Autonomous Robotic Navigation Applied to Lawn Mowing

Christensen, Nathan

The purpose of this project is to design a robotic lawn mower that will autonomously map and mow a yard, using a set of three sensors that will establish a perimeter of the yard and communicate with the robot to determine the location of the robot in the yard. A second goal of the project is to produce the robot so it is cost effective for the average consumer. The robotic lawn mower will also be able to use the map of its environment, or yard, that it created for future navigation of the yard while it is mowing. The robotic mower will be powered completely by electricity, and will have one or two on board batteries. The robotic mower will be tested by having the robot mow several lawns that differ in terrain type and types of obstacles, such as trees, rocks, lawn ornaments, etc… The mower will be observed during each lawn its mows and it will be tested in how well the robot maps the perimeter of the yard, how well the yard looks after it has been mowed, how long the mowing took, and how well the robot remembers the map of the yard it created during future mowing jobs. The results will be recorded and a conclusion will be made based on the results. This project is still in the prototyping phase, and results are pending upon further research and experimentation of the robotic lawn mower.

Awards Won: