

Bedded Dragon  
Invention



Isaac Lavoie 2023

Who?

①

my pet Goro

needs someone  
to care about  
him.

When?

②

when we  
go away on  
vacation I  
can't take him  
with

Why?

He has to  
manly things  
and I think  
we need to do  
go get worms  
at the store.

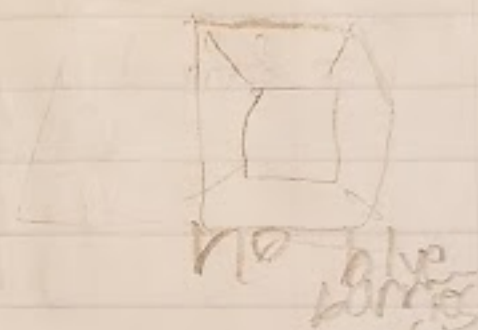
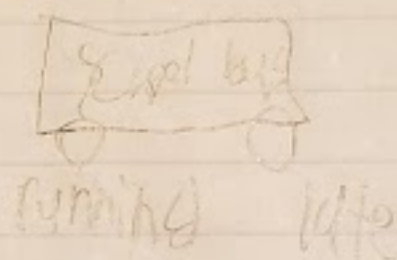
How?

I'm going to  
use circuits,  
Electricity, and  
coding.

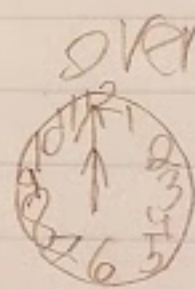
# Problem Statement

My pet Grogo needs someone to care for him when we go on vacation. I can't take him with because he has too many things I need to get or bring with. I need to find a way to care for him when I am away.

reach  
can't reach Big problems  
I have



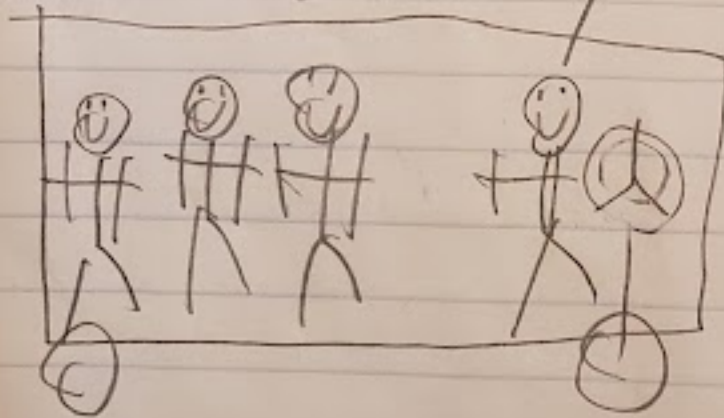
play  
video  
games



real worms

RTD

going away



Early sports  
games



broke spray  
bottle

# Solutions tried

① I have tried to take him with but it was too much work.

② Once I let him with a friend but she was scared of him and didn't like how he felt.

③ Most of the time right now grandma takes care of him when we go away but she is old and I need to find a different solution.

④ His aquarium is heavy so I made my own out of a plastic box



Handwritten notes in a spiral notebook, including the words "DAILY" and "DAILY" written vertically.

