Autonomous Snakes n Ladders

Abstract

Introduction:

"Autonomous Snakes n Ladders" is the popular Snakes and Ladders game but with some additional features such as automatic movement of pieces using slider rods, electromagnets and arduino.

Working:

The number of players will be 2, corresponding to 2 different parallel positions on each of the squares (to avoid interference).

The arduino will receive its input from the computer using a random number generator function which will emulate the die. For movement we can use servo/stepper motors. Two parallel rods shall be connected beneath the board at the ends. These rods will be connected with a perpendicular rod which shall slide along the two rods. The movements shall be rectangular from initial to final position, using an electromagnet beneath the board which will move the metal token of the player on the board.

Further Ideas - If possible we can add the dice part. The image of the dice shall be processed using a webcam. The no. of dots will be fed to the Arduino to create the required movement.

Components used and costs:

- Arduino – 1- Rs 800
- Servo/Stepper motors – 3 – Rs 1500
- Gears - Rs 100
- Slider Rods – Rs 100
- Electromagnet and miscellaneous – Rs 1000
- Acrylic Board – Rs 500
- Total Cost – Rs 3500-4500

Plan of Action

Week 1( ) :

- To do research on project.
- To select and buy the components required

Week 2( ) :

- To learn coding
- To implement coding

Week 3( ) :

- To start the mechanical assembly.

Week 4( ) :

- To complete the Mechanical Assembly
- Check the working

Week 5( ) :

- For Debugging and finishing the project

What we expect to Learn

We expect to learn about different motors stepper/servo and arduino. Coding the arduino and making a good mechanical board is also a challenge ahead of us.

Team Members

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