

Sumobot Design Considerations Assignment #6

Reading

<http://www.robotroom.com/SumoRules.html>

Overview

It's time to consider ways to give your sumobot a mechanical advantage for the competition. In this assignment you must come up with a new design for your sumobot.

Problem:

Redesign your sumobot making it more efficient. Here is a list of materials you will be allowed to use from the original sumobot:

Board
Servos
Line Sensors/connectors
Head Lights/IR Receivers
Light/Resistor/Speaker

Time:

You will have 1 week in class to work on the project and 1 week out of class.

Materials:

You may wish to consider using scrap materials such as:

Scraps of wood
Wood dowels
Scraps of metal
Plastic gears
Elastic bands
Steel rods
Wheels of different sizes

Design Modification Considerations

1. What kind of scoop would provide a better mechanical advantage?
2. What materials can be used to construct wheels? The shape and material can greatly alter the speed and friction. How many wheels should be used?
3. How do I achieve maximum power with the gears provided?
4. What size will it need to be, based on amount of materials supplied?
5. How will the pieces fit together?
6. How will this bot maintain balance when meeting other forces?
7. It can be difficult deciding which method of fastening things together is best to use, especially when using a wide range of construction materials. (ie hot glue, binding, duct or electrical tape, nails or screws.)
8. Weight is a major consideration. Don't forget to keep it under 500 grams.
9. We will allow designs up to 13 cm x 13 cm. It may be as tall as you desire.
10. How flexible are the materials you will use?
11. How can I better protect the sumobot?
12. Do I want it to "look" good?