Path generation in Combined Potential(Increasing number of Obstacles)

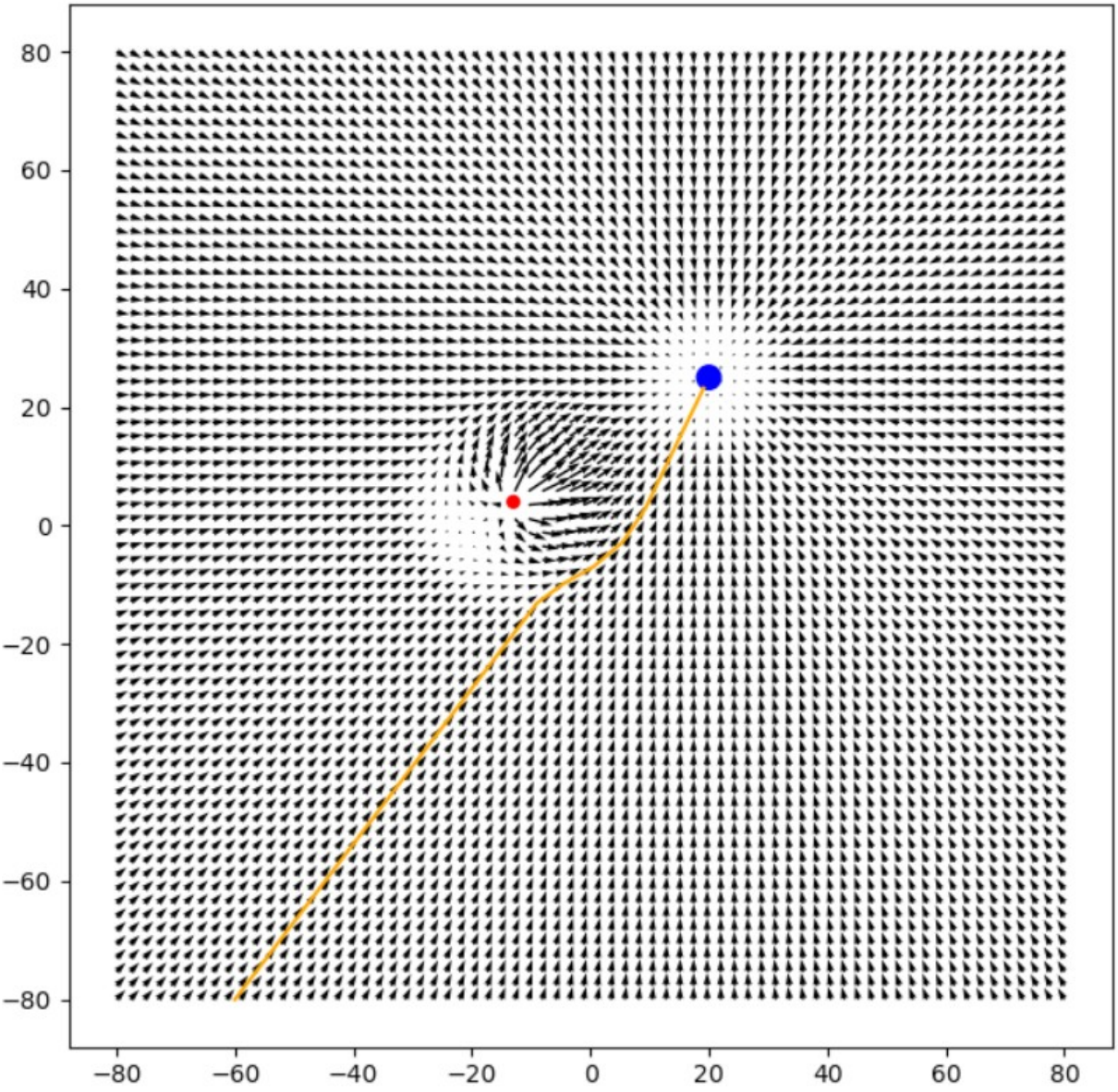
Note:
Instead of Hard Coding the different Obstacle position and their radius, in the code I have randomly generated different position (both for x and y coordinate) and radius for the obstacles. Given that all the radius lies between 1-5 and certain measures are also taken to ensure that obstacles will maintain a certain safe distance from the goal, so that obstacle doesn't spun too close to the goal. Sometimes we can stuck in a case, where the robot start position is surrounded by all obstacle leaving no space for robot to travel to the goal location. In such case we might end up in an infinite loop but if loop iterates over 5000 time than the program will terminate the loop and will show the following message "Something wrong with the generation of obstacles...re-run the code!!" and will plot whatever is captured. I have not excluded out this problem because if we try to maintain safe distance from the start location also, there will we very less room for obstacles.

