

Automatic Charlotte feeder

Define the Problem

The problem I am trying to solve is if I can make a cheap dog food dispenser that is just as nice as all the ones you can buy at the store. I want to design this prototype because I do not like scooping dog food and putting it in the bowl. And I also do not want to buy a really expensive dog food dispenser. The purpose of my design is so people can purchase and enjoy a better automatic dog feeder.

Research

I learned from my research that there are a lot of the same automatic dog feeders with a high price tag. I wanted to make one that everybody could afford. I also found out that most of these websites all have the same favorite automatic dog feeder.

Requirements

My design has to automatically feed my dog so I do not have to.

Constraints/Limitations

The resources I am limited to using is stuff that is not too expensive to buy or could be recycled from items we had at home. The biggest limitation to me will be how much time we have to finish . The biggest requirement is building it good so my dog does not starve.

Prototype Designs



Materials

1. 60.96x121.92 0.635 cm. plywood
2. 35.56x20.32 cm. Dog food bowl
3. 182.88 5.08x10.16 cm stud wood
4. 4 12.7x5.08 cm. cardboard pieces
5. 3 15.24x182.88 cm. wooden fence picket
6. 86 1.27 cm screws
7. 39 2.54x0.635 cm screws
8. 2 5.08 cm screws
9. 1 roll of duct tape
10. Steel tough Weldbond glue
11. Metal L bracket
12. Dry dog food
13. Paddle concrete mixer
14. 4 22.86cm pieces of wood

Procedures

Step 1. Gather Materials

Step 2. Cut plywood into 30.48x30.48 cm squares

Step 3. Screw and glue together 30.48x30.48 cm plywood in the shape of a cube

Step 4. Cut 1 plywood square into two triangles

Step 5. Cut 1 plywood square in half

Step 6. Screw all the plywood pieces into a pyramid

Step 7. Then attach to bottom of the cube

Step 8. Attach 2.54x2.54 square to the 4 22.86 cm pieces of wood to make lid

Step 9. Cut 5.08x10.16 wood into 18 inches each for the legs

Step 10. Cut 15.24x182.88 wood fence picket into 4 33.02 cm pieces and then cut 4 30.48 pieces

Step 11. Cut 45 degree angle on the tops of 5.08x10.16 cm legs

Step 12. Screw fence picket into the 5.08x10.16 legs to make frame

Step 13. Tape cardboard onto paddle concrete mixer to make paddles to catch dog food

Step 14. Drill hole into frame then place paddle inside

Step 15. Cut a 25.4 cm piece of wooden fence picket then screw in to the frame to support the paddle wheel.

Step 16. Cut 53.34 cm piece of wooden off of the wooden fence picket then use metal L bracket to support it, screw in both pieces to the frame.

Step 17. Then make walls around ramp to keep food from falling the wrong way.

Step 1. Gather materials

Step 2. Put dog food into the top then put lid over it

Step 3. Then spin the paddle wheel to dispense dog food.

