

# **Rendezvous simulator log report Thu Sep 10 10:54:18 2009**

## **Global Parameters**

Number of agents: 5  
Number of iterations: 500  
Field size: 800m × 800m  
Convergence radius: 40.0m

## **Agent Parameters**

GPS position uncertainty (Gaussian noise, std. dev.): 8.0m  
Heading sensor uncertainty (Gaussian noise, std. dev.): 8.00°  
Target acquisition mode: random  
Angle update time (avg., exp. distribution): 60.0s  
GPS noise update time (avg., exp. distribution): 15.0s  
Walking speed: 0.8 m/s  
Pausing time to acquire new heading: 12s

## **Centroid parameters**

Simple geometric centroid mode

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## **Results**

Mean time to convergence: 17 minutes 9 seconds (std. dev. 5 minutes 58 seconds)  
Mean distance walked until convergence (per agent): 592m (std. dev. 219m)  
Mean total turning per agent: 1395.7° (std. dev. 874.6°)

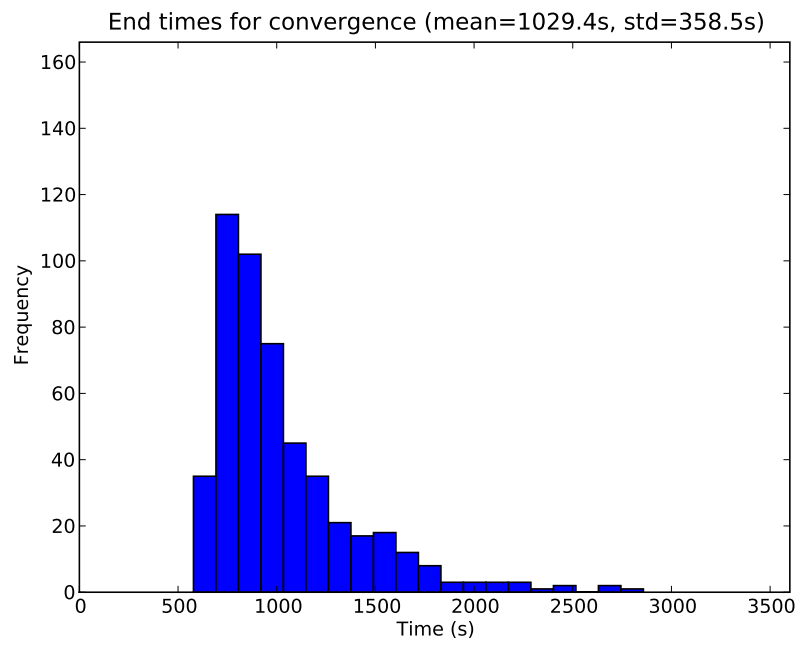


Figure 1: Histogram of end times when all agents reached target (i.e. were within 40.0 meters of the centroid.)