N -> Represents the no. Of Obstacles
To change the number of obstacle in the code, just change N value in line 22

Even though obstacle coordinates and radius are generated randomly still hardcoding the coordinates and radius is possible. To do so, simply comment line 23-40 and uncomment line 41-43. But now we have to explicitly provide the value x_coordinate and y_coordinate and the radius.
Example:
To provide: (1,2)->radius:5 ; (4,6)->radius:3
in code:
Xo=[1,4]
Yo=[2,6]
ro=[5,3]

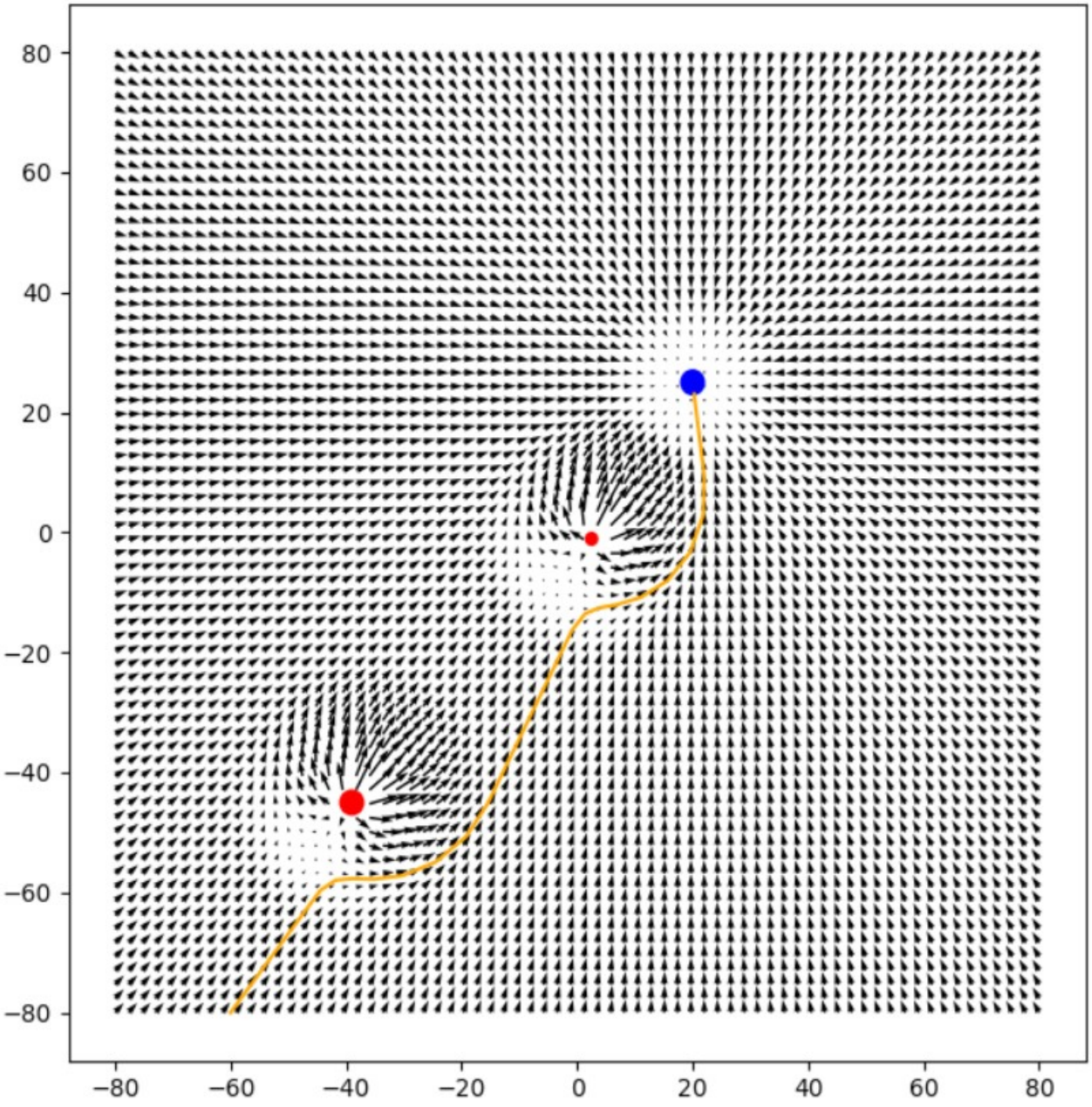
N=1

Obstacle1: (-13,4) | Radius 1: 1



N=2

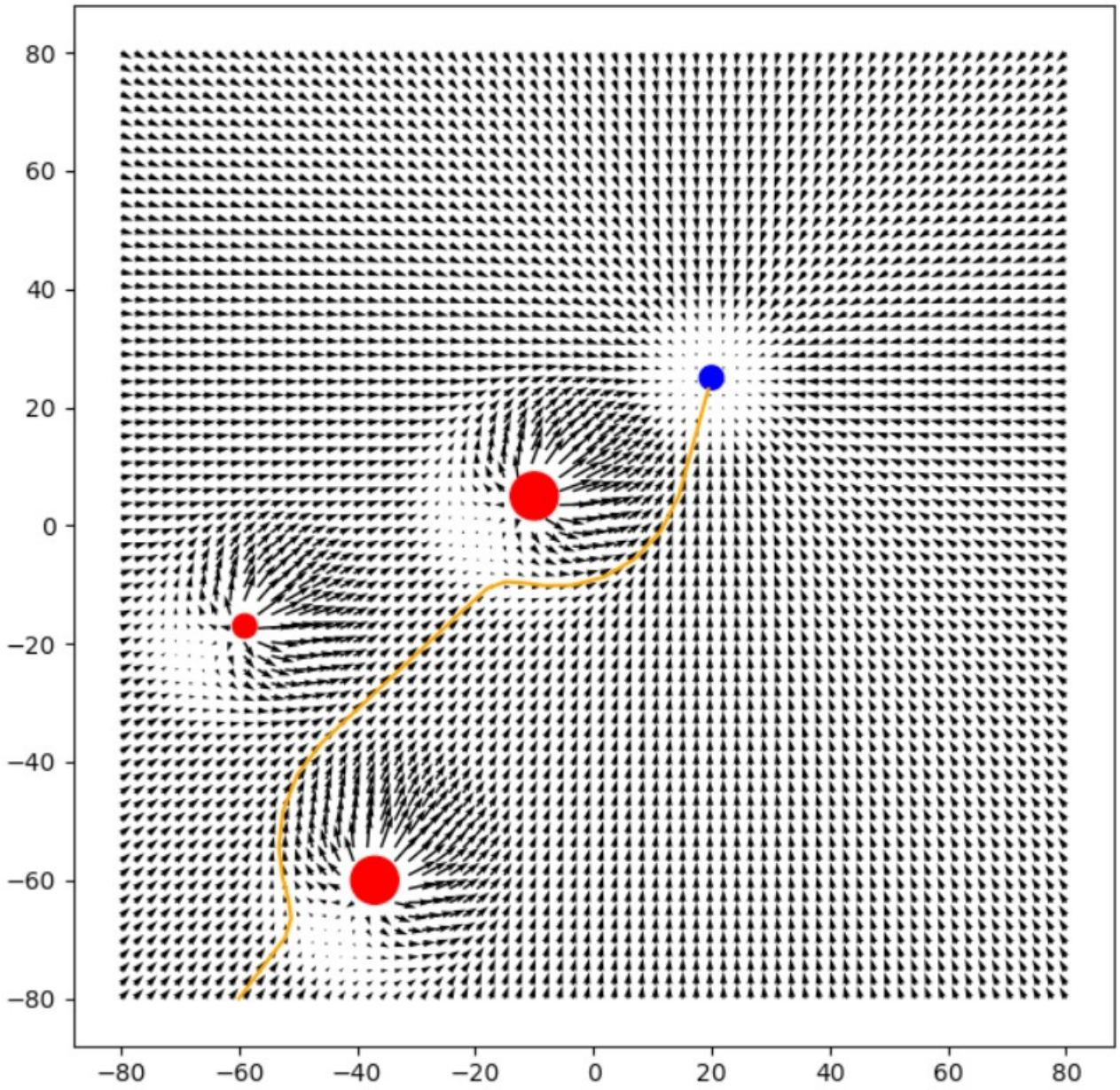
Obstacle1:(2.5,-1.07) | Radius: 1 Obstacle2:(-39,-45) | Radius: 2



