Cognitive Robotics

Assignment 1

Endpoint Sensor Model

Student Details	
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Results
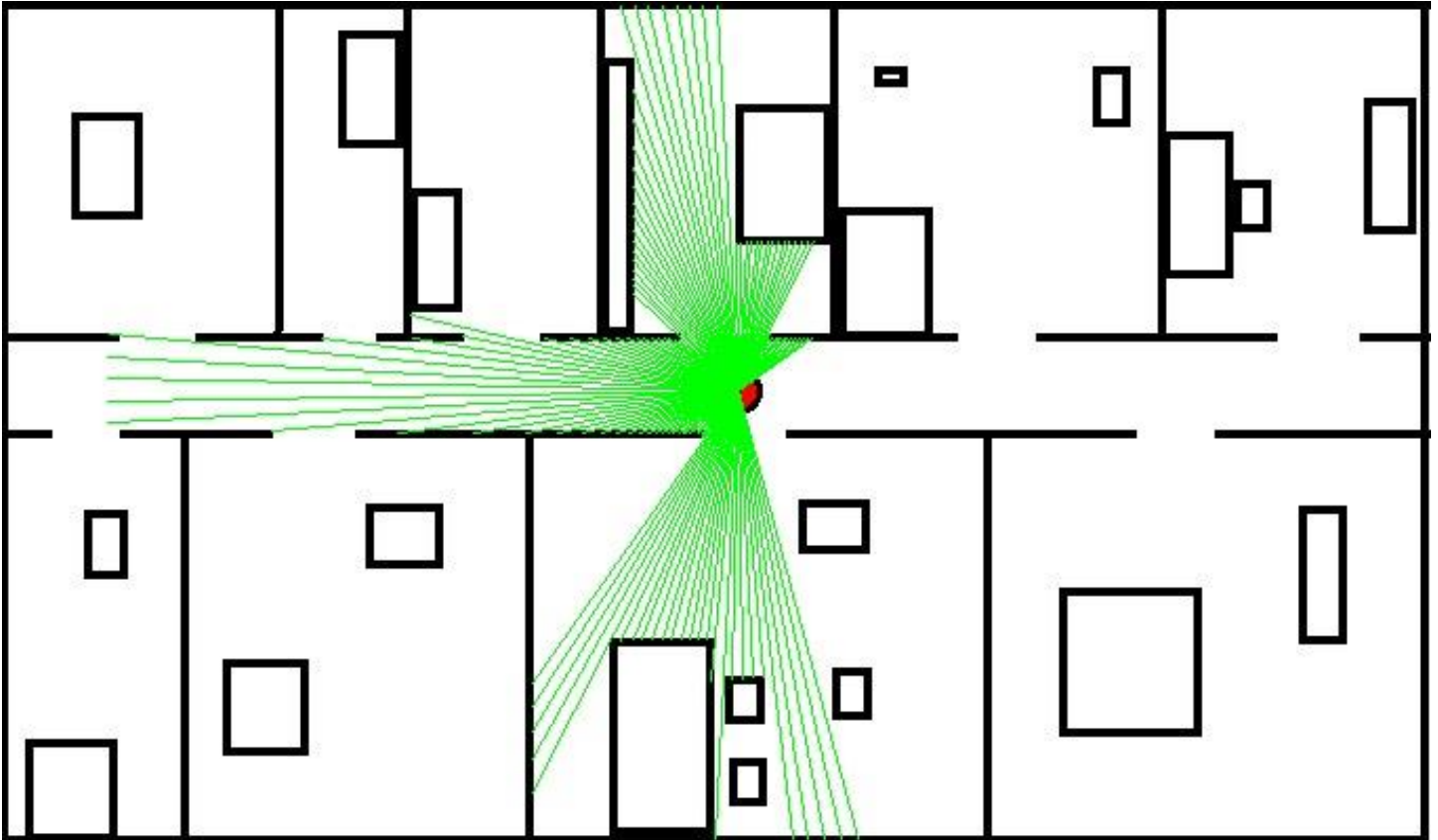
Initial Robot Pose: x = 350, y = 185, theta = 200

