ENPM - 661

PLANNING FOR AUTONOMOUS ROBOTS

Project - 2

Implementation of Dijkstra and A* algorithm on point and rigid robots

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Class: Robotics-Spring 2019

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Batch 2020

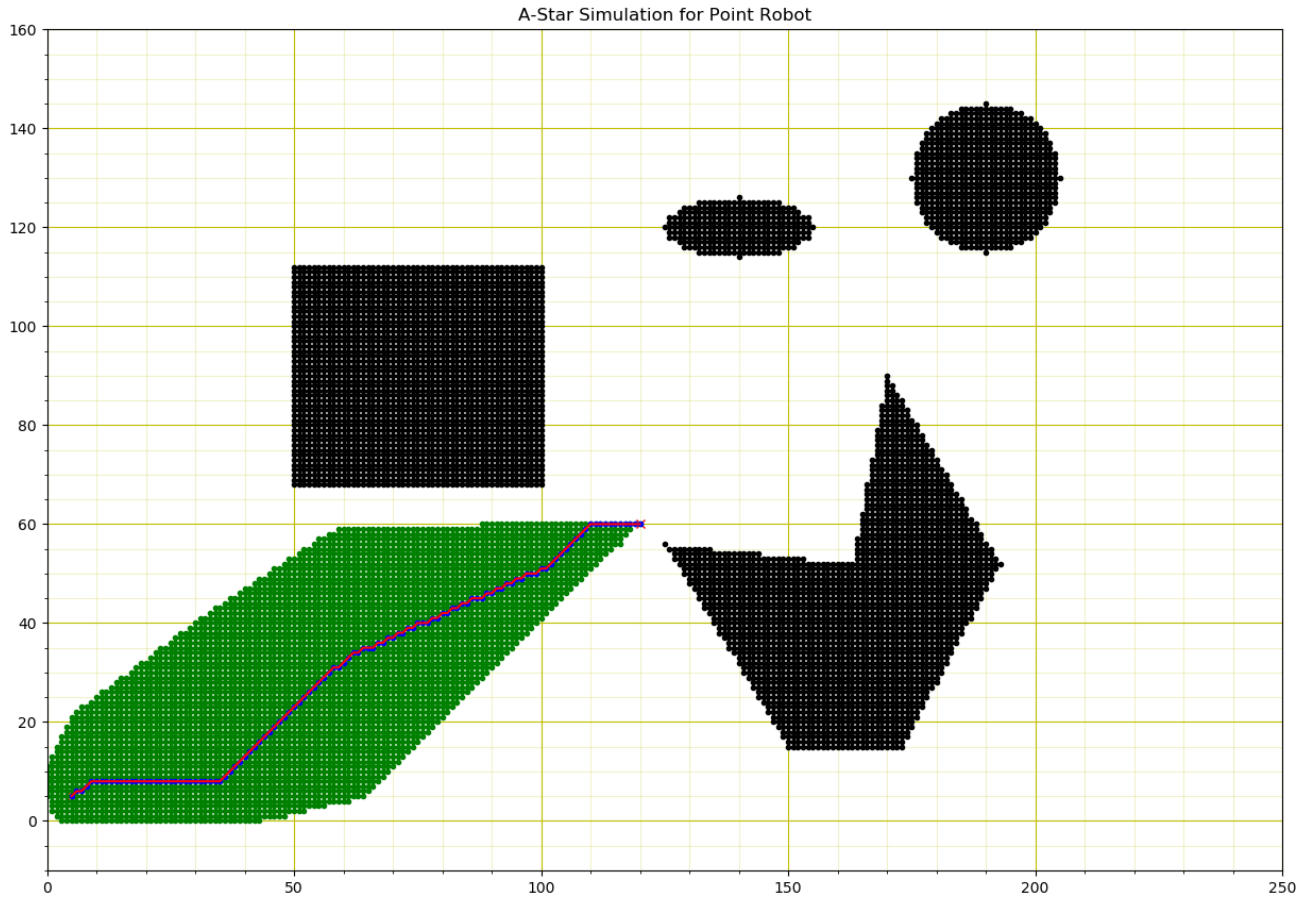
Outputs of Algorithm

The Dijkstra and A* algorithm on point and rigid robots is implemented and the following are the obtained output images

