ELE 302 – INDEPENDENT PROJECT INITIAL PROPOSAL

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(Bench 207)

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1 Overview

- **Objective:** To build a robot/car capable of playing basic ping pong
- **General principles:**
  - We will use a camera (or two for stereoscopic vision if necessary) to track a ping pong ball and estimate its trajectory.
  - We will then move the robot to the required location (ideally using omni wheels or Mecanum wheels) and hit the ball back over the net.
  - We will use a combination of dead reckoning and a grid laid on the floor to determine the position of the robot

2 Goals and checkpoints

Hardware

(1) Moving with omniwheels

(2) Tracking position

(3) Camera interfacing

(4) Movement commands

Software

(1) Determine the location of a static ping pong ball based on x/y coordinates and ball size

(2) Predict the trajectory

(3) Calculate position to move to

3 Progress steps

4 Parts list