Measurements from theta - 125 to theta + 125 (Resolution = 2)

Distances:

```
877.08608471  870.3562489   863.71291527  858.212095    854.35355679
546.11354131  544.72011162  544.05882035  544.13233684  849.14074216
510.26267745  475.79827658  478.0794913   480.88252204  484.19830648
489.0480549   493.47745643  499.67989753  506.59648637  512.624619
520.75330052  531.3379339   802.28673179  757.34272295  716.70356494
680.29405407  111.2115102   108.07404869  101.98039027  104.69001863
107.48023074  110.34491379  116.27553483  122.44182292  125.60254774
132.06059215  138.67948659  145.4372717   155.79473675  166.37307474
177.1327186   191.70811146  210.2189335   232.75738442  259.38388539
290.13100489  332.79423072  391.44859177  485.97942343  620.67060507
891.24631837  1200.         1200.         1200.         1200.
```

1184.93206556 798.28816852 603.68203551 534.22092808 640.39987508
364.85613603 322.61432082 292.21909589 265.93232222 243.70473939
225.45953074 207.53794834 196.97715604 186.59046064 176.40861657
166.46921637 160.   153.6749817 147.51271132 152.8397854
282.84271247 291.45153971 303.2886414 318.59692403 331.20386471
347.35572545 363.8900933 387.5874095 408.33319728 436.51345913
468.80273037 505.26824559 553.40401155 605.95709419 761.68234849
753.923073   747.13318759 742.10511385 737.18383053 733.79016074
730.80777226 729.09807296 280.02856997 280.02856997 280.45677029
281.02668912 281.82263926 283.43605981 285.54509276 287.22116914
290.13100489 292.32858225 296.   300.10664771 304.63092423
309.55451862 314.85869847 123.54756169 111.13955192 115.37764081
117.64352936 120.   122.44182292 127.56174975 130.23056477
135.76450199 141.5344481   147.51271132 153.6749817   160.
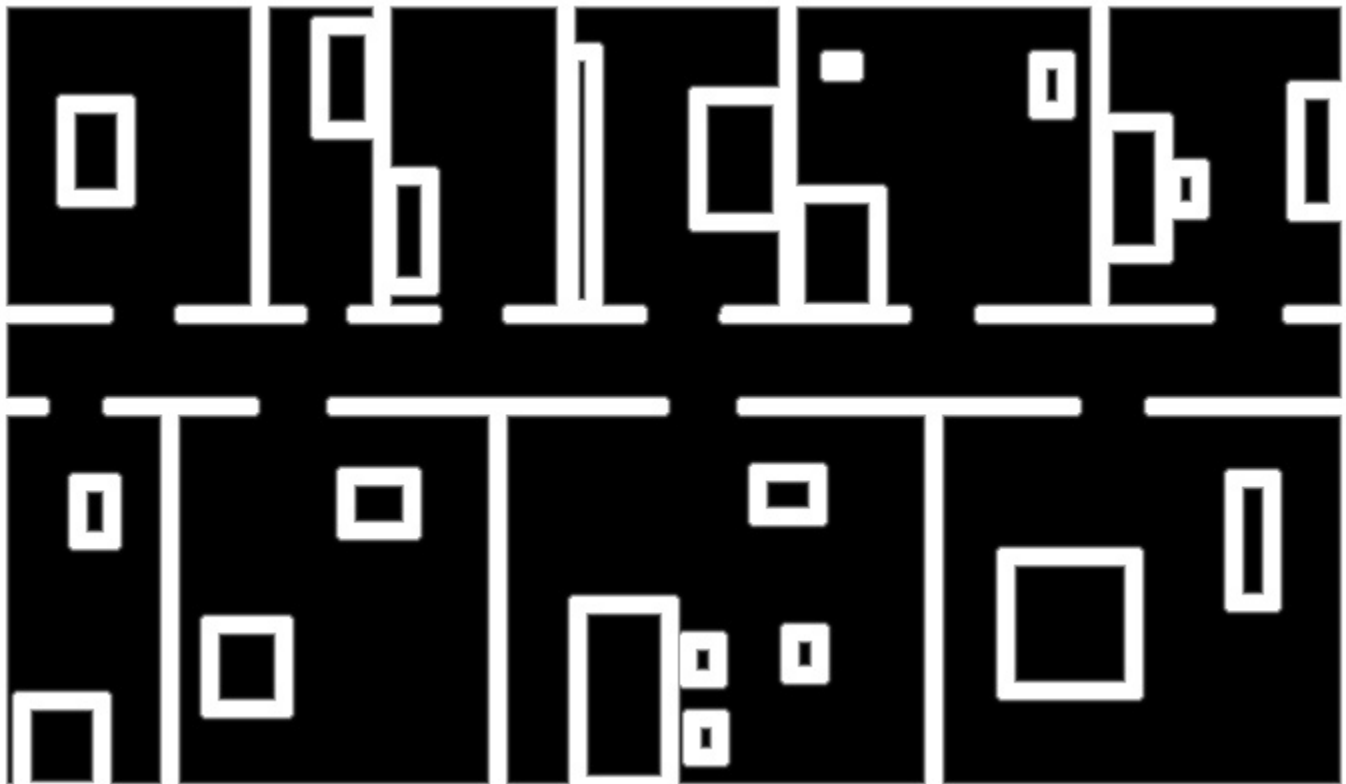166.46921637