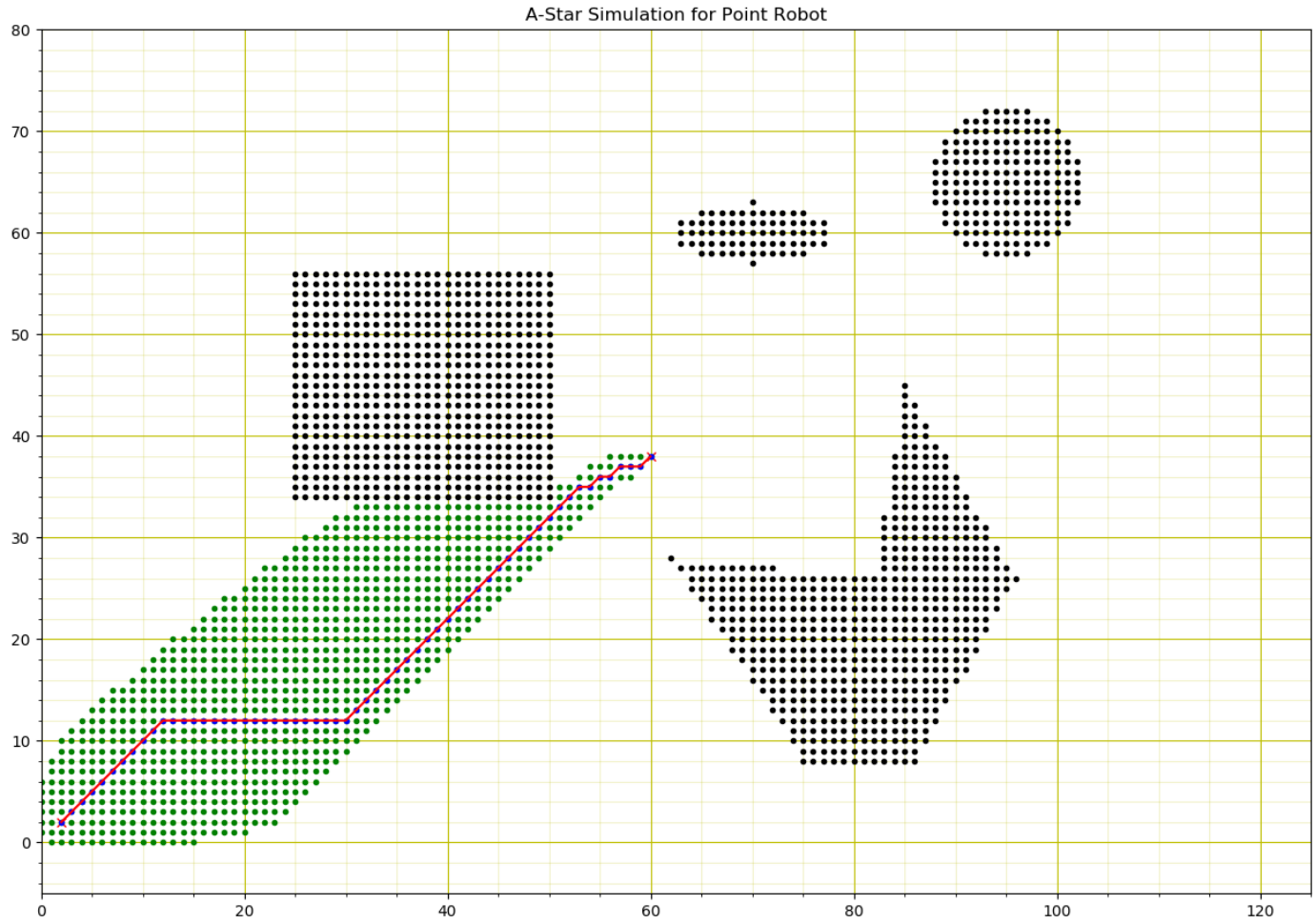
1) A* Point Robot:

The A-Star algorithm is implemented using the Heuristic function to find the shortest distance between the start and goal nodes.