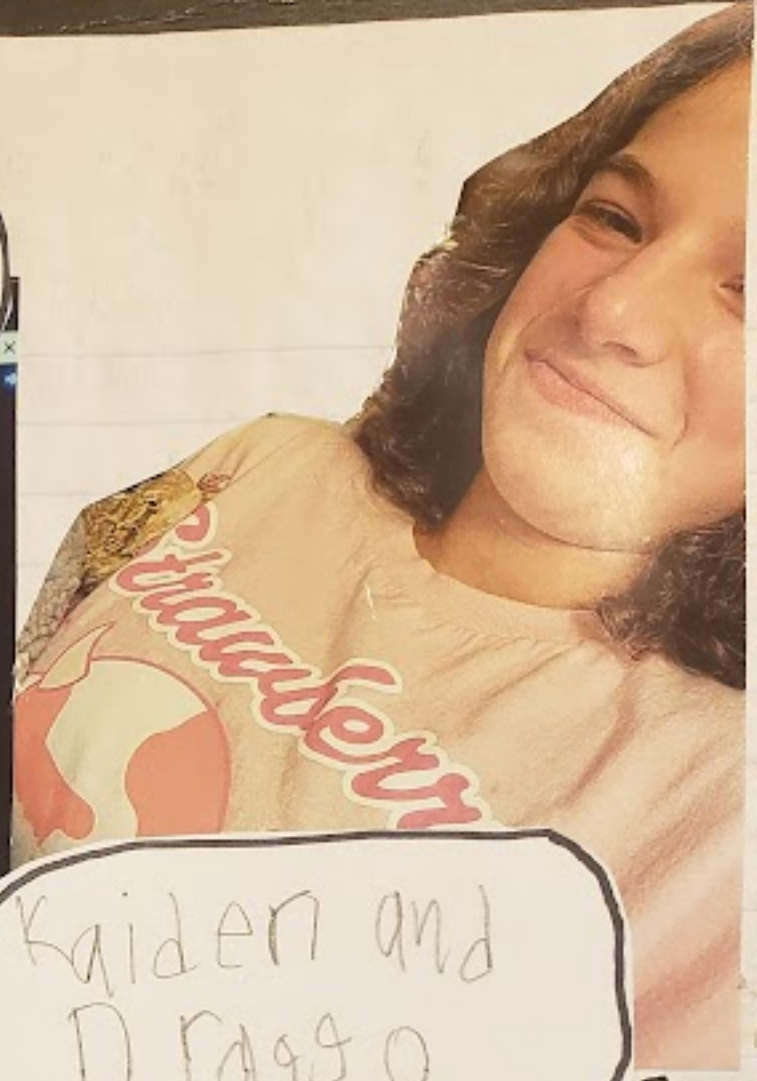
# Research the problem

- 7:00 AM - wake up
- 7:01 - turn on UVB lamp
- 7:03 - get dressed
- 7:07 - brush my teeth
- 7:09 - go to the kitchen
- 7:10 - get a bowl
- 7:15 - get lettuce and blueberries
- 7:18 - break up lettuce
- 7:20 - go down to feed him
- 7:22 - clean his bowl + add worms
- 7:24 - give him the food
- 7:27 - check his water and fill
- 7:29 - clean any poop
- 7:30 AM - spray him

8:00 PM - get Grogo

- 8:10 PM go read with him
- 8:40 PM put him back in his cage
- 8:41 PM spray him
- 8:42 PM check his temp
- 8:43 PM turn off UVB lamp

maddie and  
Diphyleia



Keegan and  
Treecko



Kaiden and  
D rago



# Interviews

with bearded dragon owners

② How many times a day do you feed your bearded dragon?

① How many bearded dragons do you have?

⑧ If I make an invention to automat caring for your bearded dragon would you buy it?

⑥ When you go away what do you do with your bearded dragon?

⑤ What do you feed your bearded dragon?

④ What <sup>else</sup> do you do to care for your bearded dragon?

⑦ What is the longest you have left your bearded dragon with no food?

③ How much time do you spend caring for your bearded dragon?

2

once middle of the day.

1

1

3

10 min a day

power strip with timer

6

puts a timer so when its night the light goes out a time on the plug.

5

mainly crickets, horn worms and lettuce.

crickets in a container with a hole

4 hamicko spray him with  
water every hour.

3 nights

probely

Interview with Keenan   
on Jan 26 at 7:15

# Interview with Karenza 2/2/23

- ① 14/10/2023
- ② 1 if have crickets then some crickets
- ③ 12 min Per day
- ④ Fed in morning, spray him, clean his tank
- ⑤ Baffey Blend (art food)
- ⑥ one of friendly to take care of him
- ⑦ A week with lots of food in his bowl
- ⑧ yes

left with  
ONE WEEK!!  
with dry  
FOOD!!  
?!

# Interview with Maddie 2\3\23

1 name diphyleia just turned 1 year old.

2 morning or afternoon once a day.

3 2-3 hours plays with her.

4 feeding her, baths, playing with her, spray her a little dandruff timer.

5 crickets and supper worms.

6 depends how long it is then or maybe more and if 2 pet sitter.

7 a day and a half sports event stuck.

8 Yes

Instructions for PET SITTER!

Play with Him a Lot!!!

# Interview with Mrs. Fern

1

2 raslin 6 months 7 years  
mallow 6 months 7 years

drated

2

once

3

10 min every day

4

sand bottom, grass and leaves  
clean every 2nd week spray with water

5

vegetables mixed almost every day  
it has live crickets once a week

6

had neighbor to take care  
box too heavy to move

7

never

instructions

8

Needed something to scrape the sand

Yes!!!

cooked frozen vegetables

I need something to  
scrape the sand

~~~~~

clever ways they solved the problem

- 1 Automated light switch
- 2 use with timed outlet (power strip)
- 3 they have a timer timer on the plug
- 3 I can get a smart plug and control it with my Alexa or my tablet

time Plug  
use with  
ALEXA



Outlet  
with a  
timer



power strip  
with a  
timer



Clever ways they  
solved the problem

## Automated water spray

- ① need a pump
- ② need a tube
- ③ need a sensor
- ④ need a power source
- ⑤ need water
- \* program commands with arduino



# Clever ways they solve The Problem

## Automated dog feeder

- ① its big so you can save time
  - ② set the time with a timer
  - ③ small and big amount of food
  - ④ sorts between big and small food and big food
  - ⑤ double power supply
  - ⑥ voice recorder
- It will only work for dry food, worms, and crickets



# Clanley the Problem

every 3 days  
bath

humidity

spray bottle

gets empty

spray every day

water

clean bowl

water

blueberries

food

lettuce

gets old food

worms

feed every day

dry food

bearded dragon

double battery pack

Electricity

electricity

sunlight

heat lamp

UVB lamp

bulb blows

light bulb

turn off at night

light bulb

with a timer

gets too hot  
thermometer

# Restate the problem

✓ When bearded dragon owners go away they have no one to take care of their bearded dragon. Taking care of a bearded dragon is easy but there is a lot of tasks to do at different times of the day. That means the pet sitter needs to come in twice a day to turn on and off his light, feed him, and spray him.

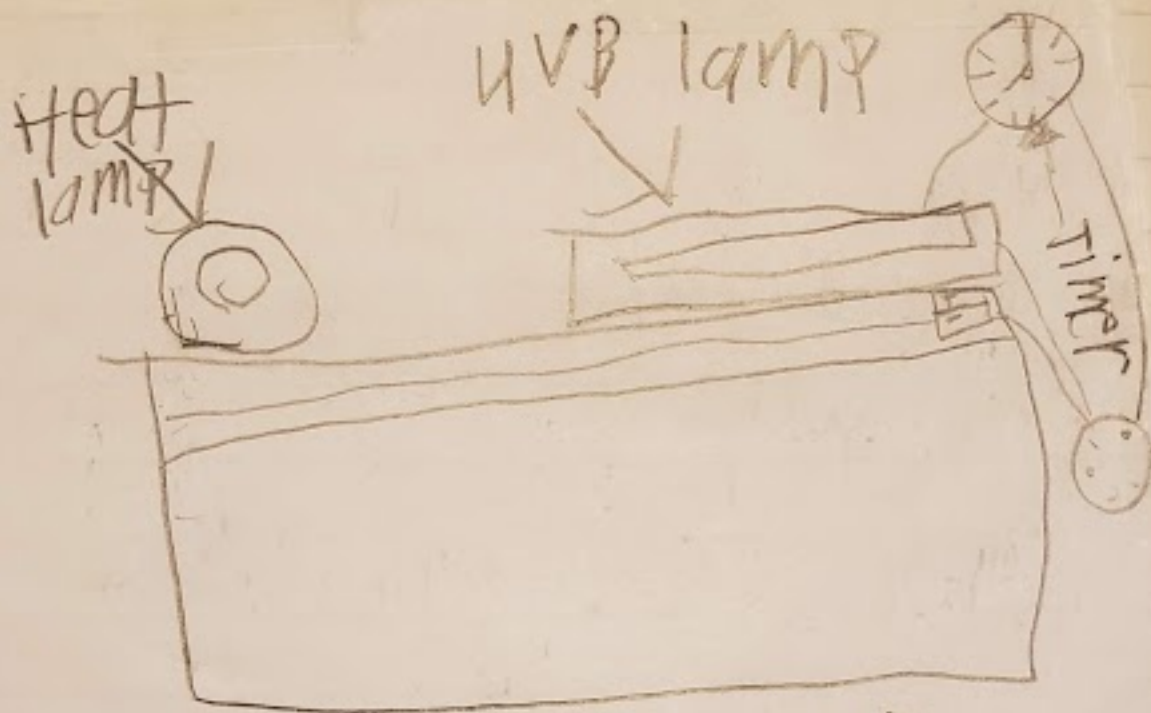