Requirement 2

Likelihood Field (Gaussian Sigma = 1)
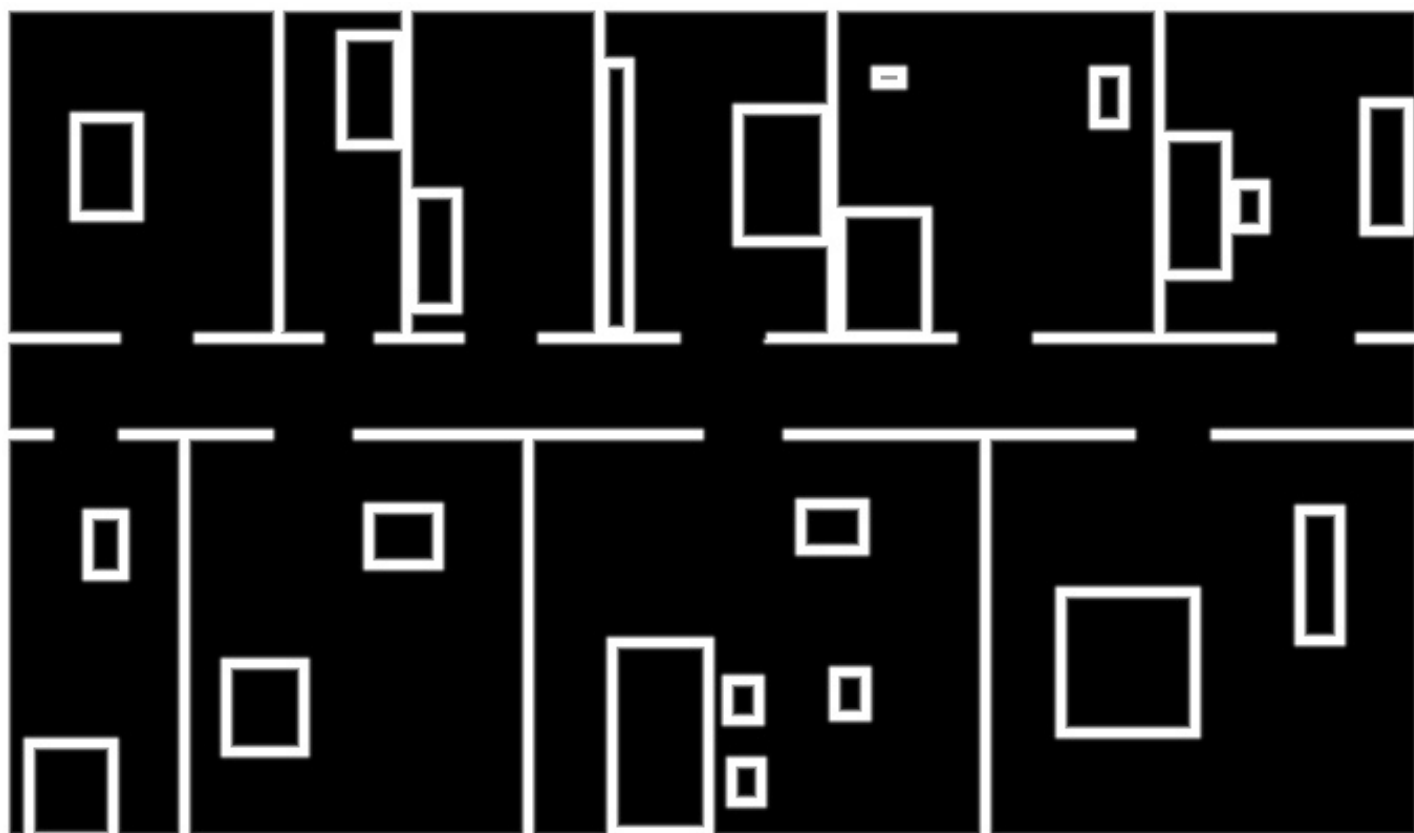
