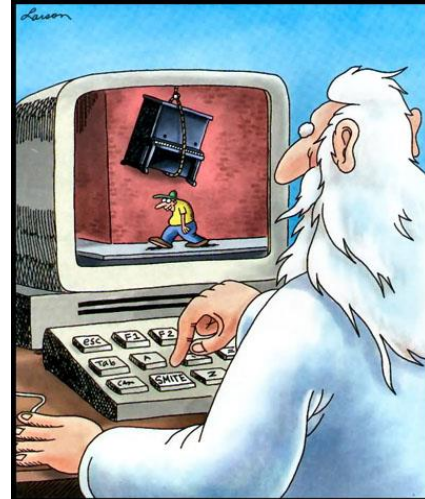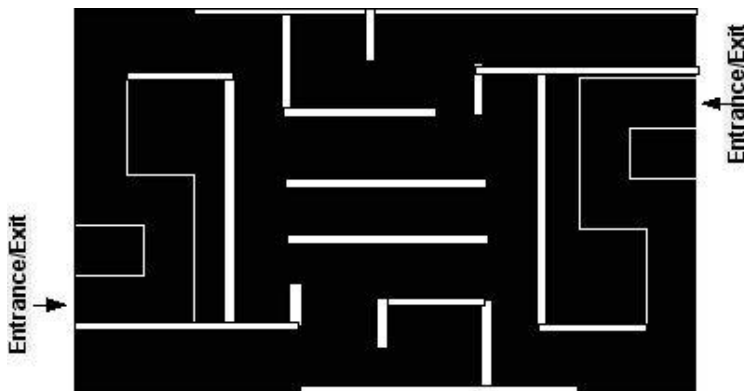# CPS 813/DG8010 –Human Robot Interaction
Lab 1 – Maze Situational Awareness
(Winter 2017)

The Environment:

A maze is an intricate structure of interconnecting passages through which it is difficult to find one's way.

Required:

Each groups is to build a wire-guided, mobile robot capable of driving between lines and negotiating fixed hallways in a maze similar to the one depicted in the diagram above. In the diagram, thin lines represent white tape on a black surface. Thick lines represent walls. Exits/Entrances are shown. Robots must traverse the maze 3 times under different circumstances:

1) Maze visible by another member of the group through a video feed. Instructions sent through a two-way radio to a driver who cannot see the maze.
2) Maze visible to a driver through a video feed provided by an unmanned aerial vehicle (UAV/drone) hovering over the maze. UAV is controlled by another member of the group, and
3) Maze seen in mirror view by driver and group.

Scoring:

The lab will be marked out of 10. Marks will be allocated as follows:

- 0.5 marks: 8.5 in x 11 in printed sheet with the title "CPS813/DG8010 Lab 2". The sheet will indicate the name and student numbers of each member of the group and the name of your robot.
- 0.5 marks: Submit a video no longer than 30 seconds sent to the course TA with file name, "`CPS818DG8010Lab2`**P1**`<robotname>.mov`", where `<robotname>` is the name of your robot. The video will clearly show each member of your group and your robot. Each member of the group will state their name and someone will state the name of your robot. You must indicate at least 1 feature of the robot that you find interesting. All words must be intelligible.
- 1 mark: Submit an edited video file named "`CPS818DG8010Lab2`**P2**`<robotname>.mov`" no longer than 2 minutes showing the performance of your robot performing the 3 traversals.
- 8 marks: 2 marks per task with 2 mark awarded at the discretion of the TA.