At Resolution (resol = 1)



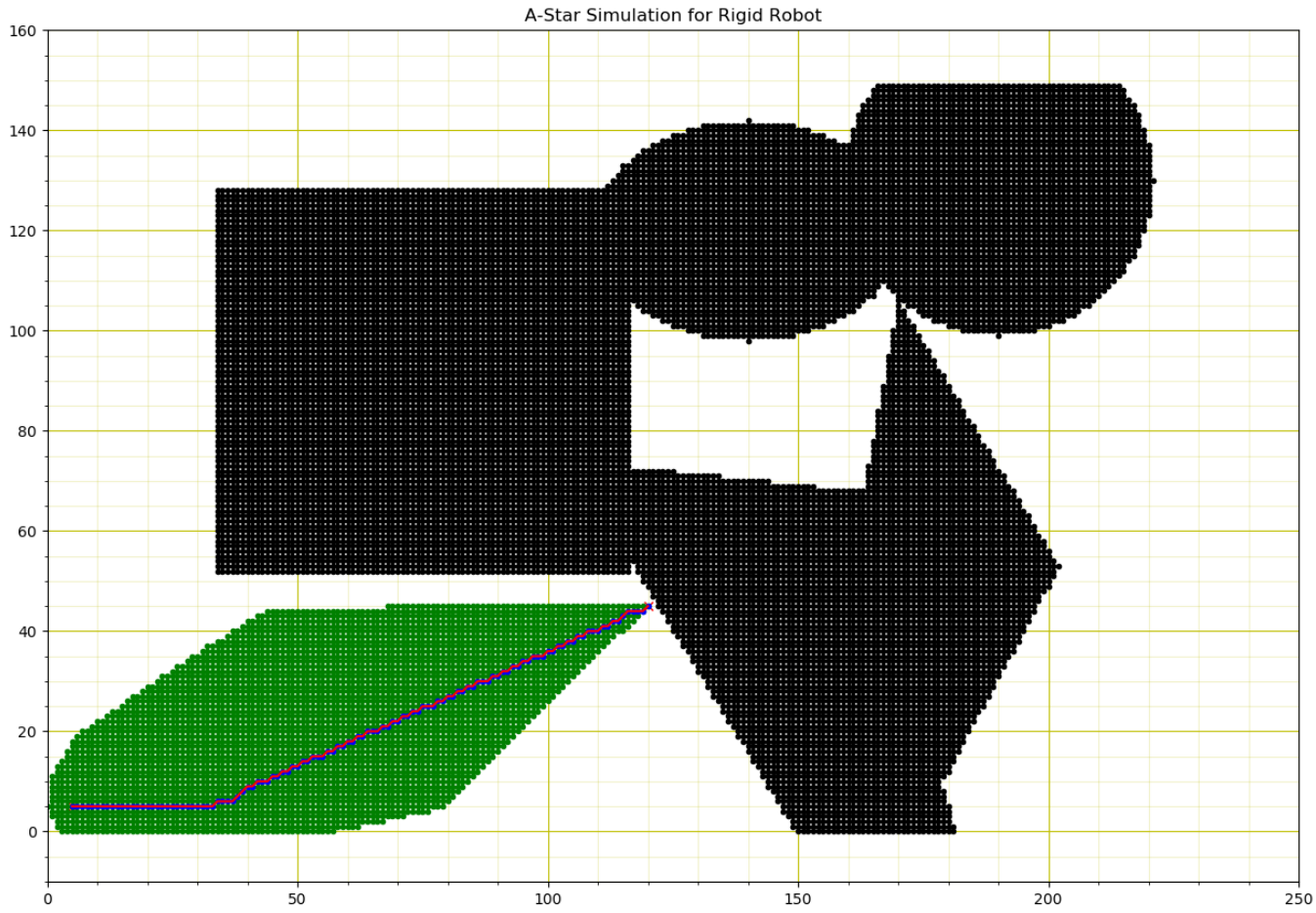
At Resolution (resol = 2) :