Computed Likelihood:
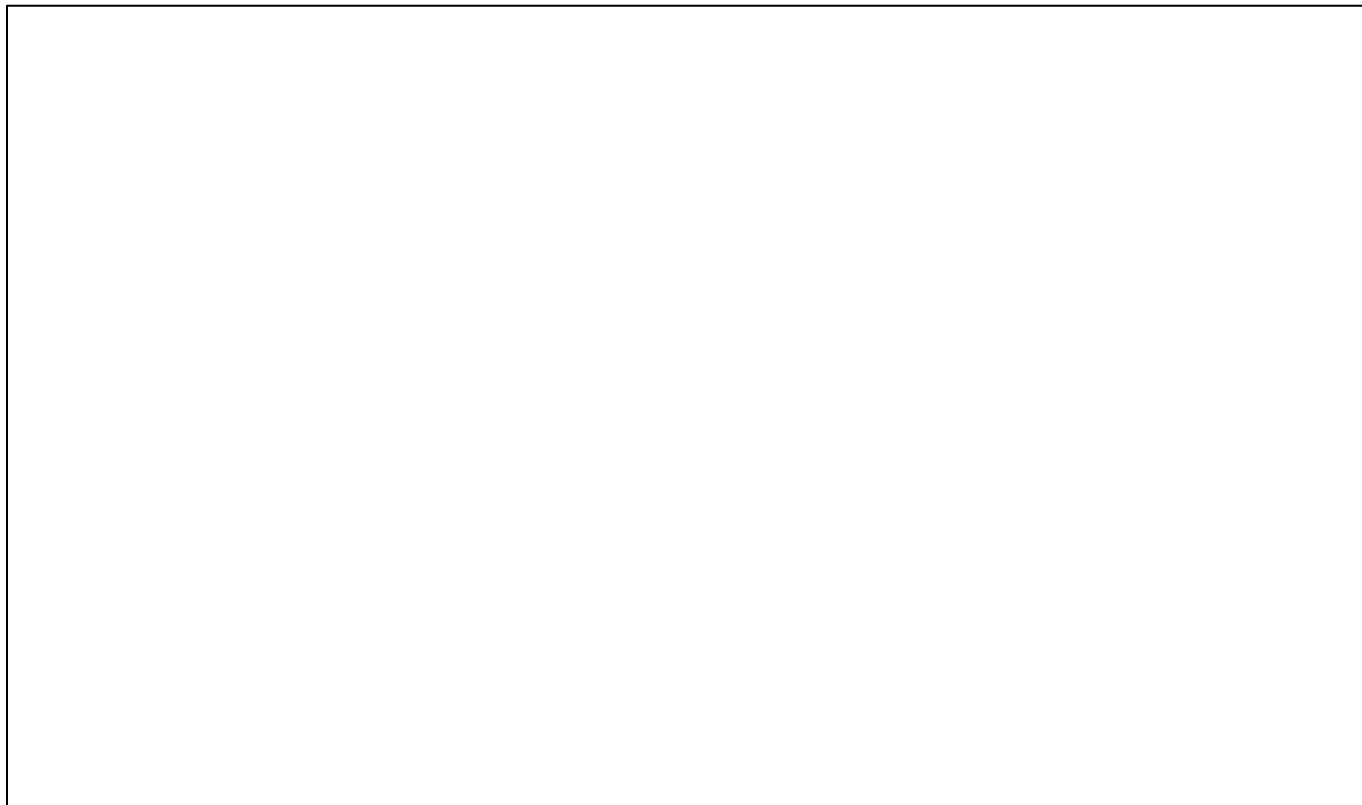
- *Sigma = 1*

