# CSE 460 Mobile Robotics - Lab 9

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***Abstract*— Lab 9 report for CSE 460 Mobile Robotic with Professor David Saldaña.**

## I. Github Code

The code I developed for Lab 9 can be found here: https://github.com/amandabaran/robotics/blob/main/lab9/lab9.py

## II. Videos

The video of the robot moving from node 0 to node 15, around the box obstacle, can be found here: https://drive.google.com/file/d/1LSdErjl1SBXghhvJhS2aFoKB2J2A5-hb/view?usp=share_link

The video of the robot moving from node 15 to node 14, around the chairs, can be found here: https://drive.google.com/file/d/128zfSs6UzLqPIb9I-ovnBSA_V1HGUC9s/view?usp=share_link

The video of the robot moving from node 18 to node 8, around the chair, can be found here: https://drive.google.com/file/d/1YEMnCUM6DIb_VAs9O6fNy9pA6EQ1FMK7/view?usp=sharing

## III. Questions

### *A. Can you make a robot continuously follow a loop?*

Yes. Rather than creating a path, you would create a Hamiltonian cycle, in which the robot touches every node and comes back to the original starting node.

### *B. How would you solve the problem if you don't know where the obstacles are?*

If you don't know where the obstacles are, you could first detect the obstacles in the field by taking a walk of the the grid and detecting nodes with obstacles using either the camera or ultrasonic sensor. Then, you could compute the graph and path, passing in the found obstacles as a parameter representing the list of nodes that should not be in the graph.

## References

[1] Amanda Baran, Github, https://github.com/amandabaran/robotics/tree/main/lab9