# Results I want

- ① automatic timer for my light when its dark.
- ② automatic food dispenser for when he is hungry.
- ③ automatic spray for when it gets dry.
- ④ hide all the wires so he does not get hurt.

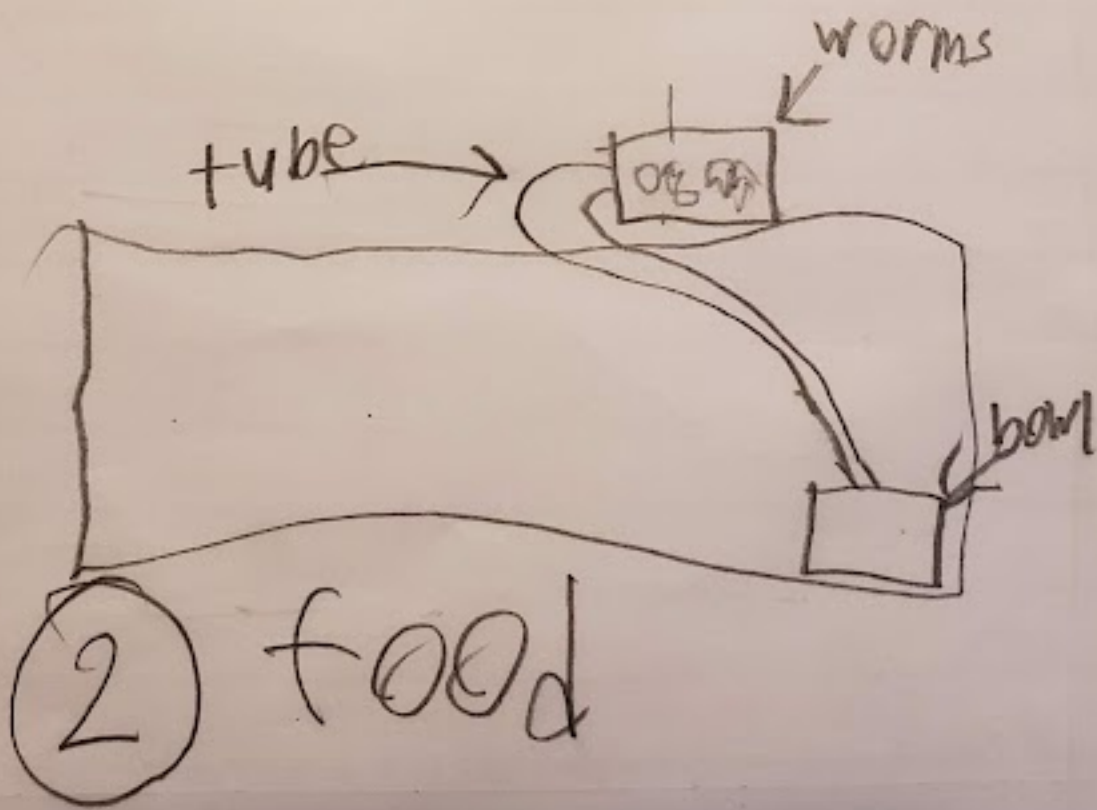
## Solution

I need an automated light for when it gets dark, an automatic spray for when it gets dry, and an automated food dispenser for when he gets hungry.

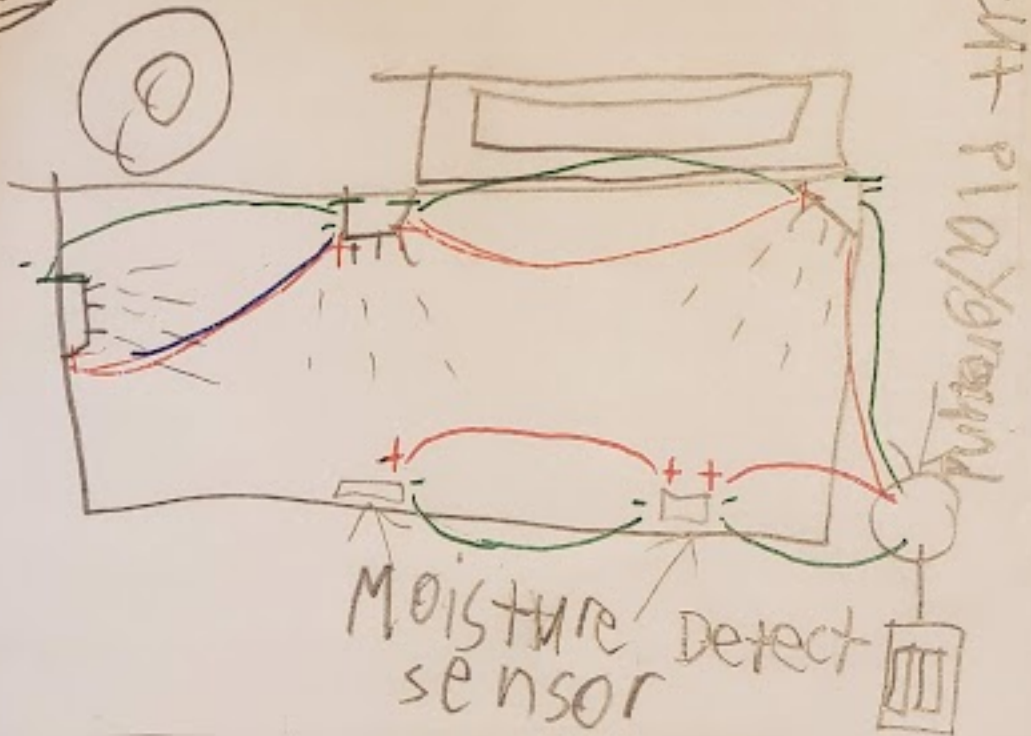
# Some Ideas



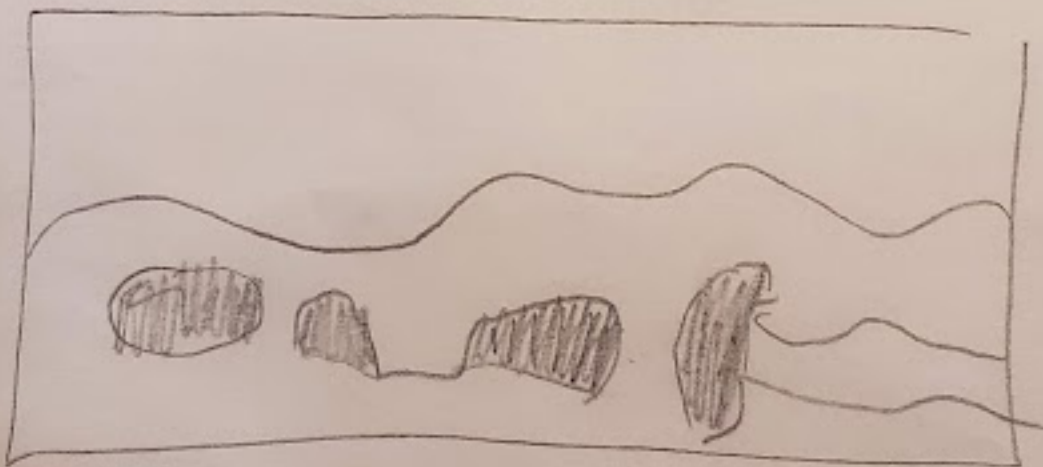
① UVB lamp



3) Spax



4) Wires



| Normal                                                                                                                                                                  | UVB Light                                                                                                                                                                          | Humidity                                                                                                                                                                                                 | Food                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Morning</p> <p>7:00 - Turn on UVB</p> <p>7:03 - Get Food</p> <p>7:08 - Clean bowls</p> <p>7:06 - Add food</p> <p>7:09 - Check humidity</p> <p>7:10 - Spray water</p> | <p>Morning</p> <p><del>7:00 - Turn on UVB</del></p> <p>7:03 - Get Food</p> <p>7:08 - Clean bowls</p> <p>7:06 - Add food</p> <p>7:09 - Check humidity</p> <p>7:10 - Spray water</p> | <p>Morning</p> <p><del>7:00 - Turn on UVB</del></p> <p>7:03 - Get Food</p> <p>7:08 - Clean bowls</p> <p>7:06 - Add