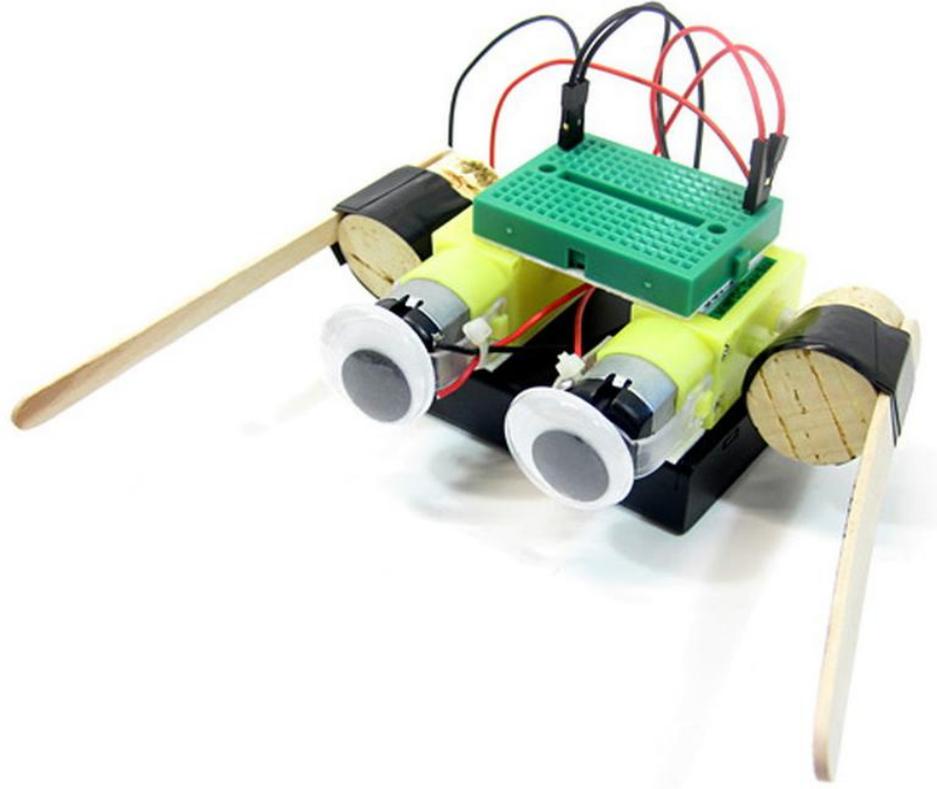# Mia and Otto the dancing robots

Mia and Otto the dancing robots

Question/problem statement

What robot design is the best for dancing?

Abstract

Robots are becoming more and more common today. Robots allow people with no limbs to move again and they do a lot of day-to-day tasks for us. I wanted to find out what design robot is able to carry out the function of dancing.

Research

Depending on the design the robot will move with two small motors and a complete electrical circuit and battery with popsicle sticks as "legs". This design has one problem as all the flipping and tumbling can be hard on the robot. The design also contains a breadboard for the wires to be out of the way. A robot is a machine that can carry out a complex series of actions automatically or you can say that robotics are a type of AI, which is composed of electrical,mechanical , and computer science engineering.
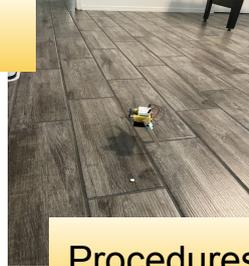
Result pictures

Materials

Design 1/ Otto

1)   Gear boxes x2
2)   Circuit Board
3)   Battery enclosure
4)   Battery enclosure lid
5)   Circuit Board mount
6)   Buddlets-bot sticker x
7)   Screwdriver
8)   Wheels x2
9)   O-rings x2
10)   Hubs x2
11)   Rear wheels
12)   Small screws x2
13)   Big screws x4
14)   T-blocks x2
15)   Blue eyes x2
16)   Green eyes x2
17)   Eye base x2
18)   Eye base x2