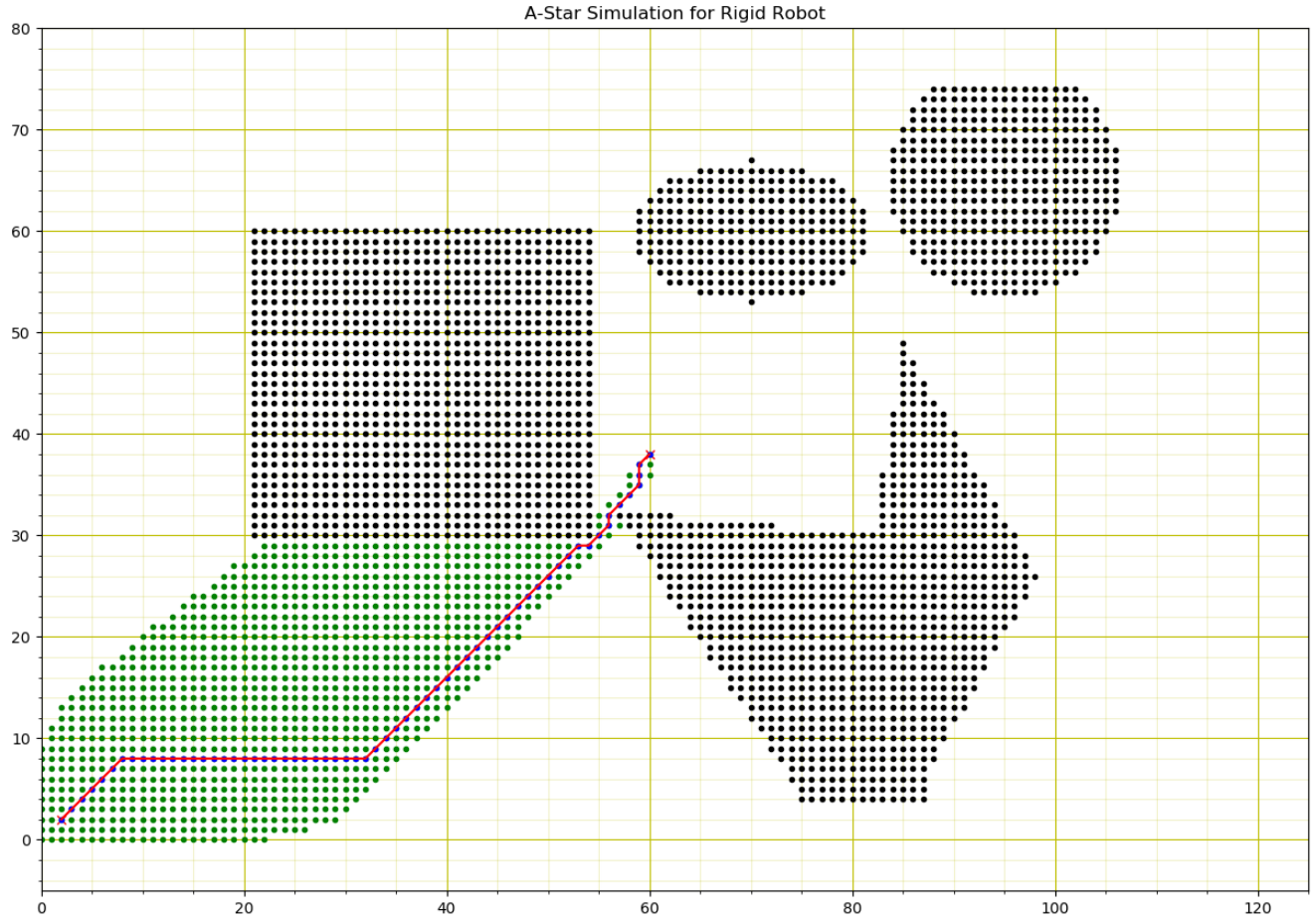
2) A* Rigid Robot:

The Robot radius and the clearance values are obtained from the user and the Map is modified (Minkowski sum) with increased obstacle size.