N=3

Obstacle1:(-37,-60) | Radius: 4 Obstacle2: (-10,5) | Radius: 4

Obstacle3: (-59,-17) | Radius: 2



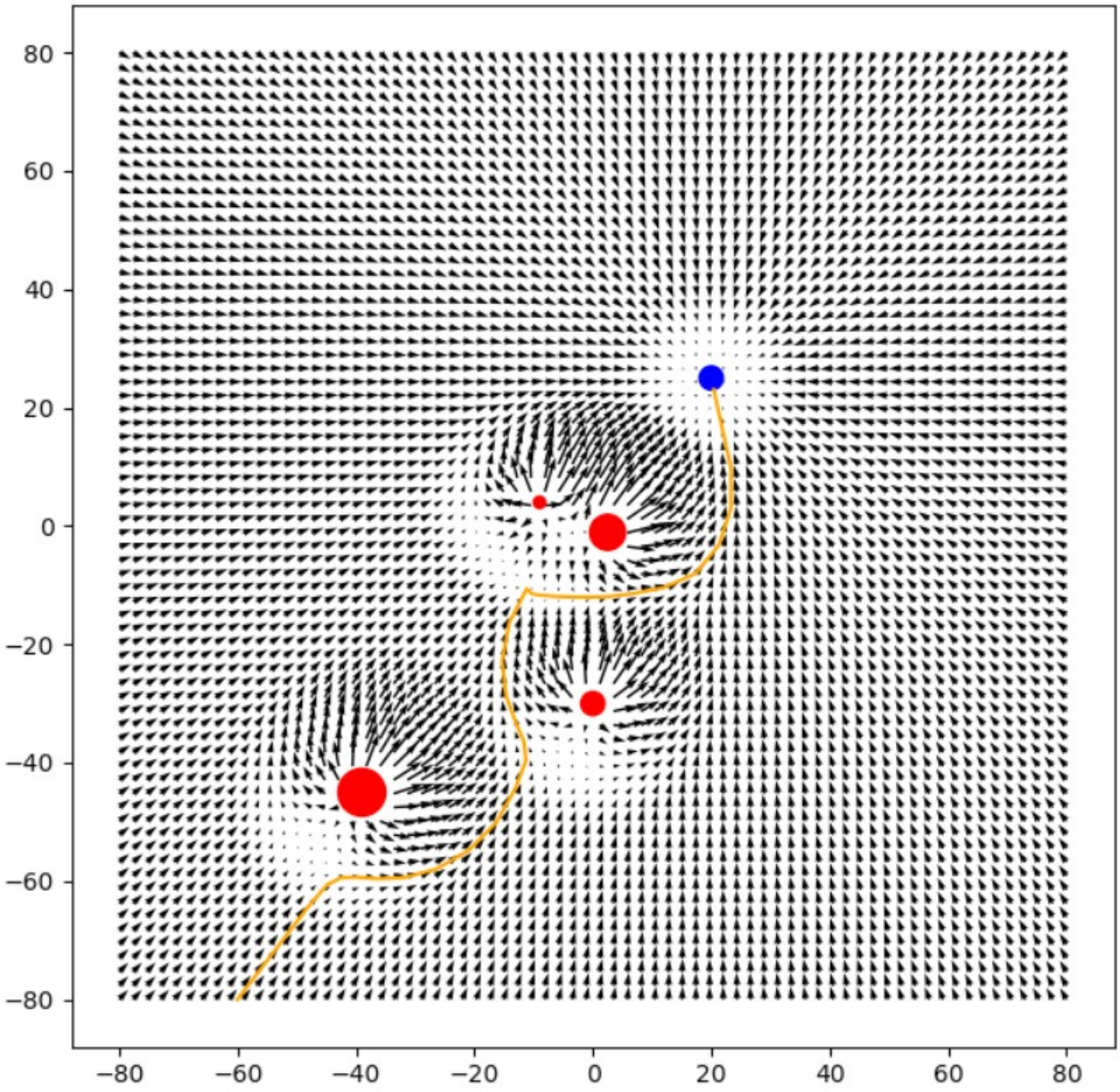
N=4

Obstacle1:(2.5,-1.07) | Radius: 3

Obstacle2:(-39,-45) | Radius: 4

Obstacle3:(0,-30) | Radius: 2

Obstacle4:(-9,4) | Radius: 1



N=5

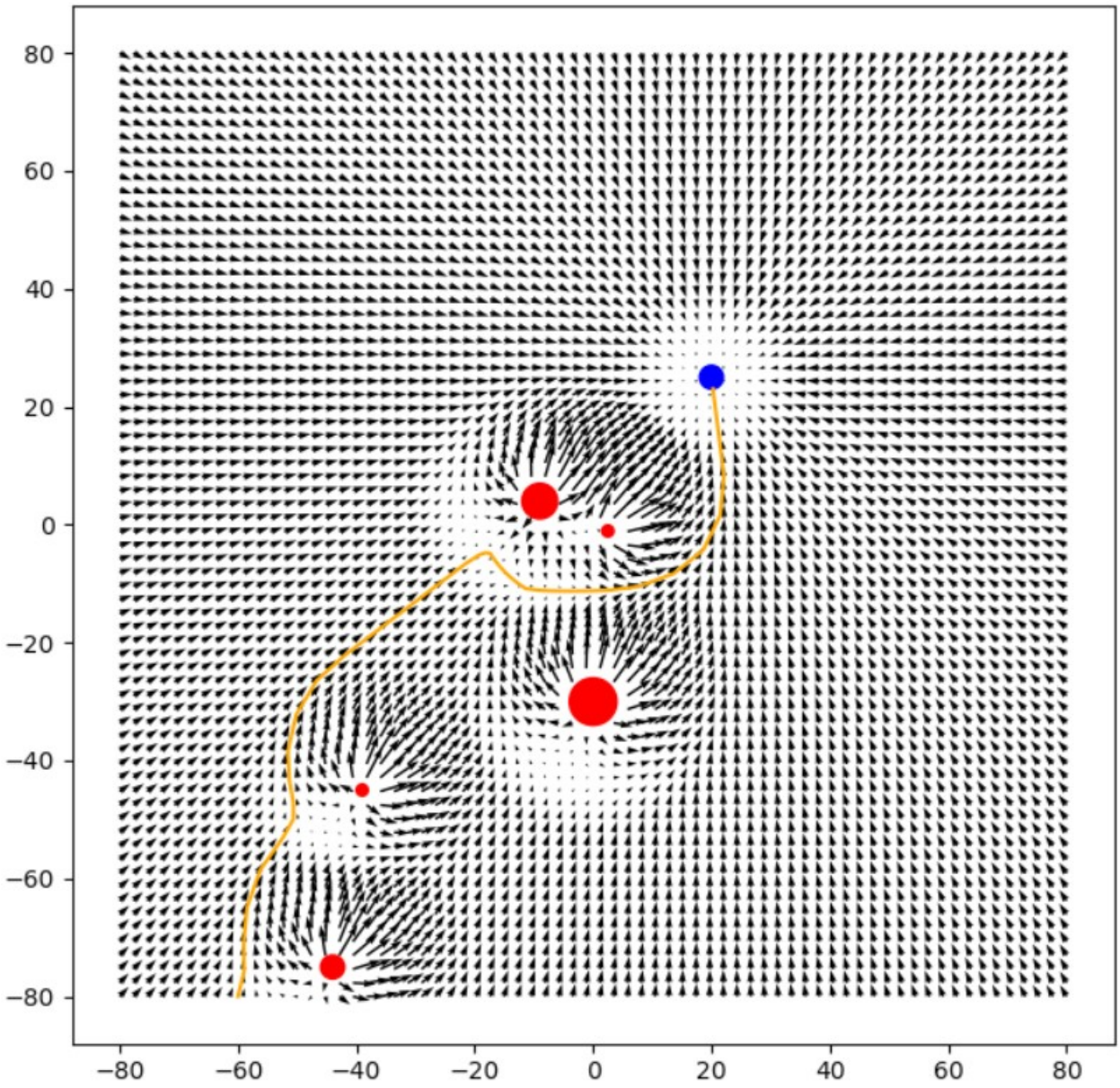
Obstacle1:(2.5,-1.07) | Radius: 1

Obstacle2:(-39,-45) | Radius: 1