Design 2/ Mia

1.   Geared DC motors with leads x2
2.   3x AA battery holder with cover and switch
3.   Mini breadboard
4.   AA batteries x3
5.   Corks x2
6.   Popsicle sticks
7.   Double sided foam tape
8.   Duck tape
9.   Scissors
10.   Small Phillips head screwdriver
11.   Hot glue gun

Procedures

Design 1/ Otto

1)   Gather all materials
2)   use screws to attach the battery enclosure to the circuit board mount
3)   Use screws to connect the circuit board to the circuit board mount. The wire on the battery enclosure is connected with the circuit board.
4)   Attach the 2 gearboxes to the circuit board mount. Make sure not to mix up the right and left sides.
5)   Attach the O-rings to wheels,and the wheels to the hubs. Afterwards, attach each wheel to each side gear box.
6)   Connect the rear wheel to the circuit board mount.
7)   Attach the eyes to the eye base, and the eye base to the T-block. Then attach them to the circuit board mount.
8)   Insert 3AA batteries into the battery enclosure and close the lid. Affix the Buddlets-bot sticker in front of the battery enclosure.
9)   Collect and analyze data

Design 2/ Mia

1)   Gather all materials
2)   Put the batteries in the battery holder
3)   Press corks onto the motor shafts
4)   Use electrical tape or duct tape to tape a popsicle stick to the cork,
5)   Use double-sided foam tape to tape the motors to the battery holder
6)   Mount the breadboard on top of the motors
7)   Connect the battery holder to the breadboard
8)   Connect one motor's wires to the breadboard
9)   test your first circuit
10)   Connect the second motor's wires to the breadboard
11)   test your circuit again
12)   Analyze data

Conclusion

In conclusion, my Hypothesis is kinda correct. One design didn't really dance and the other design danced awesomely. In the future, I would have changed the design for design 1, tested on a flatter surface, and have/ be more prepared when building the robot.

Variables

IV: can the robot dance?
DV: design for robots
C: the robots dancing

Results

Design 1/ Otto danced a bit less than I hoped it would but design 2/ Mia made up for it. Design 1 mainly just went forward, backward, and side to side so it was hard for the robot to dance on its own. Design 2 on the other hand moved its legs making it look like it was dancing as I had hoped.

Hypothesis

If the design is right and the flipping and tumbling doesn't do to much damage to the robot then the robot should be able to dance because the legs will move making the robot dance or move around like dancing.

Questions/or problem statement

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3) Battery enclosure
4) Battery enclosure lid
5) Circuit Board mount
6) Buddlets-bot sticker x
7) Screwdriver
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9) O-rings x2
10) Hubs x2
11) Rear wheels
12) Small screws x2
13) Big screws x4
14) T-blocks x2
15) Blue eyes x2
16) Eye base x2
17) Green eyes x2
18) Eye base x2

Design 2/ Mia

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3. Mini breadboard
4. AA batteries x3
5. Corks x2
6. Popsicle sticks
7. Double sided foam tape
8. Duck tape
9. Scissors
10. Small Phillips head screwdriver
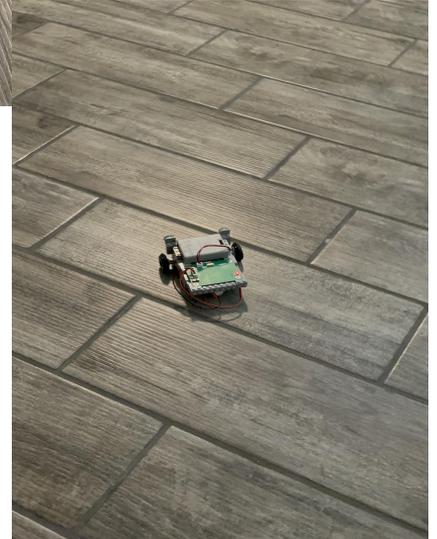11. Hot glue gun

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9) Collect and analyze data

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