food</p> <p><del>7:09 - Check humidity</del></p> <p><del>7:10 - Spray water</del></p> | <p>Morning</p> <p><del>7:00 - Turn on UVB</del></p> <p><del>7:03 - Get Food</del></p> <p><del>7:08 - Clean bowls</del></p> <p><del>7:06 - Add food</del></p> <p><del>7:09 - Check humidity</del></p> <p><del>7:10 - Spray water</del></p> |
| <p>Evening</p> <p>8:00 - Check humidity</p> <p>8:03 - Spray water</p> <p>8:05 - Turn off UVB</p>                                                                        | <p>Evening</p> <p>8:00 - Check humidity</p> <p>8:03 - Spray water</p> <p><del>8:05 - Turn off UVB</del></p>                                                                        | <p>Evening</p> <p><del>8:00 - Check humidity</del></p> <p><del>8:03 - Spray water</del></p> <p><del>8:05 - Turn off UVB</del></p>                                                                        | <p>Evening</p> <p><del>8:00 - Check humidity</del></p> <p><del>8:03 - Spray water</del></p> <p><del>8:05 - Turn off UVB</del></p>                                                                                                         |
| <p>It takes me <u>15</u> minutes a day in the morning &amp; evening to care for my bearded dragon.</p>                                                                  | <p>It takes me <u>10</u> minutes a day in the morning &amp; evening to care for my bearded dragon.</p>                                                                             | <p>It takes me <u>7</u> minutes a day in the morning &amp; evening to care for my bearded dragon.