Autonomous Robot Lawnmower

Status: Filled

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Project Description

The proposed project is a fully autonomous robot lawnmower. The objective is for the robot toautonomously drive through a lawn while detecting and avoiding any obstacles in its way. Thefollowing components will be used to assist the robot:

- Webcam - used for computer vision to detect the lawn and its perimeter with image processing techniques
- Sonar sensor - used to perform obstacle detection
- Compass sensor - used for tracking the robot's orientation
- Encoder - used for relative position tracking of the robot
- Computer-on-chip - used to interface sensors and perform all general processing onboard

The robot body will designed and fabricated by hand and will be equipped with the following components for power with the required electrical circuitry:

- Rechargeable battery - to provide power to all components
- Two geared DC motors (high torque) - for driving the robot wheels and performing differential turning
- Single low-torque DC motor - for driving the cutting blade

All electronics will be placed in a water-sealed housing so they are protected from the environment. Additionally, the cutting blade will be properly housed so that it does not pose a threat to the user, children, pets, etc.