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CS302
Robot Navigation Bonus Assignment
12/8/2019

To Compile: Enter file named “Bonus_RyanHoffman” and type “make”.

Notes:
-I did not finish the second portion of the project but I am submitting as far as I got. (I finished section 4)
-My program will print the paths taken from 1 starting position and orientation instead of all 10 because the console output was too long. Feel free to test with other orientations and starting positions.

Task 4:

a) The time complexity to ray trace and get the cells perceived by each sensor would be 12 (the number of angles measured) x 50 (the number of cells the beam can measure) = O(600).
b) The time complexity to update all the required probabilities in my code was O(50) in order to check if each cell the beam went through was occupied or not.

Screenshot of part of code output (orientations start at 0 degrees and increase by 15 degrees until 180 degrees) (starting position is x:1, y:1):