</p>                                                                                                    | <p>It takes me <u>0</u> minutes a day in the morning &amp; evening to care for my bearded dragon.</p>                                                                                                                                     |
|                                                                                                                                                                         | <p>Products available:</p> <p>automatic light timer for UVB lamp \$16.22 at petco</p>                                                                                              | <p>Products available:</p> <p>reptilian automatic misting machine \$4.99 at petco.com</p>                                                                                                                | <p>Products available:</p> <p>automatic meal worm feeder at petco.com \$4.99</p>                                                                                                                                                          |
| <p>Automations <u>0</u></p>                                                                                                                                             | <p>Automations <u>1</u></p>                                                                                                                                                        | <p>Automations <u>2</u></p>                                                                                                                                                                              | <p>Automations <u>3</u></p>                                                                                                                                                                                                               |
| <p>If I go on vacation and don't have <u>any automations</u> then I have to pay a pet sitter <u>\$10</u> for visiting <u>twice</u> per day. <u>total = \$20</u></p>     | <p>If I go on vacation and have an <u>automatic light</u> then I have to pay a pet sitter <u>\$10</u> for visiting <u>twice</u> per day. <u>total = \$20</u></p>                   | <p>If I go on vacation and have an <u>automatic spray</u> then I have to pay a pet sitter <u>\$10</u> for visiting <u>once</u> per day. <u>total = \$10</u></p>                                          | <p>If I go on vacation and have an <u>automatic food dispenser</u> then I have to pay a pet sitter <u>\$0</u> for visiting <u>none</u> per day. <u>total = \$0</u></p>                                                                    |

# Hypothesis

If I automate my bearded dragons' lights, humidity, and food I can save money. I don't need to pay a pet sitter to come in because everything is automated.

# COMPETOR ANALYSIS

① One timer with 3 outlets. It might work.



② Smart plug with my Alexa that could on my tablet when I am away.



③ One timer with a outlet that I can use for my lights.



Light

①



\$16.99

②



\$24.99

③



\$11.99



④ I don't think this will work. the worms will jump out or die.



⑤ I don't think this will work. I think he will step on it and see it's not real.



⑥ turtle feeder might work, but the food might get lost or die.



