

Stair-Traversing Robot Vacuum

Sponsor name: Marc Johnson

Problem Background and the need:

While robot vacuums have become fairly common, such vacuums can generally only vacuum floors on one level. No reasonable options exist for lazy people to vacuum their stairs. A robot vacuum cleaner that is capable of traversing and cleaning a flight of stairs is needed.

Problem Description / requirements (List of high-level functionality you expect to see in the end product)

- Traverse a flight of carpeted stairs
- Vacuum the horizontal surface of each stair within the flight
- (Opt) Vacuum the riser (vertical portion) of each stair
- Vacuum should be easy to use, e.g., user-friendly as are conventional robot vacuums
- Production cost should be similar to that of conventional robot vacuums

Required Skills / Desired Competencies :

- Electrical hardware design
- Embedded software design including control of servo-motors, etc.
- Mechanical/Industrial hardware design
- Robotics

Mentors (person/s who will be mentoring the student team and meet with them regularly):

Names: Marc Johnson, Bill Camp

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Will the students be required to sign any of the following before they start with the project?: NDA / CDA / IP assignment / IP protection form

Yes