

Bowling Without Balls

Lab 4 15-384 Robotic Manipulation Fall 2004

Demos and tournament: Wed., December 15, 6pm

Bowling is fun, especially the part where you sit and watch the other people bowl. We have taken the best part of bowling and added some special elements that are only possible with robots. (Or maybe not. Maybe if two human bowlers put on football pads they could play a similar game.)

The rules:

1. We will carefully position the bowling alley and the pins. The alley is currently set up in the lab. The proper position of the alley and the pins are marked with tape in an obvious way.
2. You must be able to set up on either robot in one minute or less.
3. The robot can only use the pins. You may not introduce additional hardware.
4. The game lasts for 30 seconds. When time is called, you get a point for pin that is in the opposite goal area. Pins that bounce out of the goal are counted as being in the goal. Any part of the pin touching the floor in the goal area is enough.
5. Your robot may not touch the playing surface or the supporting structure. Your robot may not jam—impacting the surface with a held object, or impacting an object on the surface. If it does any of these things in a way that affects the progress of the game, then the game is forfeited.
6. Your robot may throw pins as forcibly as it can. Your robot may block pins with its fingers or with another pin. It may not use any other part of its hand or forearm to block low-flying pins.
7. The program need not be autonomous. You may direct the robot's actions through a Teach Pendant GUI.

Grading and Tournament. This lab is optional! If your entry can score a point unopposed, then you will be able to replace your lowest homework score with a 100. Success in the tournament has no effect on your grade.