Obstacle3:(0,-30) | Radius: 4

Obstacle4:(-9,4) | Radius: 3

Obstacle5:(-44,-75) | Radius: 2



N=6

Obstacle1:(2.5,-1.07) | Radius: 2

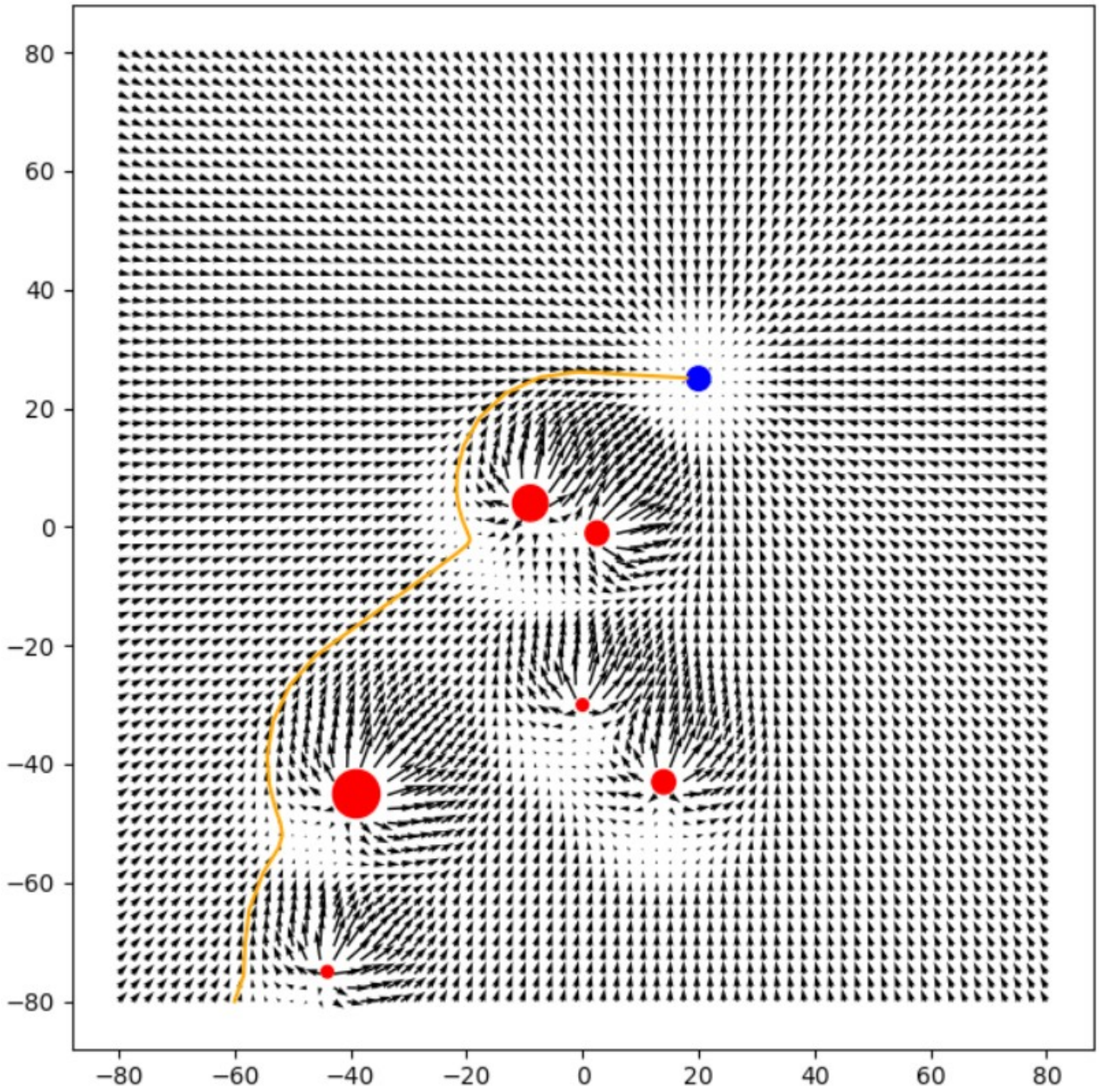
Obstacle2:(-39,-45) | Radius: 4

Obstacle3:(0,-30) | Radius: 1

Obstacle4:(-9,4) | Radius: 3

Obstacle5:(-44,-75) | Radius: 1

Obstacle6:(14,-43) | Radius: 2



N=7

Obstacle1:(2.5,-1.07) | Radius: 1