At Resolution (resol = 1):



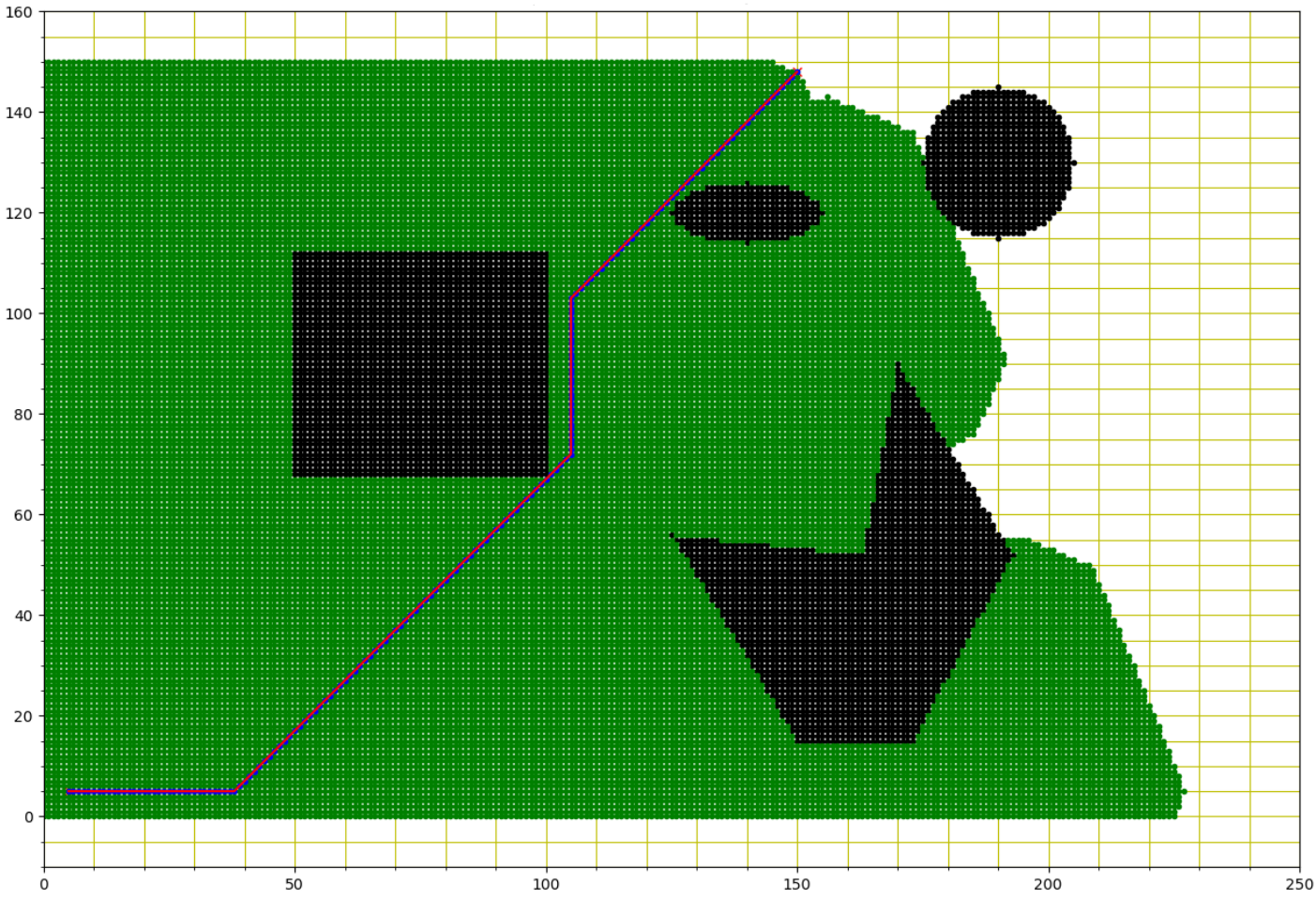
At Resolution (resol = 2):



