Abstract [5 points]

This year we plan to build a new recycling robot that can sort, crush, and dispose of the recyclables. This will be accomplished through the research of pneumatic compression, developing engineering and programming skills while also learning about basic building components (welding, structural integrity, etc).

Introduction & Goals [5 points]

The recycling robot was inspired by our vision for a cleaner future. This was motivated by the want to explore engineering and the desire to help the environment. Our goal for this project is to create a "Wall-E" like like system able to go around an area, collecting cans and able to compress them into a box. Our first goal will be to create the compression system and the mobile aspects will come later in the project. This project is an introduction to a larger scale of engineering that we both hope to be able to pursue in the future. We hope to learn and further our knowledge about the aspects of engineering and programming. Because we are taking a green approach to this study we see it as a stepping stone for very simple green machines that will help with the dying environment. This robot may be very simple but any contribution to reduce waste is a good one. With a fun visual interaction type of system it is a good way to grab the interest of young into recycling. The goals for our project can be rightfully viewed through the exploration of one question, "How to make an efficient 'DIY' recycling system that is sustainable?".

Goals

Our goals for this project is to make recycling fun for the generations to come. As we know, recycling is not the most exciting thing to do and we want to create a fun automated robot to help you recycle.

Essential Question

How can we make a necessary way of life more sustainable than it already is?

Project Planning

We plan on achieving our goals by setting dates on the things we need to learn in order to achieve our final product.

Research and Resources

We have researched ways to condense the recyclables. We are missing the information on how to sort and dispose of the recyclables.

Challenges

A few difficulties that we see might occur is when we are trying to construct or robot and the most difficult part of our robot would be to program it perfectly.

Impact

- Impact: How will this project benefit you? What skills or knowledge will you gain from it?

Elijah-I plan on gaining lot of building experience and knowledge because of the hands on learning process that we will be taking. I really like the trial and error attempts that we plan on making because it's one of my more favorable learning methods. I aspire to be an engineer so this will help me approach my goal and gain knowledge in coding and programming.

Lyons- I will benefit from this project because I plan on becoming a technical engineer and being able to build this robot will show me the right things i need to do to accomplish my goal. I will gain the knowledge of programming and building a motherboard.

Legacy

We have seen other people try and make machines that aid them in crushing cans. We have also seen people research ways on making our world more sustainable. Our goal is to combine the two with our love for robots and make this project awesome. A logical follow-up project could possibly make an even faster robot than what we create and something more appealing

Appendix A

https://www.codecademy.com - This is where we will learn more about coding and being able to master the basics.

http://dorecycling.com/automatic-can-crushers/ - This is the base of how we will condence the recyclables.

https://www.youtube.com/watch?v=yXCWQXIrAY8 - This video is the key element to making our robot crush the cans without using two compressors for one tank.

Appendix B

Critical

- Welding machine
- Soldering iron

Necessary

- Hammer
- Nuts and Bolts
- Screw Gun

Optional

- Paint

    - “Necessary” - tools or materials that are needed for the project, but there is some flexibility in exactly what is used
    - “Optional” - tools or materials that would be useful to your project, but are not necessary for its completion