Bunny Bot V2.0

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Introduction

Robotics is an area of engineering that is driven by extensive research and development. Robots are very effective at accomplishing specific tasks they are programmed to execute.

Methods

Egg Detection and Retrieval
For the Turtlebot to identify what is an egg and what is not an egg, the vision capabilities of the Kinect sensor were integrated with OpenCV. Simple Blob Detection, image thresholding and filtering were all used by the Turtlebot to identify the egg. The final aspect was navigation. In order for the Turtlebot to return to its original location, it needed to know where it started and where it currently was at any given time. This meant the robot could locate an egg and return it to the predetermined “Home” location.

Results

• Bunny Bot V2.0 can successfully detect eggs within one and half meter
• Bunny Bot V2.0 can gather the eggs using the mechanical grabber
• Mechanical grabber has been designed to be more efficient
• The turn angle of the Bunny Bot V2.0 has been calibrated to turn accurately on the blue turf

Future Work

• Improve the navigation and variable distance from the Bunny Bot
• Include a child detection feature
• Bunny Bot will retrieve eggs in a methodical process dependent on the egg’s distance from the robot
• Design programming for Bunny Bot to handle various terrains (carpet, grass, blue turf)