

Figure 1 and figure 2 shows result obtained from RRT* and Informed RRT*. The stopping condition specified in this 2 cases is a minimum threshold between the final position and the actual goal pose. Table 1 shows the CPU computation time and distance between start and goal for the RRT* and Informed RRT* . The result obtained is not absolute and not repeatable because of the randomness in sampling and different random samples were used in both cases being compared.

Table 2-Table 4 shows the different results obtained if 200, 500 and 1000 random samples were used to generate a tree for the algorithms. The actual trees and the path generated from different random sample size is shown in Figure 3-Figure 10. Generally, it is observed that SPRM is not always to generate a graph that can reach goal position at all times. More samples were generally needed before a path can eventually be gotten. Similar case goes to RRT*. Informed RRT* and RRT* is able to find a path even with few sample size. The path generated may not just be optimal enough. With more samples, shorter will be found with RRT* and Informed RRT*

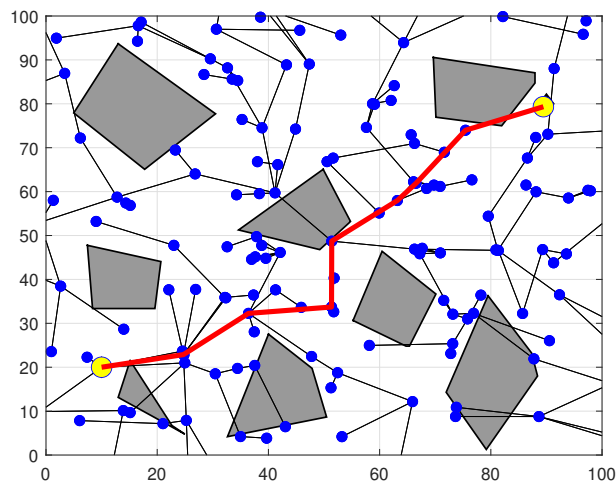


Figure 1: RRT*

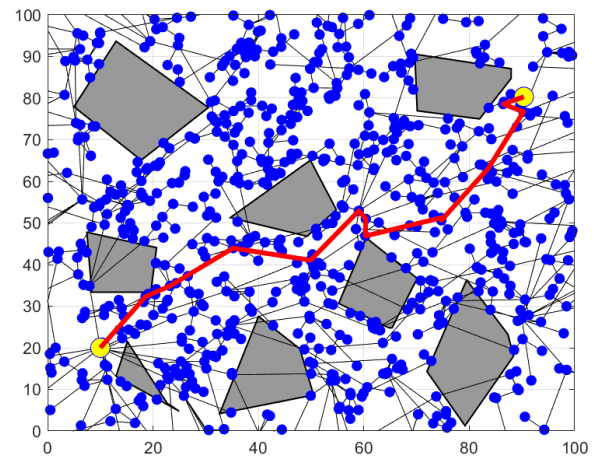


Figure 2: Informed RRT*

Planner	Path Distance	Processing time
RRT*	165.97	3.24
Informed RRT*	56.566	8.009

Table 1: Informed RRT* and RRT

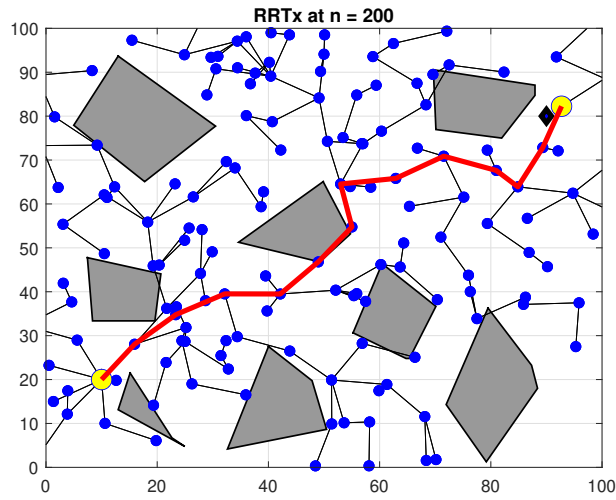


Figure 3: RRT*(samples =200)

