

Robotics

GENG5508

Lab Assignment 5 – *Group* – Brushfire

Points: 10

Implement the Brushfire algorithm for a given environment in occupancy grid format.

2	2	2	2	2	2	2	2	2	2	2	2	2
2	3	2	2	2	2	2	3	3	3	3	3	2
2	3	2	1	1	1	2	3	4	4	4	3	2
2	3	2	1	1	1	2	3	4	5	4	3	2
2	3	2	1	1	1	2	3	4	5	4	3	2
2	3	2	1	1	1	2	3	4	5	4	3	2
2	3	2	1	1	1	2	3	4	4	4	3	2
2	3	2	2	2	2	2	3	3	3	3	3	2
2	3	3	3	3	3	3	3	2	2	2	3	2
2	3	4	4	4	3	3	2	2	1	2	2	2
2	3	4	5	4	3	2	2	1	1	1	2	2
2	3	4	5	4	3	2	1	1	1	1	2	2
2	3	4	4	4	3	3	2	2	1	2	2	2
2	3	3	3	3	3	3	3	2	2	2	3	2
2	2	2	2	2	2	2	2	2	2	2	2	2

EXPERIMENT 1 (7 points)

Read and display the occupancy grid as a binary QQVGA image file (1 means occupied, 0 means free).

Calculate the iterative Brushfire algorithm and print the resulting graph on screen.

EXPERIMENT 2 (3 points)

Drive the robot from start (top left) to goal (bottom right) on a collision free course, following the Brushfire route.