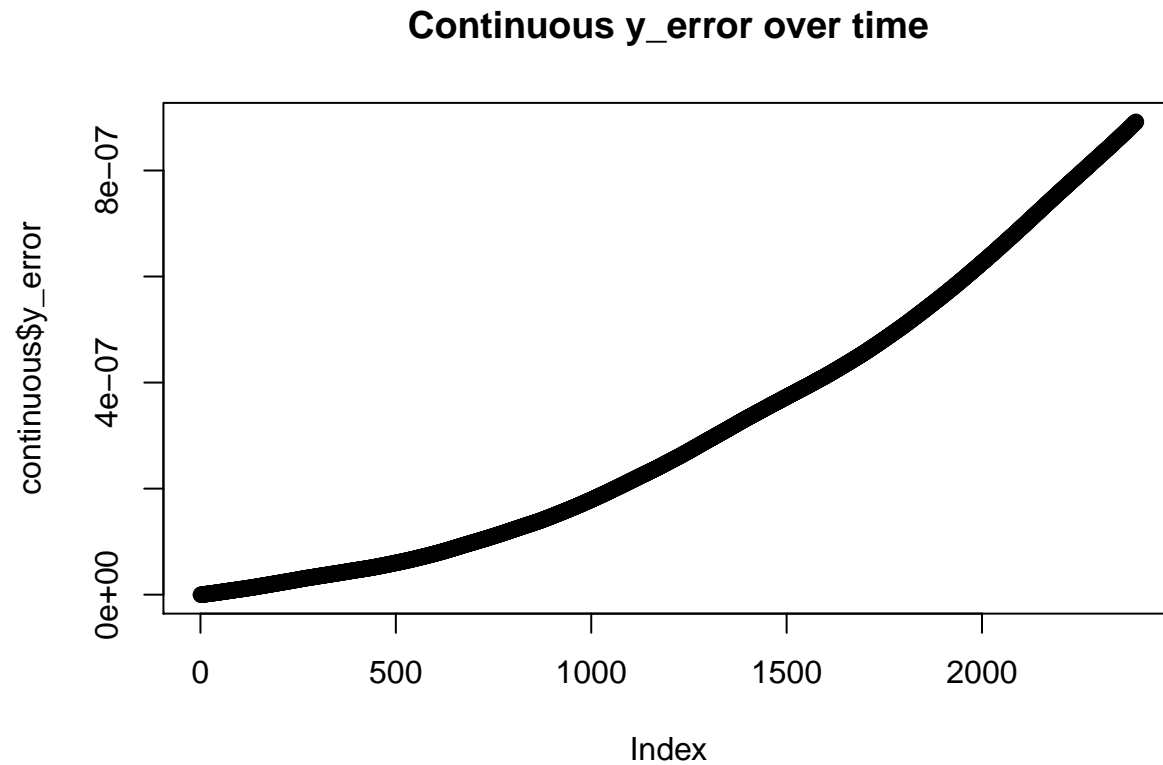


```
message("continuous y")
```

```
## continuous y
```

```
plot(continuous$y_error)
```

```
title("Continuous y_error over time")
```