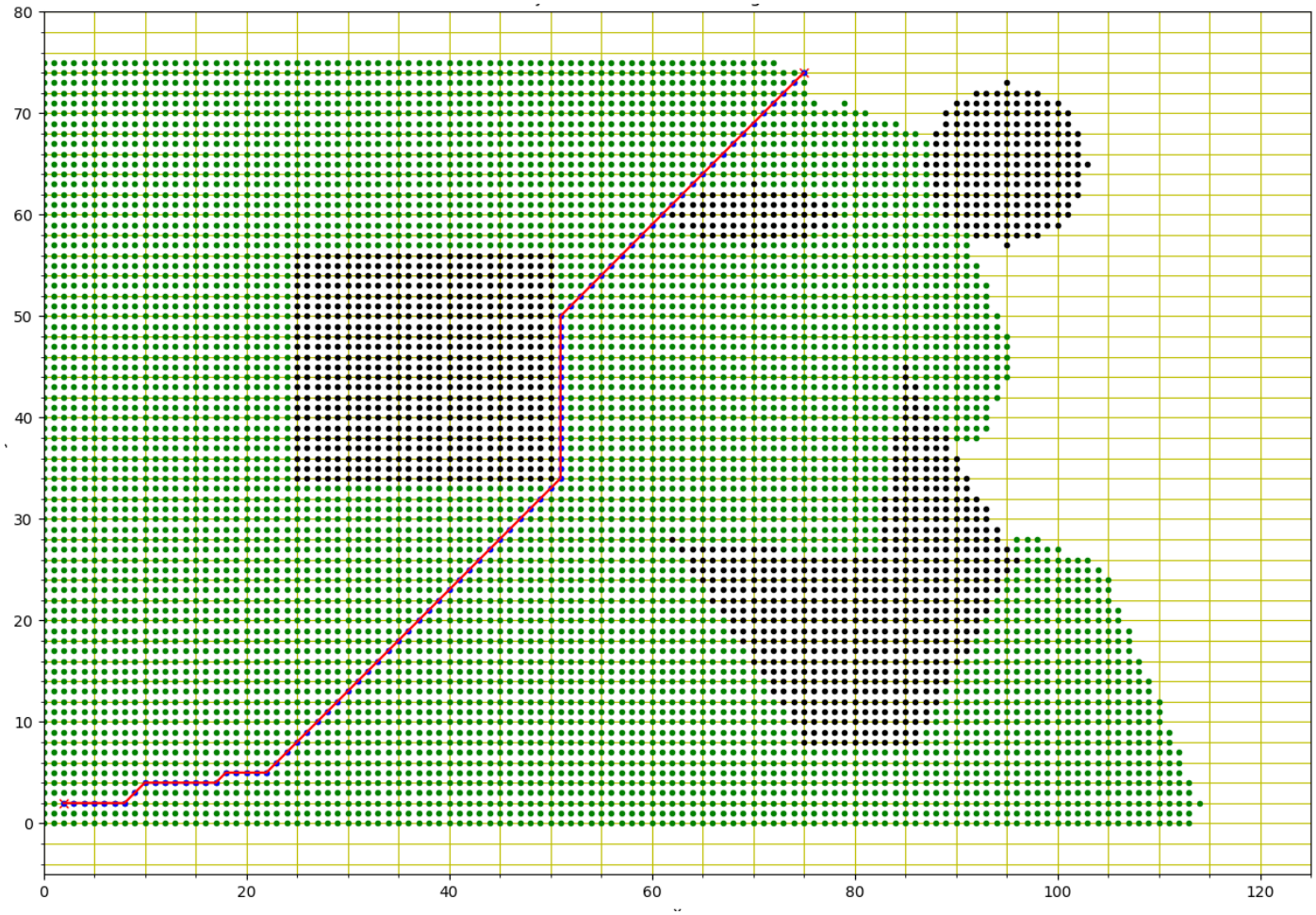
3) Dijkstra Point Robot:

The Dijkstra algorithm is implemented to find the optimal path between the start and goal nodes.