Distance = 0.1m

Distance = 1m

Distance = 5 ~ 12m
All white

Sigma = 3
Distance = 0.05

Distance = 0.5

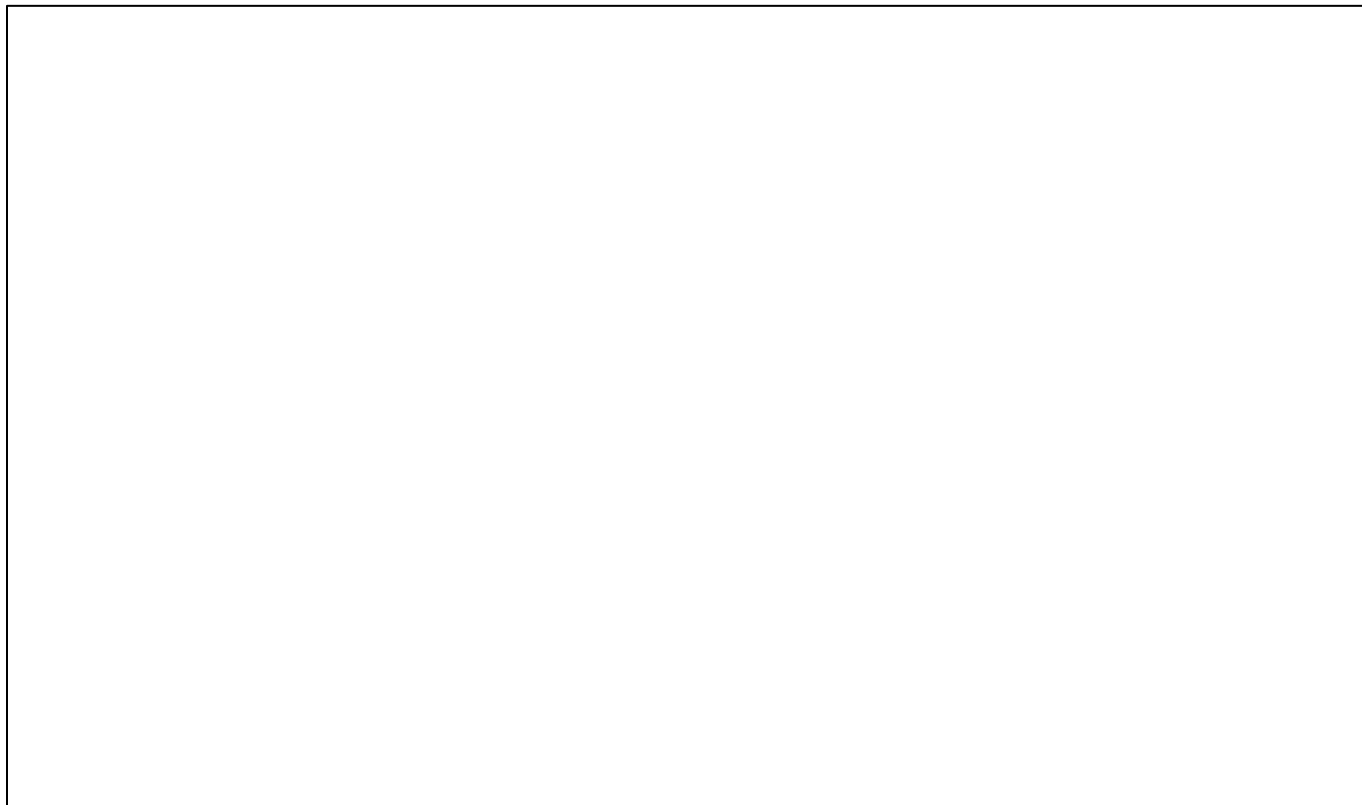Distance = 2

Sigma = 5

Distance = 0.1m