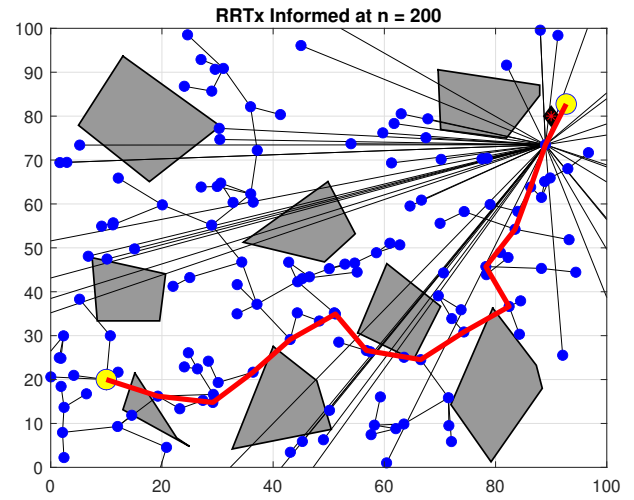


Figure 4: Informed RRT*(samples =200)

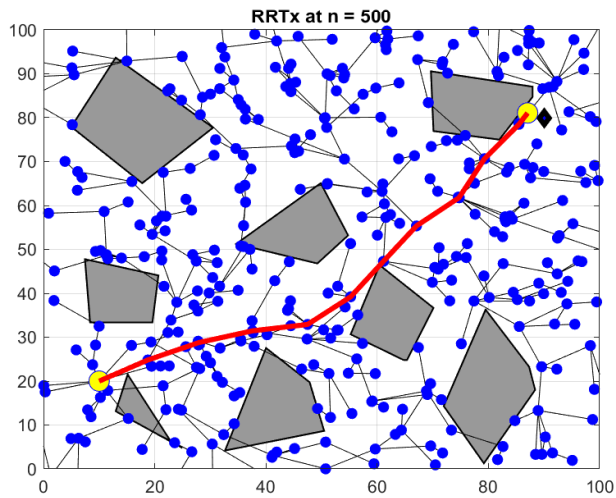


Figure 5: RRT*(samples =500)

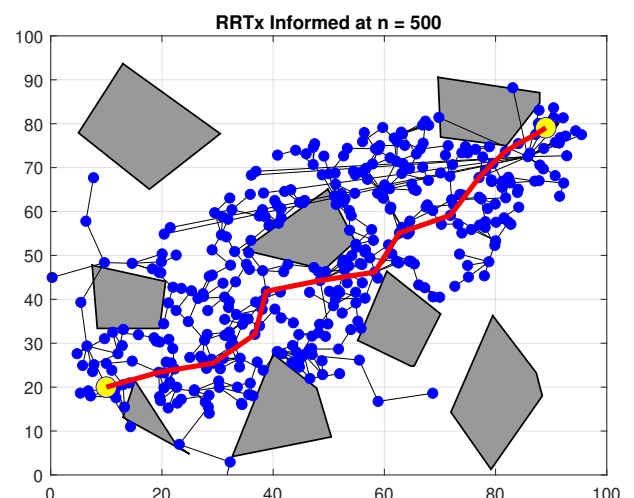


Figure 6: Informed RRT* (samples =500)

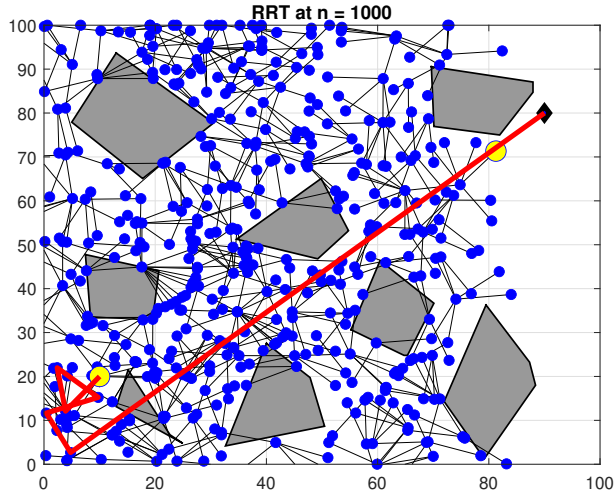


Figure 7: RRT(samples=1000)