At Resolution (resol = 1):



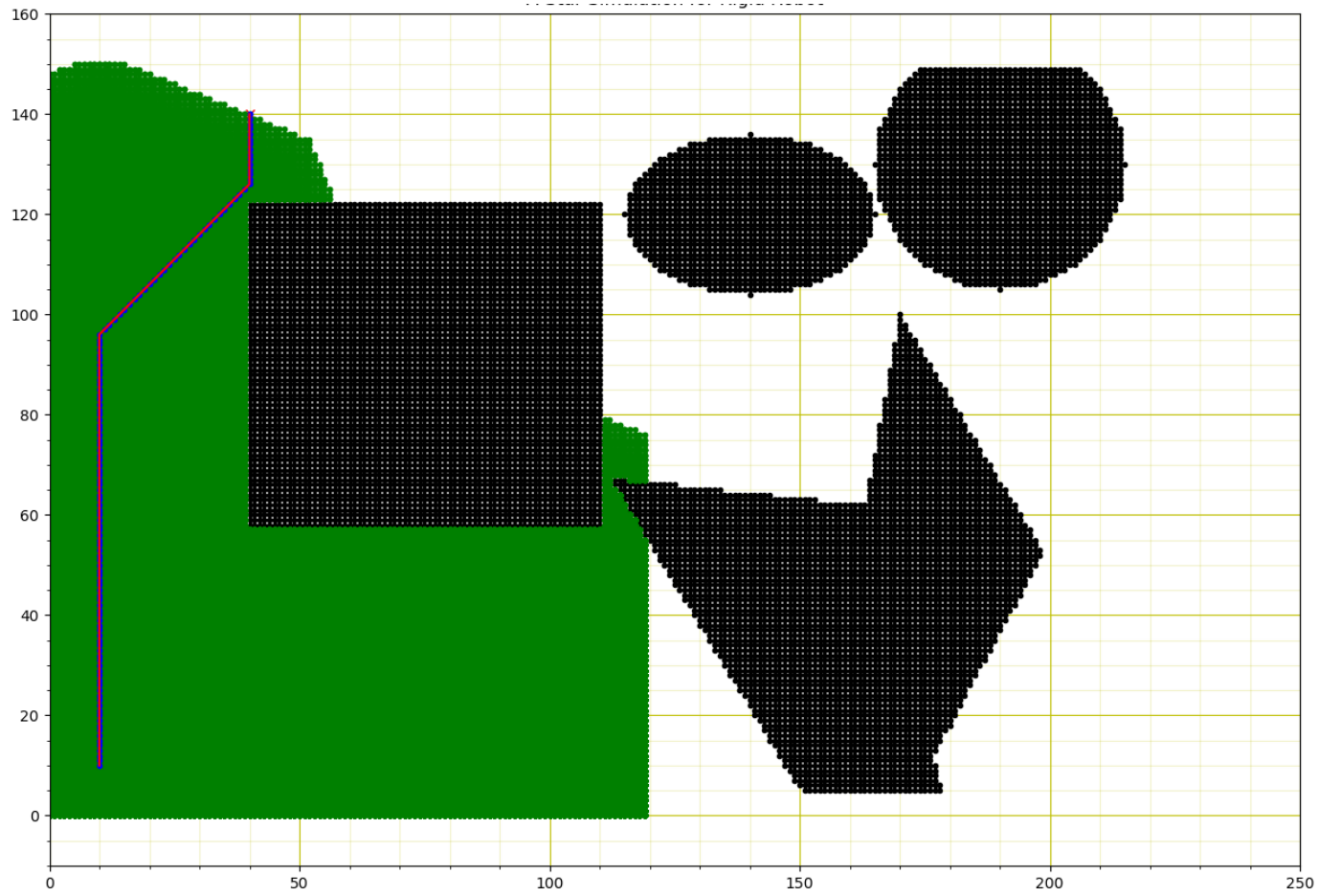
At Resolution (resol = 2):