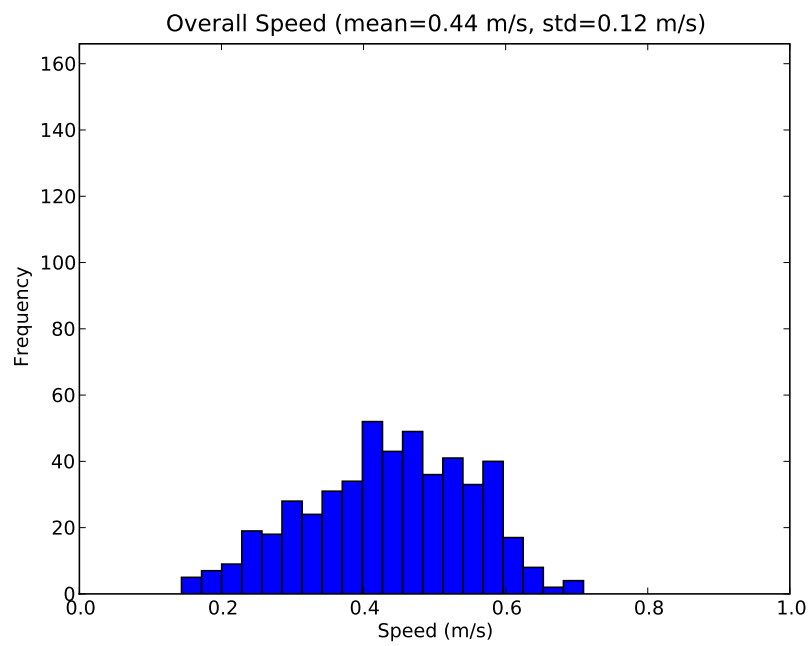


Figure 2: Histogram of overall speed of acquisition. This is the total time to converge divided by the distance of initially furthest agent from the centroid.

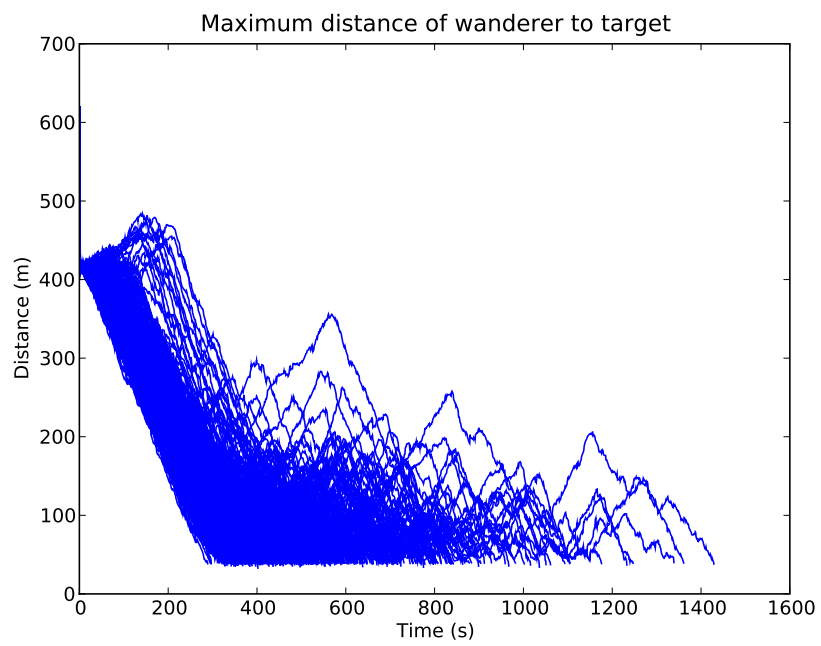


Figure 3: Maximum distance of any agent from the centroid against time for each of the runs. Each run is a separate line.

