**EE5110/6110:Autonomous Systems**

**Assignment 5 (Motion planning )**

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| 1. Write your Name, Matriculation Number, Module Code (EE5110/6110) on the cover page,  2. List your answers in order; Name your report as A1234567.pdf (where A1234567 is your matric number)  3. Submit your report to the website by 16 Nov. 2021. |

Based on the lecture notes, and any additional reading materials of yours, answer the following questions:

3.What is the major difference between Dijkstra and A\* search algorithms? According to your understanding, please explain it.

4. We have the following 3x5 grid (see the following figure). The starting square is (1,1) marked in green, while the target square is (1,4) marked in red and the wall square is (1,3) marked in black. It is required to move only in four directions (right, left, up, down). We

have the rule( priority rank):. Please use the A\* search concept and find the shortest path from (1,1) to (1,4) while avoiding the wall (1,3) .

* Draw a flow chart of A\* algorithm for a general case and explain it briefly (not only for this question),
* Write down a detailed process for finding the shortest path (Don’t use the A\* codes to find the shortest path and you may follow the lecture’s steps).

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| --- | --- | --- | --- | --- |
| （1，1） | （1，2） | （1，3） | （1.4） | （1，5） |
| （2，1） | （2，2） | （2，3） | （2，4） | （2，5） |
| （3，1） | （3，2） | （3，3） | （3，4） | （3，5） |