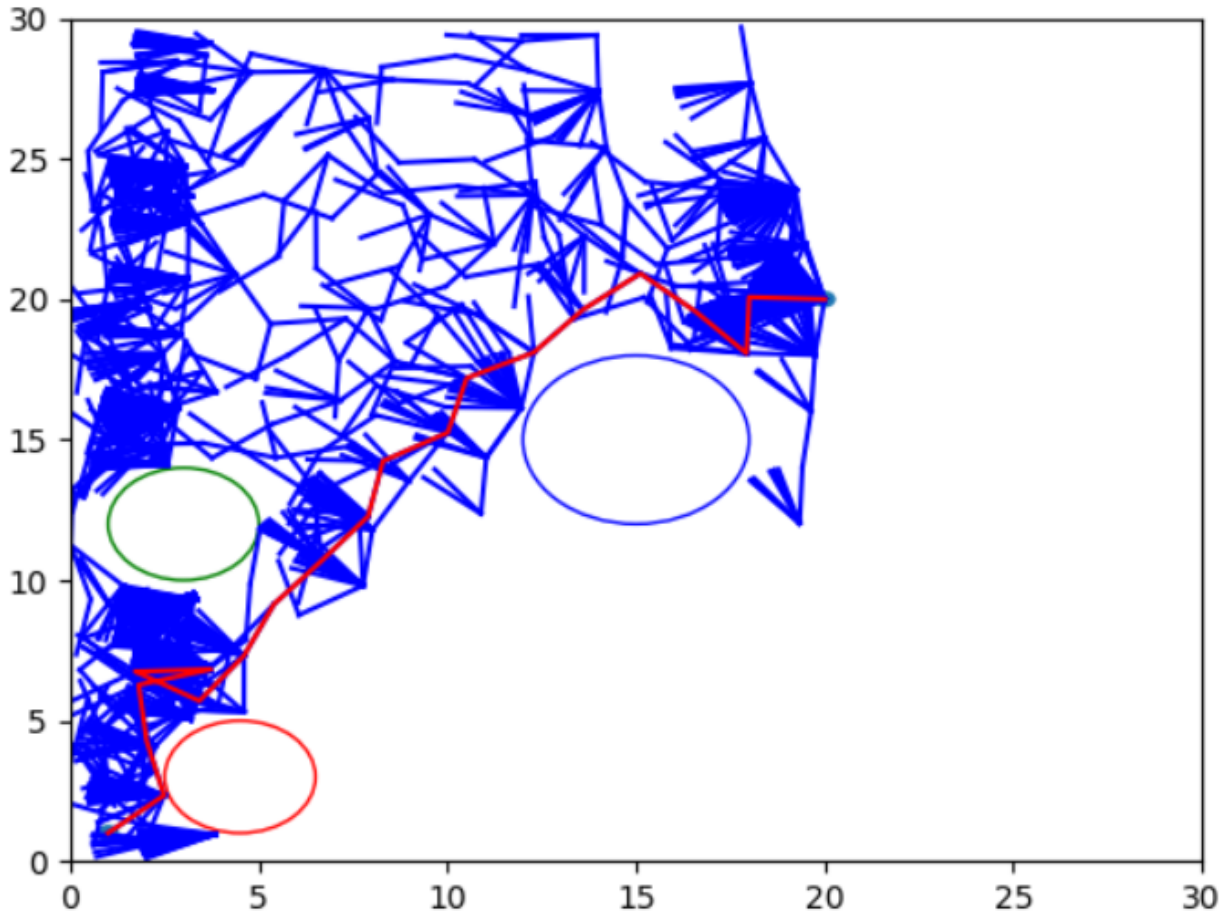
REPORT

(Note: My code is saving the images in a file. After running code, open the image file to view plot.)

a) RRT

Red color denotes the path from start to goal location
Blue color is the tree constructed.

No. of iterations used =1000
(Can be done in lesser iterations also , but more iterations leads to more better results . But here 100 iterations can also give desired outcomes)



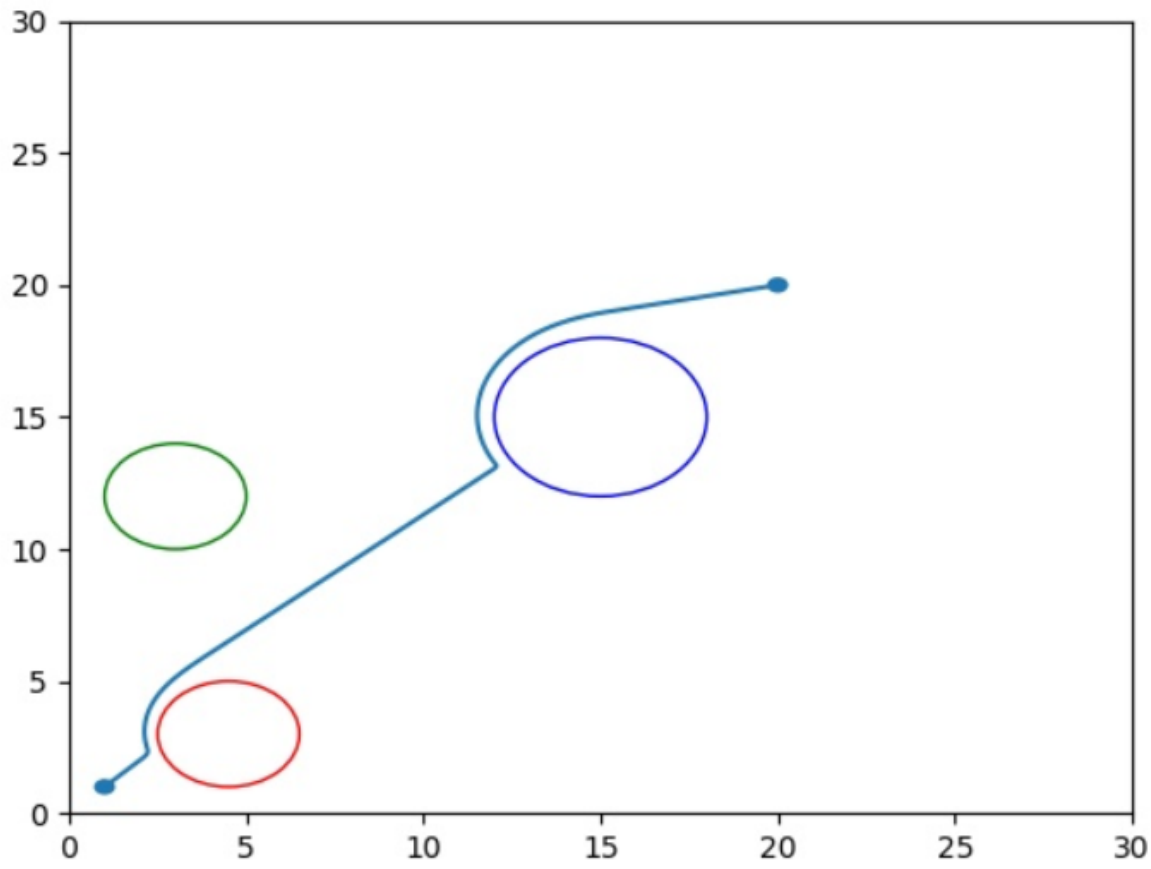
Observations:

The algorithm gives a good path for the given problem.
The graph (tree) is too dense.
Every time, a different path is obtained. Since a random approach is used for generating the tree.

b) APF

[In all the iteration, after determining velocity in both the x and y directions, I have moved it for 0.01s in that direction.]

1) Paraboloidal attractive poten.

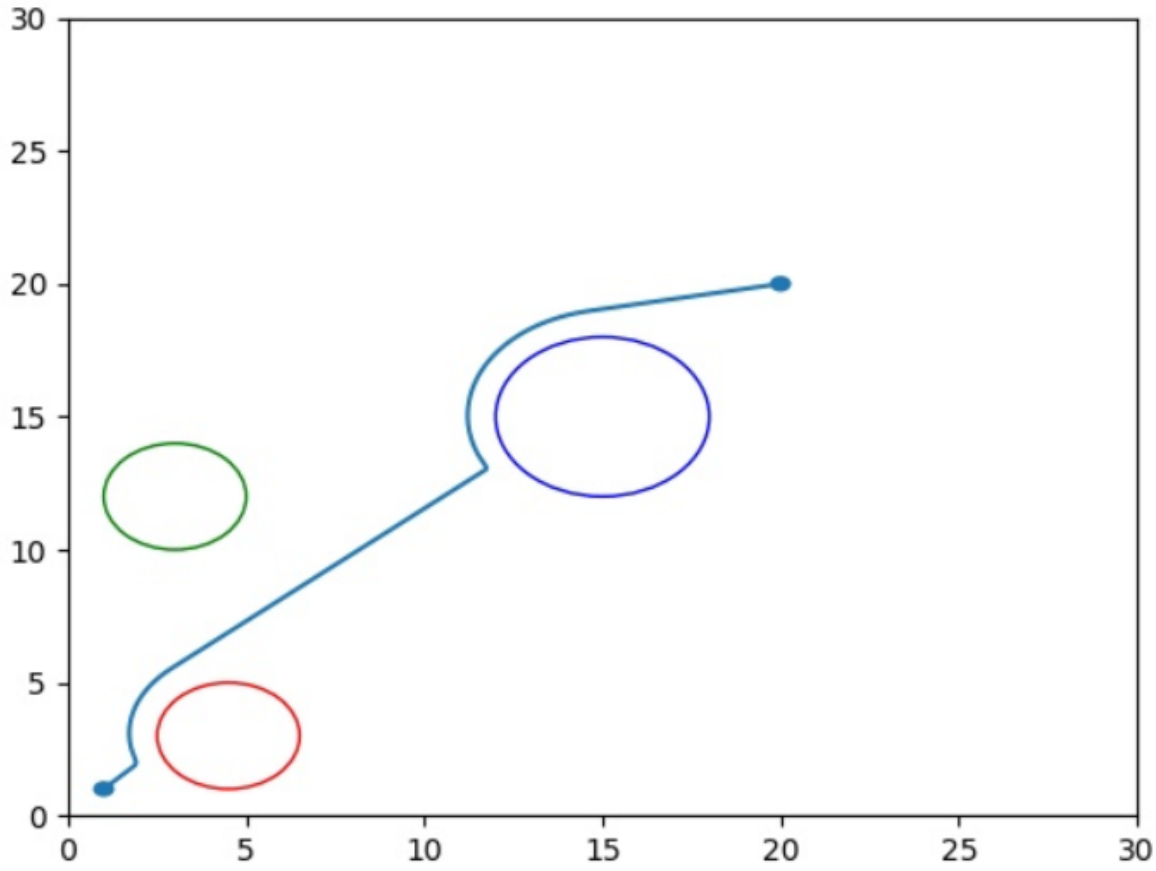


Parameters taken
Ka = 0.1

Observations:

A very neat path is obtained.
It gets attracted towards the goal.
No. of iterations = 6506

2) Conical attractive poten.



Parameters :
k=0.1
n_ oi = 1
gamma=2

Observation:
Good path.
It remains a bit farther from the obstacle, compared to paraboloidal.

No of iter = 37784