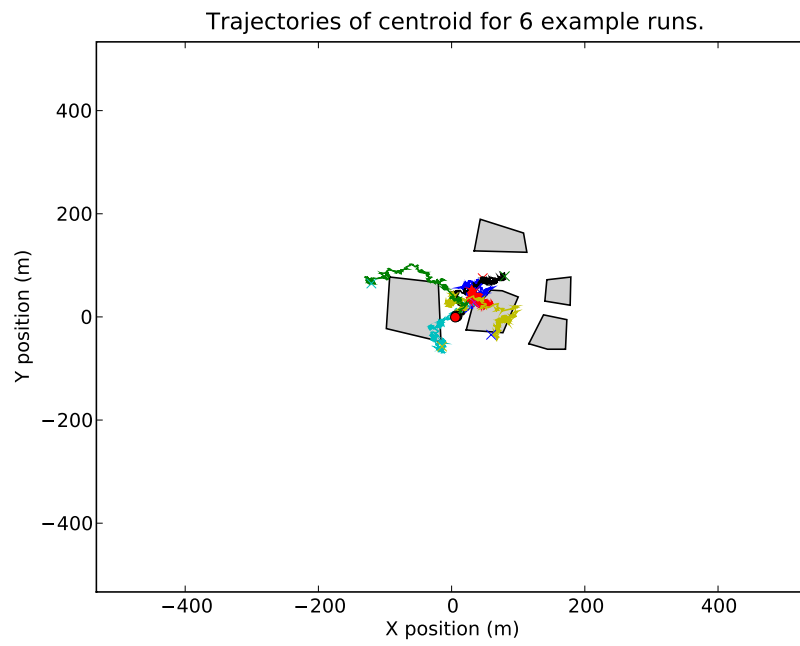


Figure 4: Trajectories of centroids for a small sample of the runs. Each colour represents a different run. Trajectories begin at  $\circ$  and end at  $\times$ . The blue dotted line represents the path of the centroid.

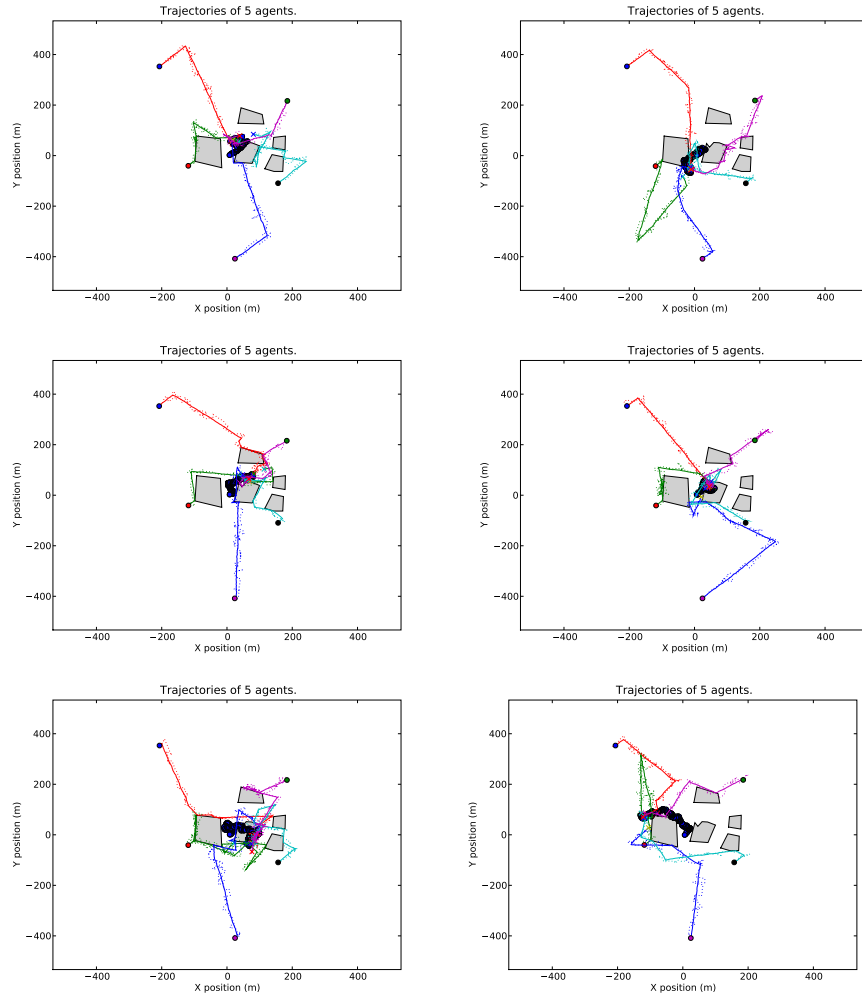


Figure 5: Trajectories of the agents for a small sample of the runs. Trajectories begin at  $\circ$  and end at  $\times$ . Solid colors are true positions; dotted lines are the positions estimated by GPS. The thick line is the position of the centroid.