Obstacle2:(-39,-45) | Radius: 3

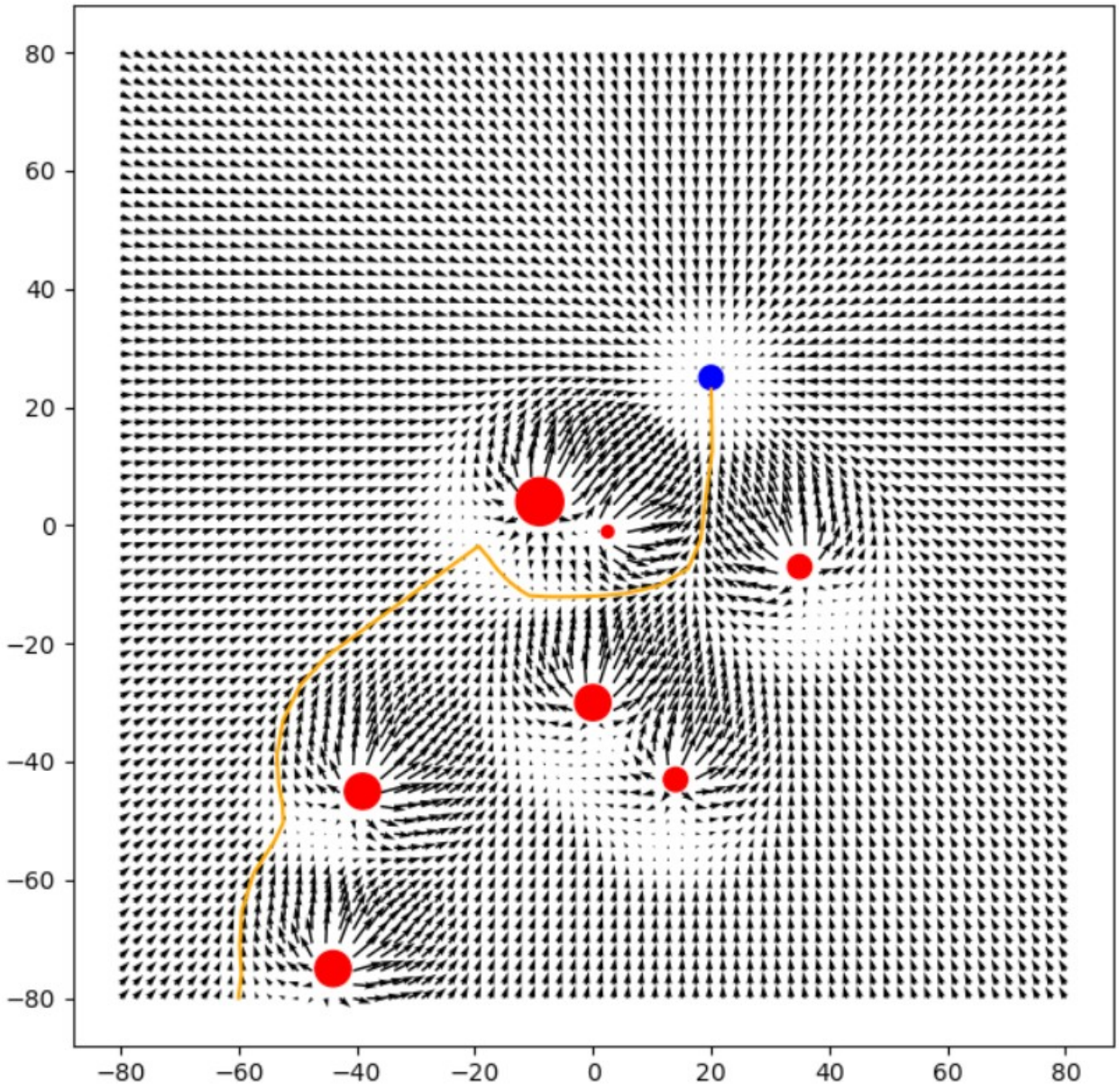
Obstacle3:(0,-30) | Radius: 3

Obstacle4:(-9,4) | Radius: 4

Obstacle5:(-44,-75) | Radius: 3

Obstacle6:(14,-43) | Radius: 2

Obstacle7:(35,-7) | Radius: 2



N=8

Obstacle1:(2.5,-1.07) | Radius: 1

Obstacle2:(-39,-45) | Radius: 2

Obstacle3:(0,-30) | Radius: 3

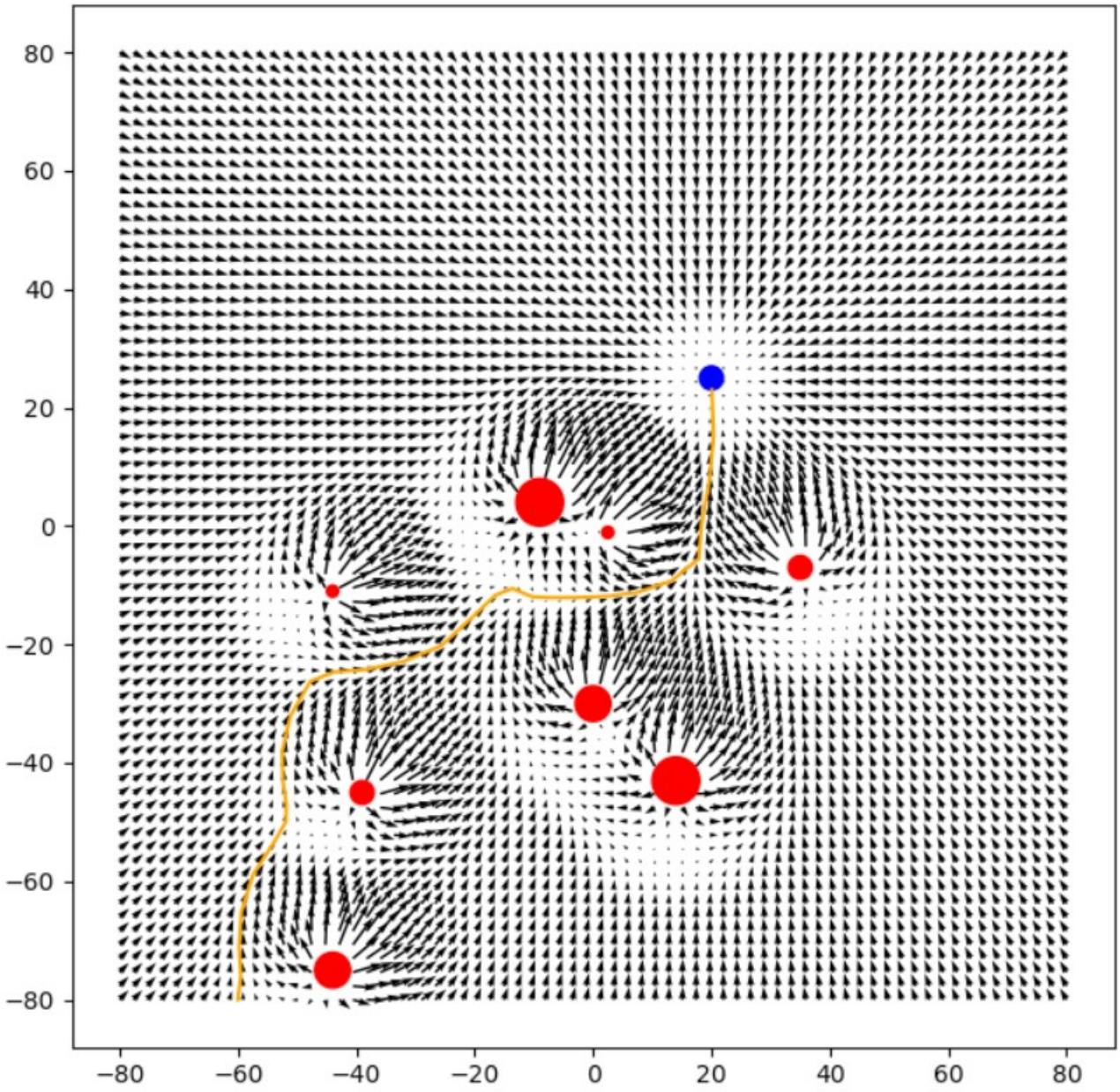
Obstacle4:(-9,4) | Radius: 4