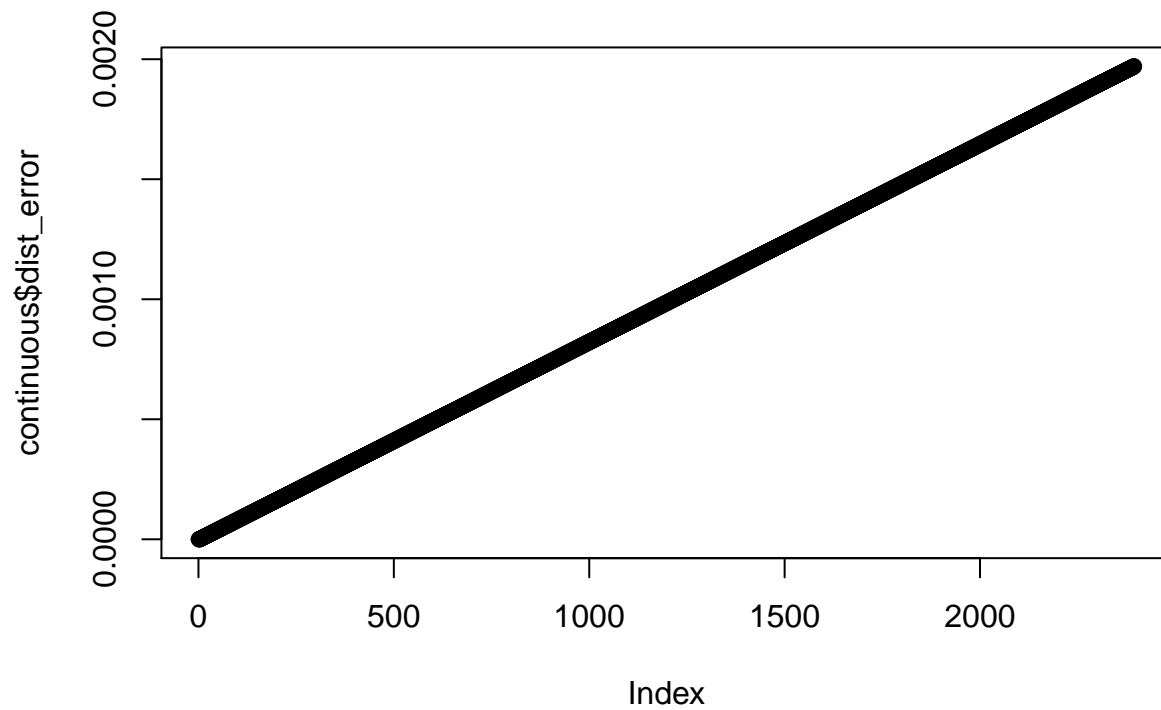
```
message("continuous dist")
```

```
## continuous dist
```

```
plot(continuous$dist_error)
```

```
title("Continuous total distance error over time")
```

Continuous total distance error over time



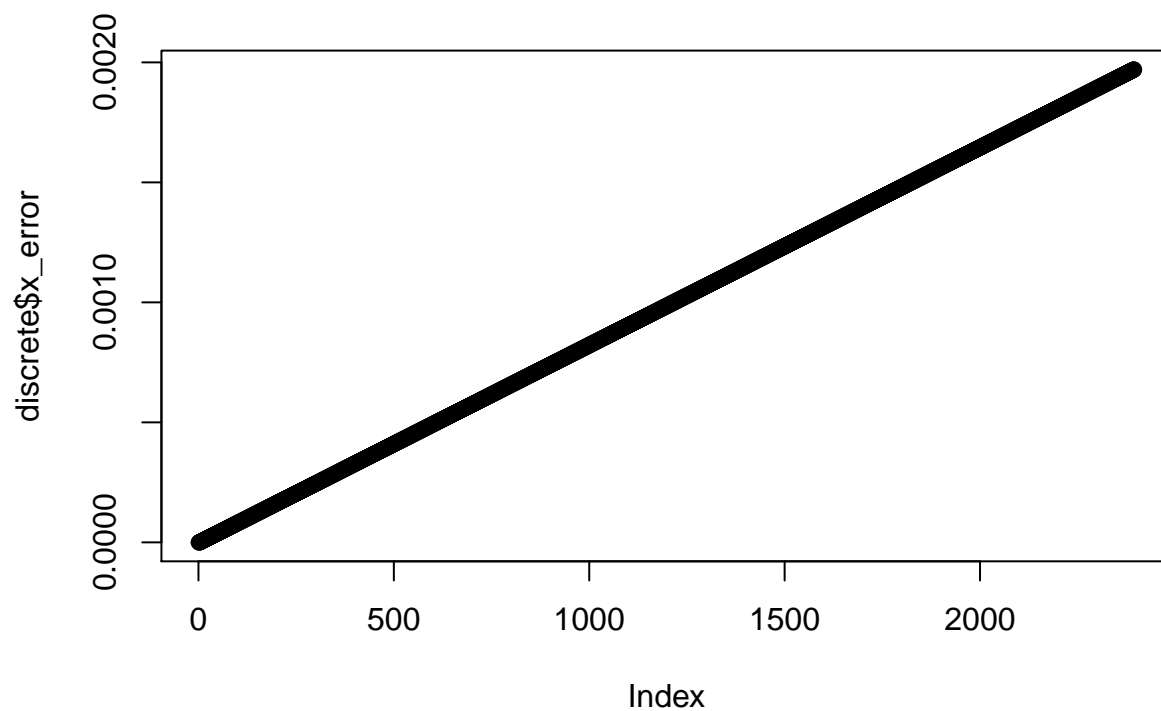
```
message("discrete x")
```

```
## discrete x
```

```
plot(discrete$x_error)
```

```
title("Discrete x_error over time")
```

