Motivation

We would like to introduce a product that can guide you in three dimensions to your destination at a walk-along pace.

Objectives

Camera-assisted, autonomous guide capable of:
- Taking a desired destination as an input
- Navigating in all three dimensions
- Operating continuously for over an hour

Must be quiet enough for indoor use.

Architecture

- Localization
  - Multiple cameras track a red balloon to determine position
- Maneuverability
  - Blimp has full degrees of freedom in a 3d space
- Path planning
  - Blimp navigates to targets via waypoints
- Control
  - Blimp can be controlled autonomously or manually

Results

Flight Path Tracing

Initial set of experiments
- Prototype completed, able to traverse a predetermined path autonomously in gymnasium
- Altitude control for height adjustments

http://www.ece.cmu.edu/~ece549/spring12/team17