Assignment 2

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Question 1.

Consider a configuration space given in Figure 1. The start and goal positions are $(1,1)$ and $(20,20)$ respectively. The obstacles are considered as the circular objects represented by center position and radius (r) as given below:

- (1) Obstacle 1 $\rightarrow$ Center- $(4.5,3)$, r = 2.
- (2) Obstacle 2 $\rightarrow$ Center- $(3,12)$, r = 2.
- (3) Obstacle 3 $\rightarrow$ Center- $(15,15)$, r = 3.

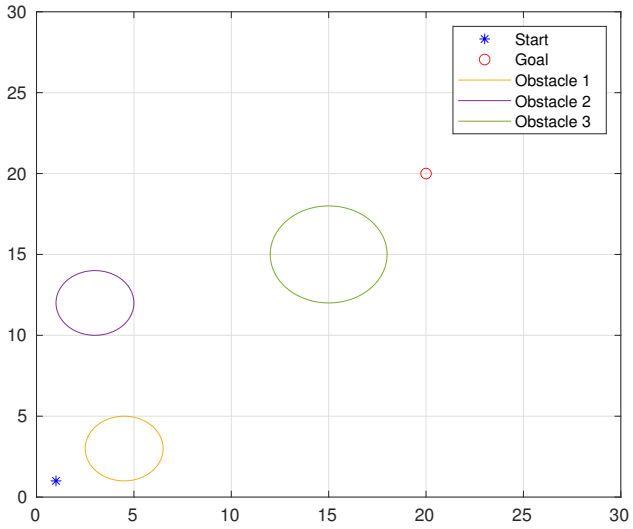

Figure 1: Configuration Space

Write a code for following path planning algorithms

- (a) Bidirectional RRT (Choose δ of the order of the obstacle dimension).
- (b) Artificial potential field (For the attractive potential try with both paraboloidic and conical. Choose other required parameters suitably.).