Discrete x_error over time

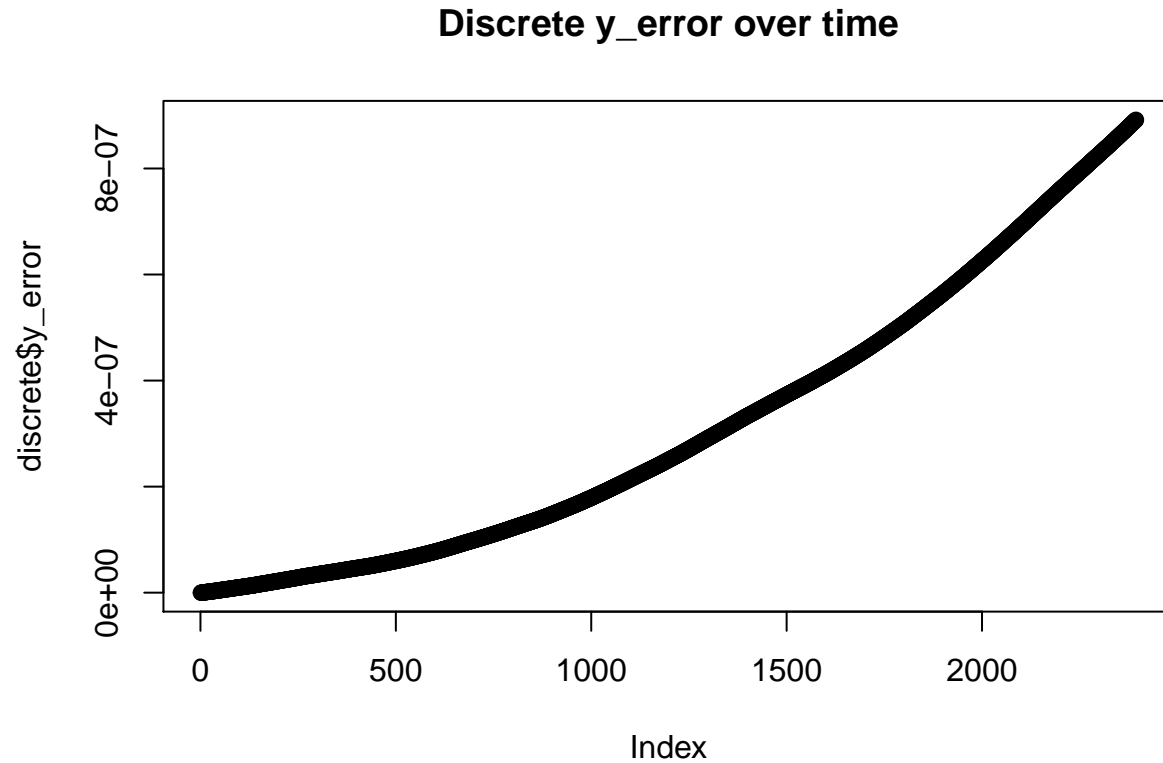


```
message("discrete y")
```

```
## discrete y
```

```
plot(discrete$y_error)
```

```
title("Discrete y_error over time")
```



```
message("discrete dist")
```

```
## discrete dist
```

```
plot (discrete$dist_error)
```

```
title("Discrete total distance error over time")
```

