**Planning for Autonomous Robots**

**Project1 Submission – Abhishek Kathpal – akathpal@umd.edu**

**Code:**

Main File – enpm\_proj1\_main.m

Dependencies – ActionMoveDown.m, ActionMoveLeft.m, ActionMoveUp.m, ActionMoveLeft.m, generate\_unique\_id.m, check\_duplicate.m

**How to run code:**

1. Extract the akathpal\_proj1\_enpm661.zip file.
2. Go to Code folder and Run enpm\_proj1\_main.m file

**Explanation:**

To reduce the running time of the code, I generated a unique id for each node so that only one number is compared when checking duplicate nodes. NodeSet Structure consists of Nodes and NodesInfo. NodesInfo provides the information related to parent node and cost which is zero in this case. The running time for generation 100k nodes is around 50sec when using for loop for checking with using Any function it reduced to arnd 20sec.

All the action functions are responsible for generating node by moving zero to right, left , down or up if possible.