Audibot Urban Navigation

Starting Point

This project uses the same Audibot simulator that was used throughout the course, but it is spawned in road_world with a camera to detect lane markings. The following launch command starts the simulation:

```
roslaunch ugv_course_launch audibot_road_world.launch
```

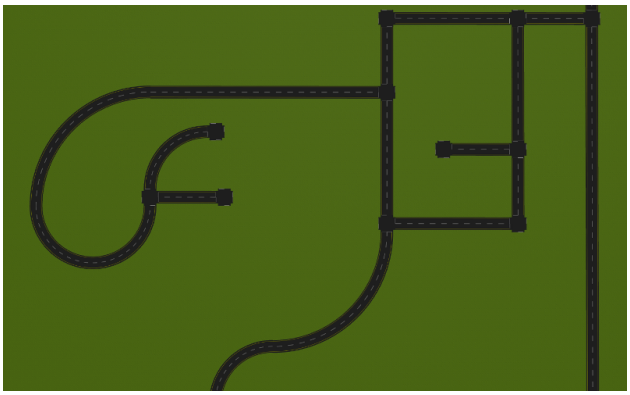

Figure 1: road_world

Level 1

- Measure the GPS coordinates of each intersection in road_world.
- Use the path following node in the audibot_path_following package to follow the lane markings between intersections.
- Derive logic and controllers to switch from path following mode to turn left or right at an intersection, if necessary.
- Construct a sequence of turns to reach a particular intersection from the starting position.

Level 2

- Construct a graph with a node for each intersection, and represent the connections between intersections using an approximate distance.
- Use the constructed graph to find the shortest route from the starting point to an arbitrary intersection.
- Execute the sequence that yields the shortest route as in Level 1.