Testing and Data

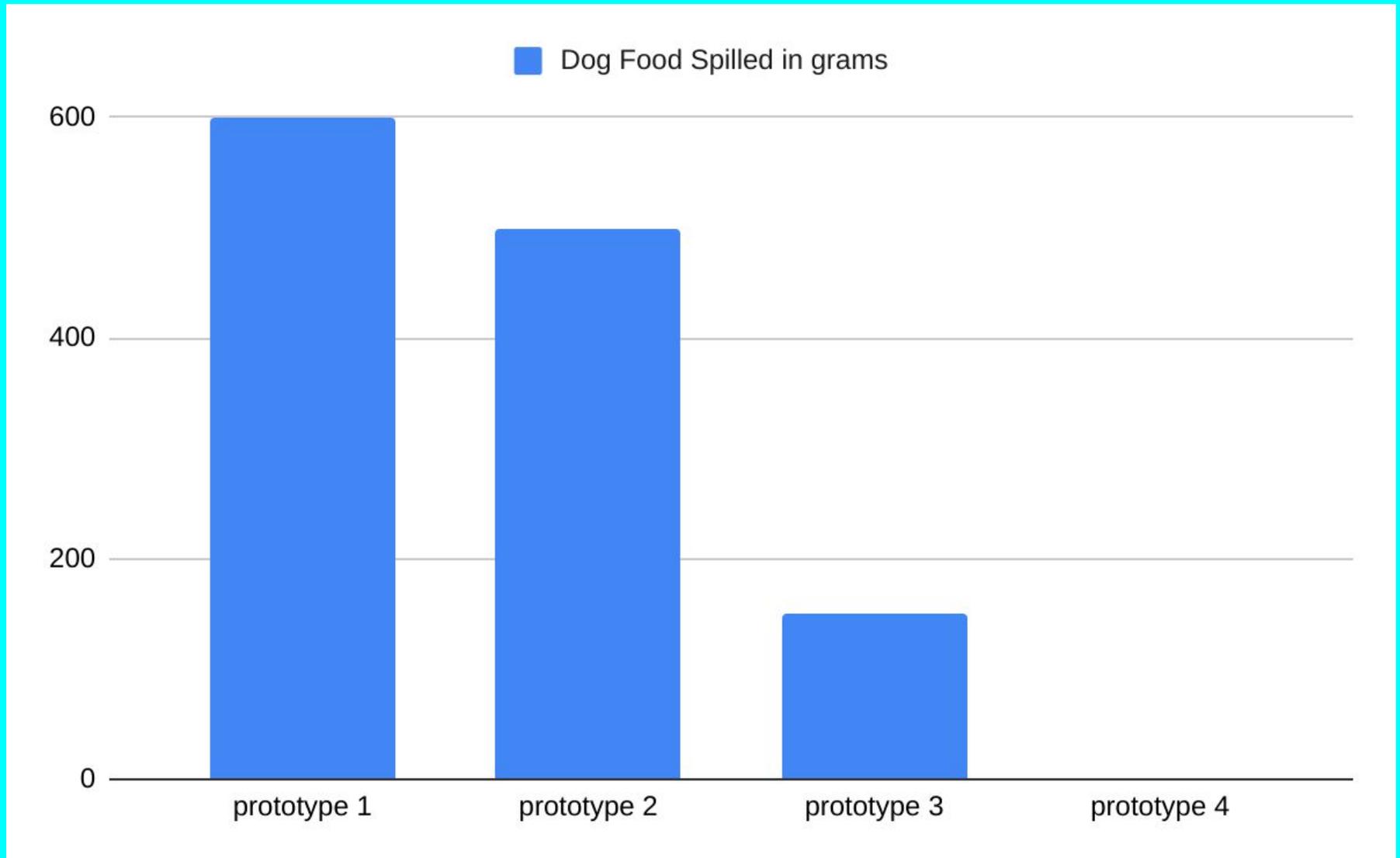
Prototype 1. What worked well is that it dispensed the food pretty good. I needed to build taller sides so the food wouldn't just come out whenever it dispensed the food. I will be building bigger sides so the dog food will not go everywhere.

Prototype 2. What worked well is that it did not do worse than the first prototype. What still needs improvement is dog food to not fall out when I do not turn the paddle wheel. I will make the paddle wheel paddles longer. And make the bottom opening of the dog food holder smaller.

Prototype 3. What worked well is almost everything. The one thing that needs improvement is that the automatic Charlotte Feeder is not high enough. I will be putting the automatic Charlotte Feeder on top of some kind of platform.

Prototype 4. What worked well is EVERYTHING! There is really nothing to improve.

Testing and Data



Reflection and Redesign

I think this project was a success because in the end all the dog food dispensed into the bowl the right way. And I think the best part that I changed was making the paddle wheels a little bit longer and was definitely the best thing I added to this. If I knew how to weld then I would have definitely welded a medal steering wheel to the handle of the paddle wheel and that would have made it A LOT cooler but I still think this was a success!

Results

My Results were VERY good. The food dispenses exactly how I wanted it too and it doesn't even make a mess on the floor. I love this design and my dog Charlotte loves this design too! I would definitely recommend you to build this instead of buying a really expensive automatic dog feeder.

Proposal

The automatic Charlotte feeder solves my problem because I was able to make a cheap automatic dog feeder that is better than most automatic dog feeders.

I built prototype 1. Because I thought filling in the gaps with bigger walls would help it so then less dog food will spill all over the floor.

I identified that the dog food was spilling out the sides so that led to prototype 1. Then dog food was still spilling out so that led to the other prototypes.

The final prototype is a good solution to the identified problem because after prototype 4. There was no dog food that spilled on the floor.

The automatic Charlotte feeder is a great design because I have never seen any automatic dog feeder like this one. And I did not use any expensive materials. This design will help others because it is a cheap and easy way to make an automatic dog feeder.

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