LCWM Slug

Final drawing



Original Drawing



Cost/List of Recycled materials

Recycled OSB Battery Motor C channel/Plate Golf ball Tubing Cone Dominoes Tracks Cup

<u>Bought</u>

Balloon	\$0.02
Light Switch	\$1.49
2x4	\$60
Total	61.51

List of Steps

- 1. Ball rolls down ramps into cup (Mechanical)
- 2. Ball weighs down cup causing a ramp for wheel to come up (Mechanical)
- 3. Wheel rolls down ramp (Mechanical)
- 4. Switch hits the dominos (Mechanical)
- 5. Dominos falls resulting in dropping a weight
- 6. Weight pulls down a ramp (Mechanical)
- 7. Ball rolls down ramp, falls into cup (Mechanical)
- 8. Cup falls, pulls light switch and pulley (Mechanical)
- 9. Light switch turns on Mechanical arm (Electrical)
- 10. Mechanical arm pushes syringe (Electrical)
- 11. Syringe pushes water into other syringe (Hydraulic)
- 12. Golf ball rolls through tube and hits car
- 13. Car rolls down ramp
- 14. Car hits dominos
- 15. Dominos pulls pulley, that pulls balloon (Mechanical)
- 16. Vinegar from the balloon falls into baking soda, generating the balloon to inflate (Chemical)

Stem Processes

• Electrical Step-

Picture:



Explanation: A mechanical arm, a powered arm from the use of a hamster wheel puli that flips up the light switch that activates a motor which attaches the arm to the platform the Rube Goldberg project is on. The powered motor pushes the arm down into the next step.

Chemical Reaction Step-

Picture:



Explanation: A balloon filled with baking soda is pulled by a string attached to a puli that drops the baking soda into a stationary soda bottle that is filled with vinegar. The baking soda mixes with the vinegar to fill the -formerly filled with baking soda- with the reaction.

• Hydraulics Step-

Picture:



Explanation: The former step of the mechanical step moves one of the syringes filled with water, which is fed through a tube into the second syringe that is continued into pushing over the golf ball into the next step.

Reflection

The LCWM Slug team began with a typical day of robotics working on a robotwhich is called "slug"- before our supervisor (Mr. VanGenderen) brought up the idea of trying to start fresh and create a rube goldberg project- and with all agreement to do it we would begin the ideas and planning for the project.

Our initial goal was to create an estimated layout for the project before we began building. A step by step was created with ideas on what we could use. Not all the ideas we came up with were used in the final product, but through trial and error we were able to incorporate what ideas were useful into our project. Our group wanted to focus on the 'technology' aspect of the theme "space technology'. By doing this, we used a white backdrop and blue tape to mimic the build rooms at NASA. We also added the planets in our solar system and a few other details to support the space part.

One of the first concerns we ran into was the matter of getting the pulley to be heavy enough to lift the wheel up and knock over the wooden dominos. With enough trial and error, we got through that difficulty. Each step took time and effort, as we used the trial and error method frequently in our project. Each member was important because they could provide ideas to solutions that others didn't think of. Another issue we faced was the timing of the hydraulic and the golf ball paired against the balance of the toy truck. This part of the rube goldberg was very temperamental because it would be successful sometimes, and unsuccessful other times. We found that there would be trouble if one step was slightly out of place. We used screws to hold the toy truck in place until it gets hit by the gold ball. It was tricky making sure that the screws were in an angle that could hold the truck but wouldn't stop the truck from moving. Other issues that Team Slug ran into were people not showing up on a regular basis or just some steps not being concrete enough to be called a controlled variable.

A few of our team mates are interested in going into science or engineering and this project was a good way to give them experience. The Ag department was very helpful with the creation and building of the platform we would set the rube goldberg project on. The entire project and competition was very fun and will influence a lot of the team to work harder next time.

Bibliography

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