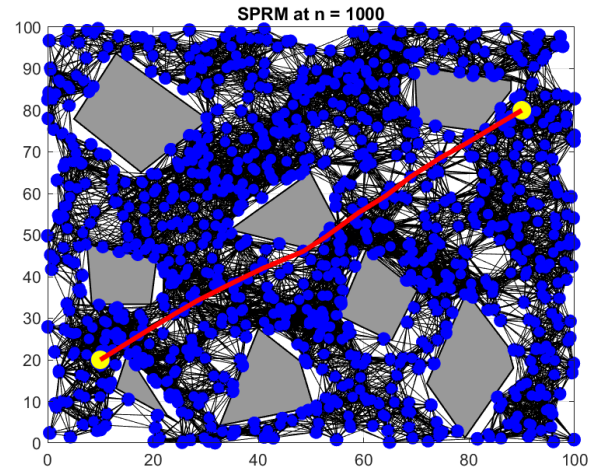


Figure 8: SPRM(samples=1000)

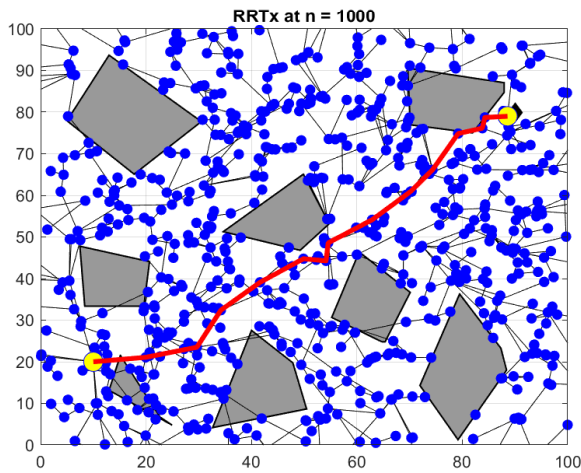


Figure 9: RRT*(samples =1000)

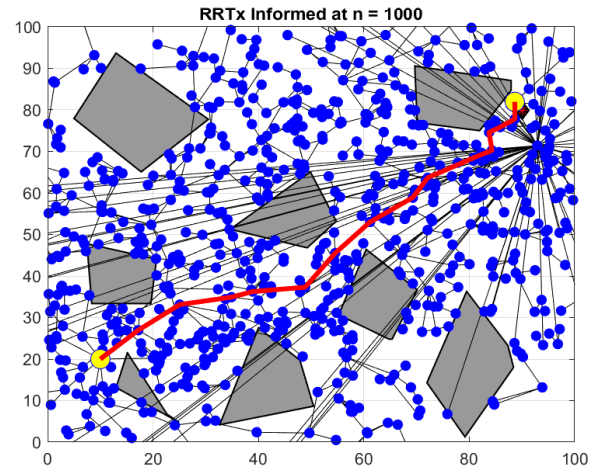


Figure 10: Informed RRT*(samples =1000)

Planner	Path Distance	Processing time
SPRM	No Path	3.01
RRT	No Path	1.51
RRT*	106.695	5.79
RRT* Informed	102.1	3.976

Table 2: Probabilistic Planners comparison at N=200

Planner	Path Distance	Processing time (secs)
SPRM	27.2559	26.69
RRT	81.0107	1.29
RRT*	88.9953	7.85810
RRT* Informed	52.9953	8.0190

Table 3: Probabilistic Planners comparison at N=500

Planner	Path Distance	Processing time (secs)
SPRM	26.63	324.36
RRT	28.52	436.69
RRT*	138.1726	436.69
Informed RRT*	74.5131	436.69

Table 4: Probabilistic Planners comparison at N=1000