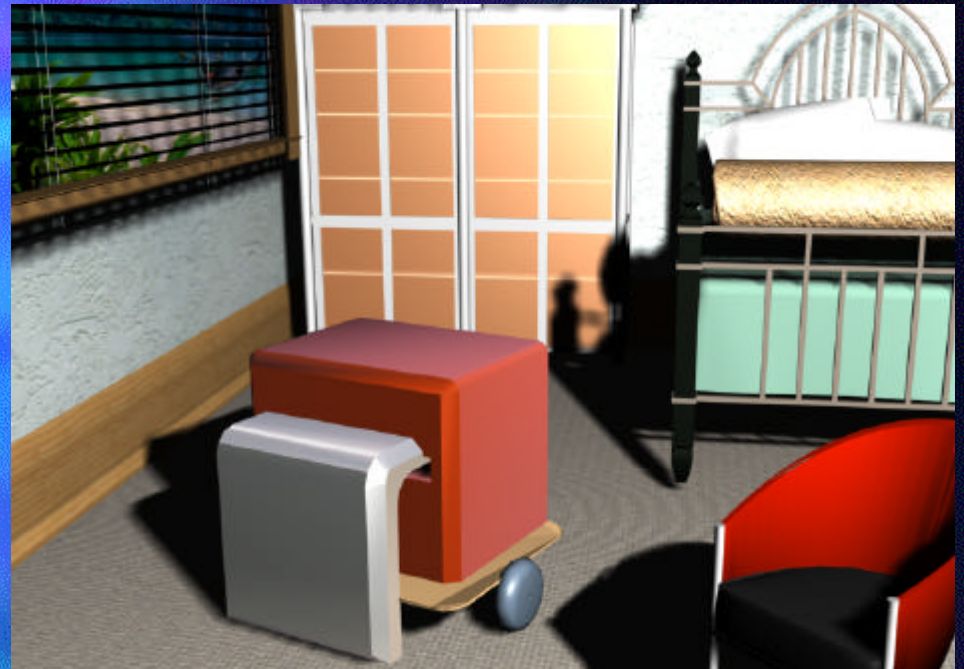


Mr. Mom

*Vacuum Cleaning/Beacon
Searching Robot*



Center for Intelligent Machines and Robotics
and
Machine Intelligence Laboratory

Presented by: Erica Zawodny
University of Florida

Robot Overview

- Actuators:

- 4 Servo Motors

- Servo Motor Functions:

- 2 Operate the Robot's Wheels
 - 1 used for Panning IR Housing
 - 1 used for Switching on the Vacuum Motor

- 1 Fan Motor

- Salvaged from a Dust Buster®

★ 5 Actuators Total

Robot Overview

■ Sensors:

- 4 Bump Switches
 - 3 Micro-switch type
 - 1 Push-button type
- 3 Infrared Detectors
 - 1 IR Emitter
- IR Beacon

★ **8 Sensors Total**

Robot Overview

■ Behaviors:

- Obstacle Avoidance
- Vacuum Cleaning
- Beacon Searching
- Beacon Following
- Remote Activation

★ 5 Behaviors Total

Robot Features

- Custom Platform

- Vacuum/Fan Housing & Dust Receptacle

- Designed using AutoCAD

- Manufactured using T-Tech Machine

- IR Detector/Emitter Housing

- Designed using Pro/Engineer

- Manufactured using Rapid Prototyping Machine

Robot Features

- 360° Panning Servo
 - Un-hacked servo
 - 2:1 gear ratio allows for 360° rotation
- Robot Activation via Remote Control
- Successful Beacon Detection and Following

Closing Remarks

- ★ Gained invaluable experience
 - ★ Electronics, especially
 - ★ Mechanical Design
- ★ Creativity is key
- ★ Electronics humble you

*"Scientists see the world as it is;
Engineers create a world that never was."*