Obstacle5:(-44,-75) | Radius: 3

Obstacle6:(14,-43) | Radius: 4

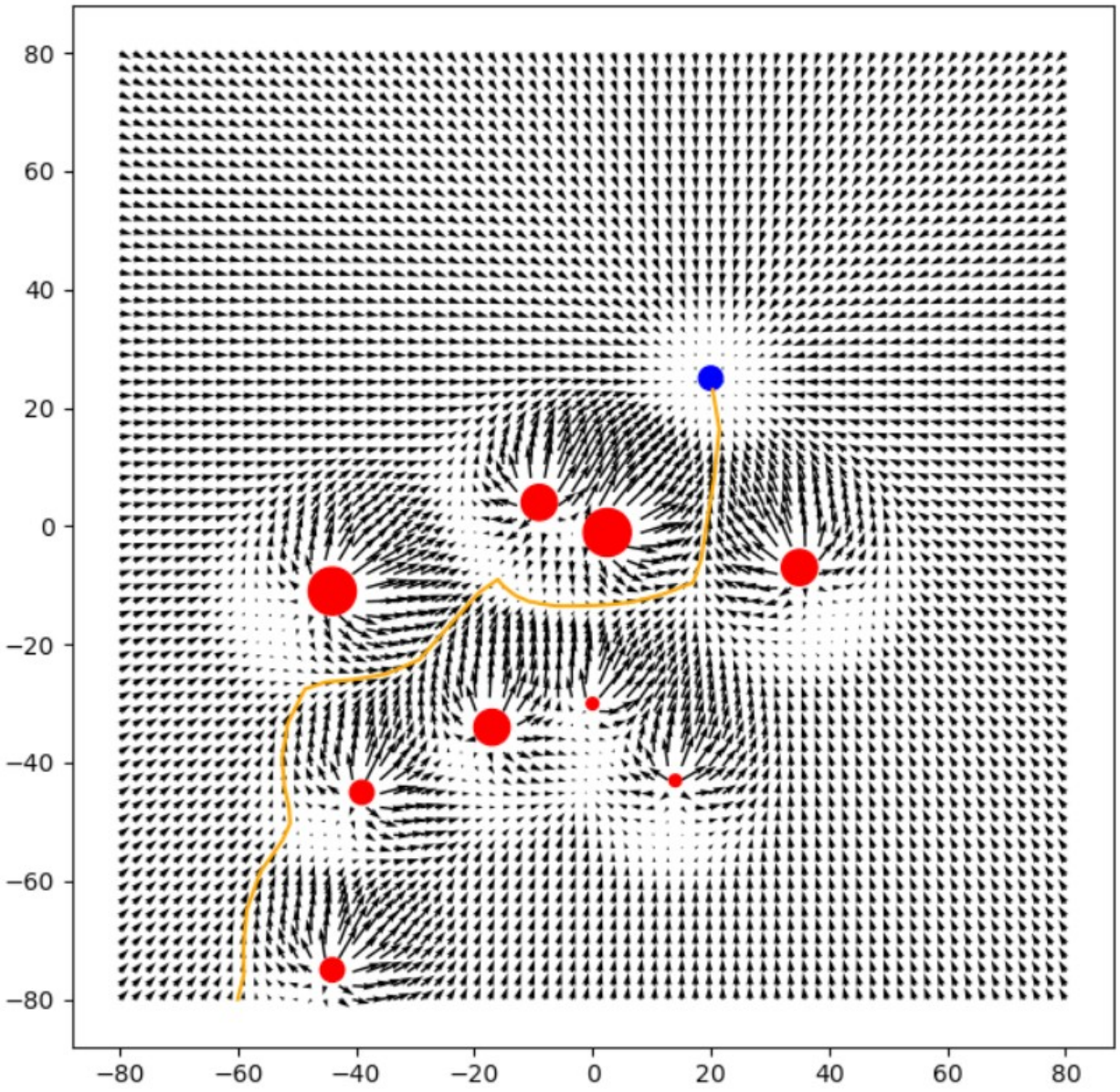
Obstacle7:(35,-7) | Radius: 2

Obstacle8:(-44,-11) | Radius: 1



N=9

Obstacle1:(2.5,-1.07) | Radius: 4
Obstacle2:(-39,-45) | Radius: 2
Obstacle3:(0,-30) | Radius: 1
Obstacle4:(-9,4) | Radius: 3
Obstacle5:(-44,-75) | Radius: 2
Obstacle6:(14,-43) | Radius: 1
Obstacle7:(35,-7) | Radius: 3
Obstacle8:(-44,-11) | Radius: 4
Obstacle9:(-17,-34) | Radius: 3



N=10

Obstacle1:(2.5,-1.07) | Radius: 1
Obstacle2:(-39,-45) | Radius: 2
Obstacle3:(0,-30) | Radius: 1
Obstacle4:(-9,4) | Radius: 2
Obstacle5:(-44,-75) | Radius: 2
Obstacle6:(14,-43) | Radius: 3
Obstacle7:(35,-7) | Radius: 4
Obstacle8:(-44,-11) | Radius: 1
Obstacle9:(-17,-34) | Radius: 3
Obstacle10:(-69,-51) | Radius: 2