Distance = 1m

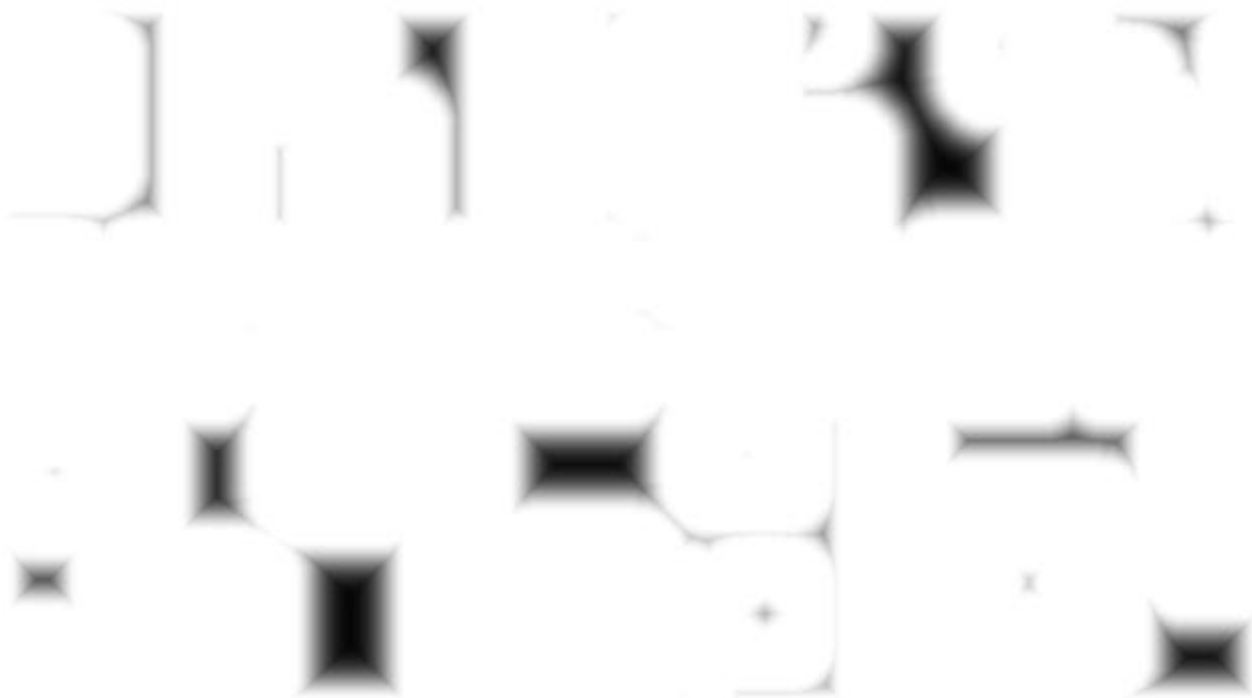Distance = 5 ~ 12m
All white

Sigma = 7
Distance = 0.01

Distance = 0.1m

Sigma = 10
Distance = 0.1m

Distance = 1m

Distance = 5 ~ 12m