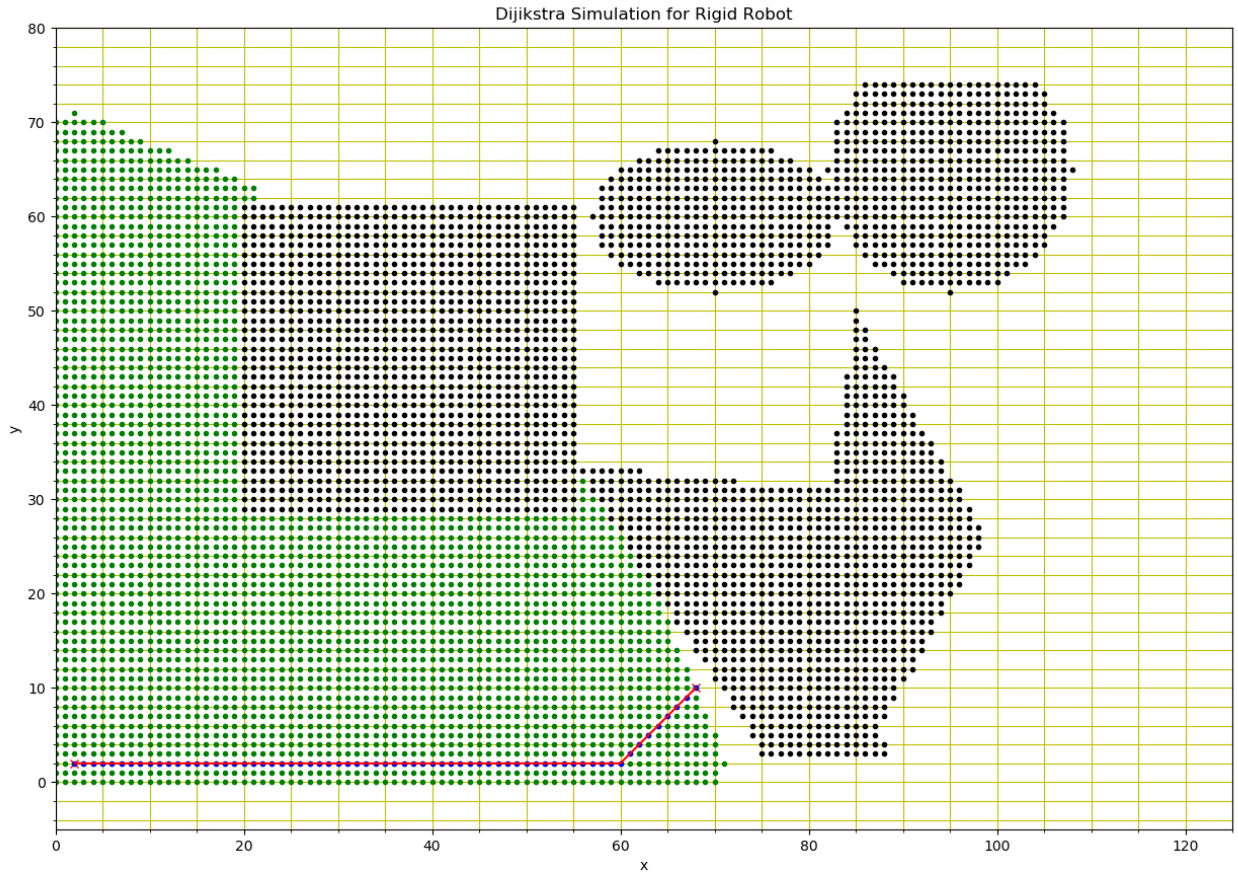
4) Dijkstra Rigid Robot:

The Robot radius and the clearance values are obtained from the user and the Map is modified (Minkowski sum) with increased obstacle size.

At Resolution (resol = 1):



At Resolution (resol = 2):



Conclusion:

Thus the path finding algorithm(A* and Dijkstra) is implemented for the point and rigid robots and the output files are submitted.