It might work but I need to time when food falls because if not he will eat it all.

Food

④



\$4.98

⑤



\$46.99

⑥



\$54.99

⑦



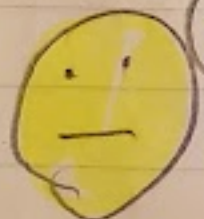
\$69.99



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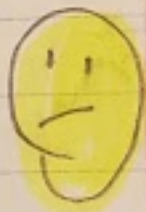


\$69.99

⑧ It will work  
but the water  
container is small  
so you will have  
to fill it up a  
lot.



⑨ It will work  
but very expensive



yes but it is made  
for plants using  
a sensor for the  
ground.



yes, but it's made  
for plants but it  
does have a timer  
and you can control  
it on your phone.

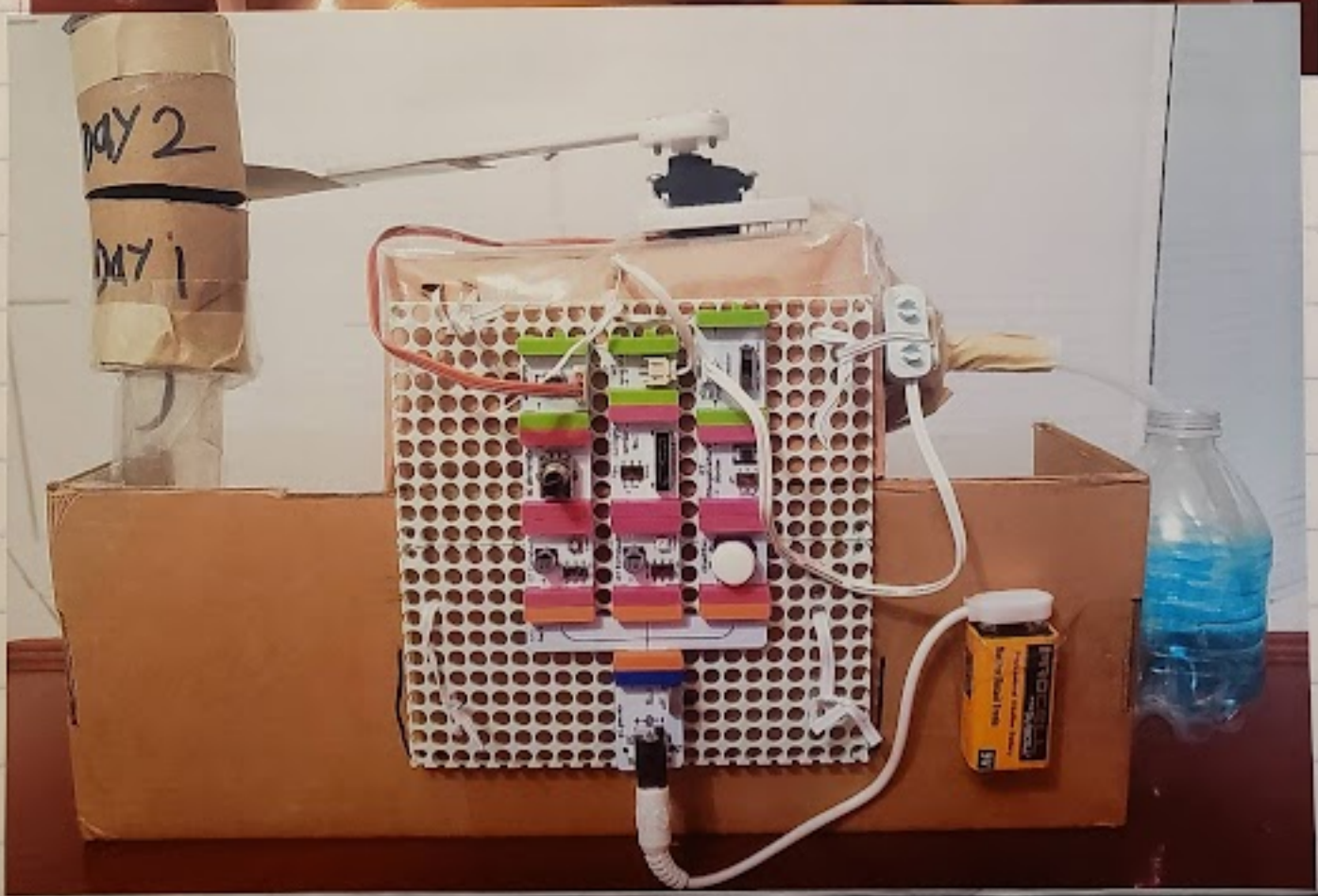


# Things I used to create my invention

- Polyester clay (to build drogo, his sticks and his bow)
- Resilible box for the container
- Clear sticky paper for the glass front and the foot tube
- Brown paper to use for making the small light
- Toilet paper roll for the servomotor dispenser and the fan the water pump
- Plastic bread clip for the pump wheel
- Disposable dog poop bags inside tube pieces of the water pump
- Plastic tube I found in the kitchen
- A small plastic bottle
- Masking tape and packing tape to secure

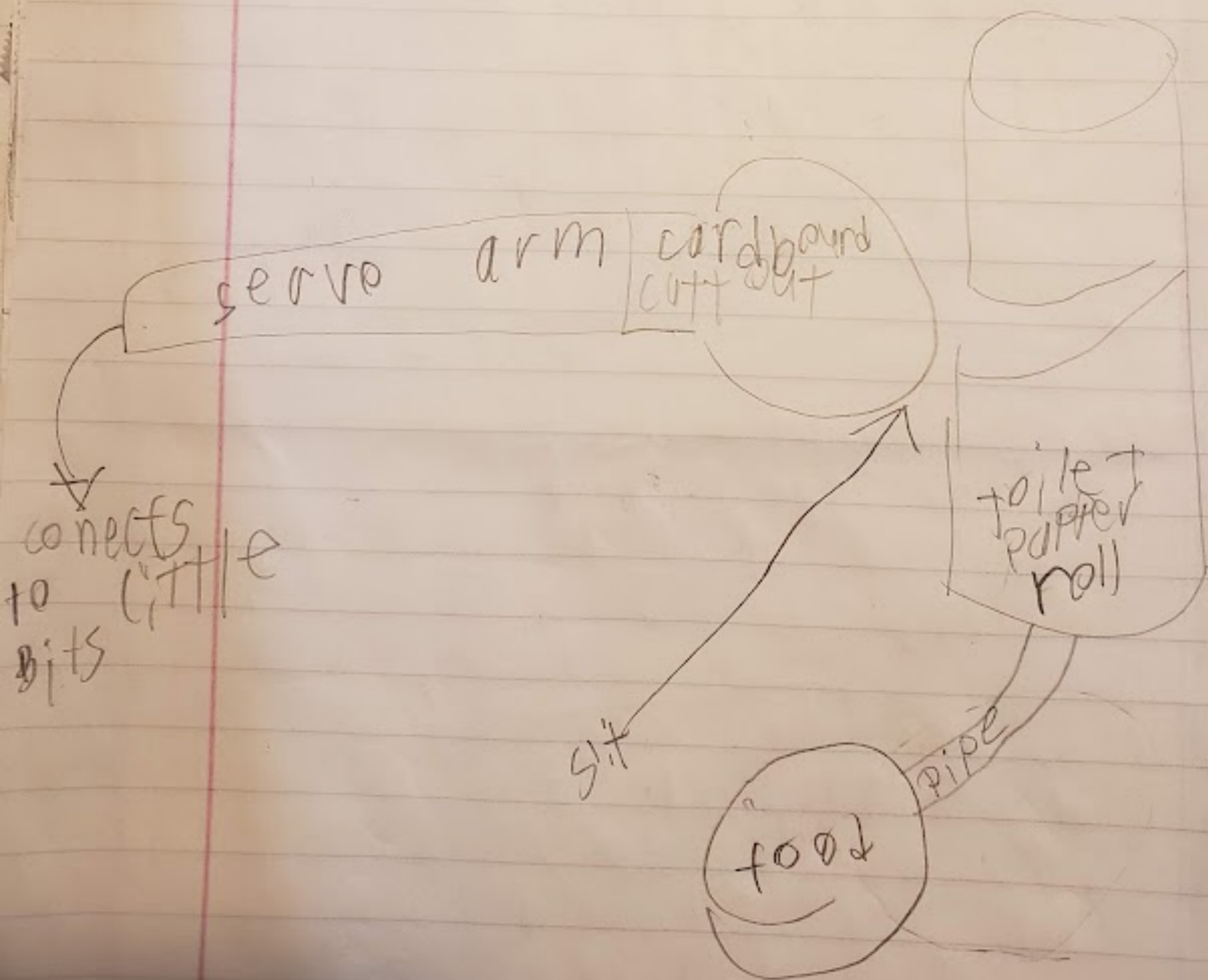
Fishers for the little  
circuit board

My name is Isaac Lavoie  
and this is my almost working  
prototype. For my prototype I used...



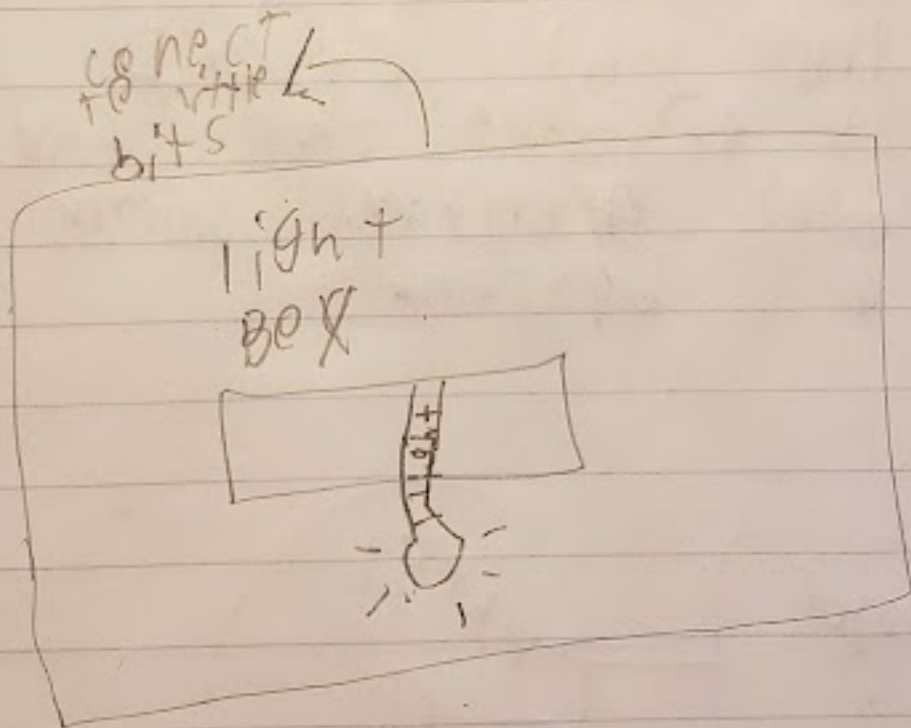
# Food Dispenser

The food dispenser works with a toilet paper roll. It has a cut slit for the servo arm to fit in so when you press the button it goes out and the food drops into the food bowl.



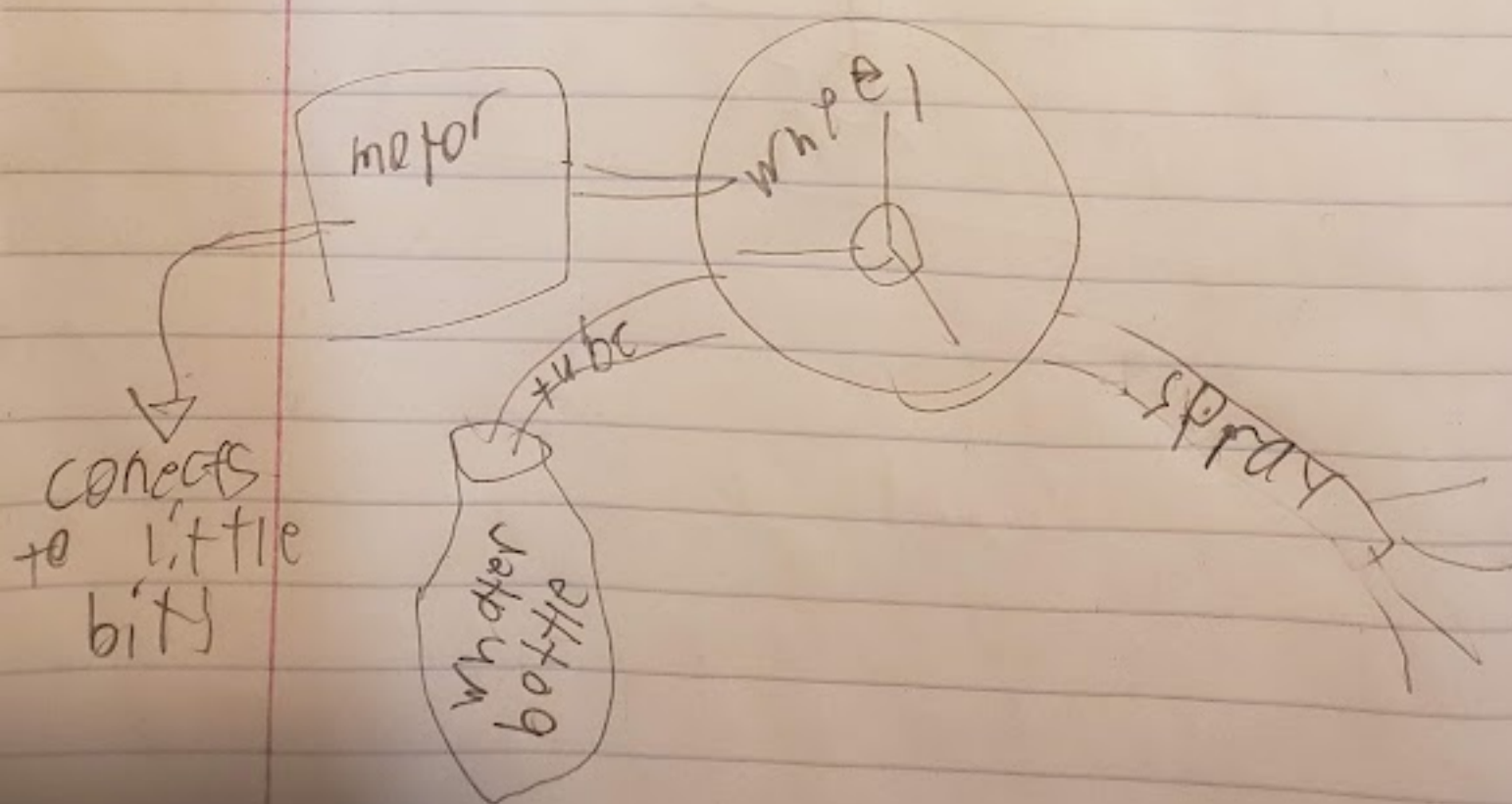
# Light Switch

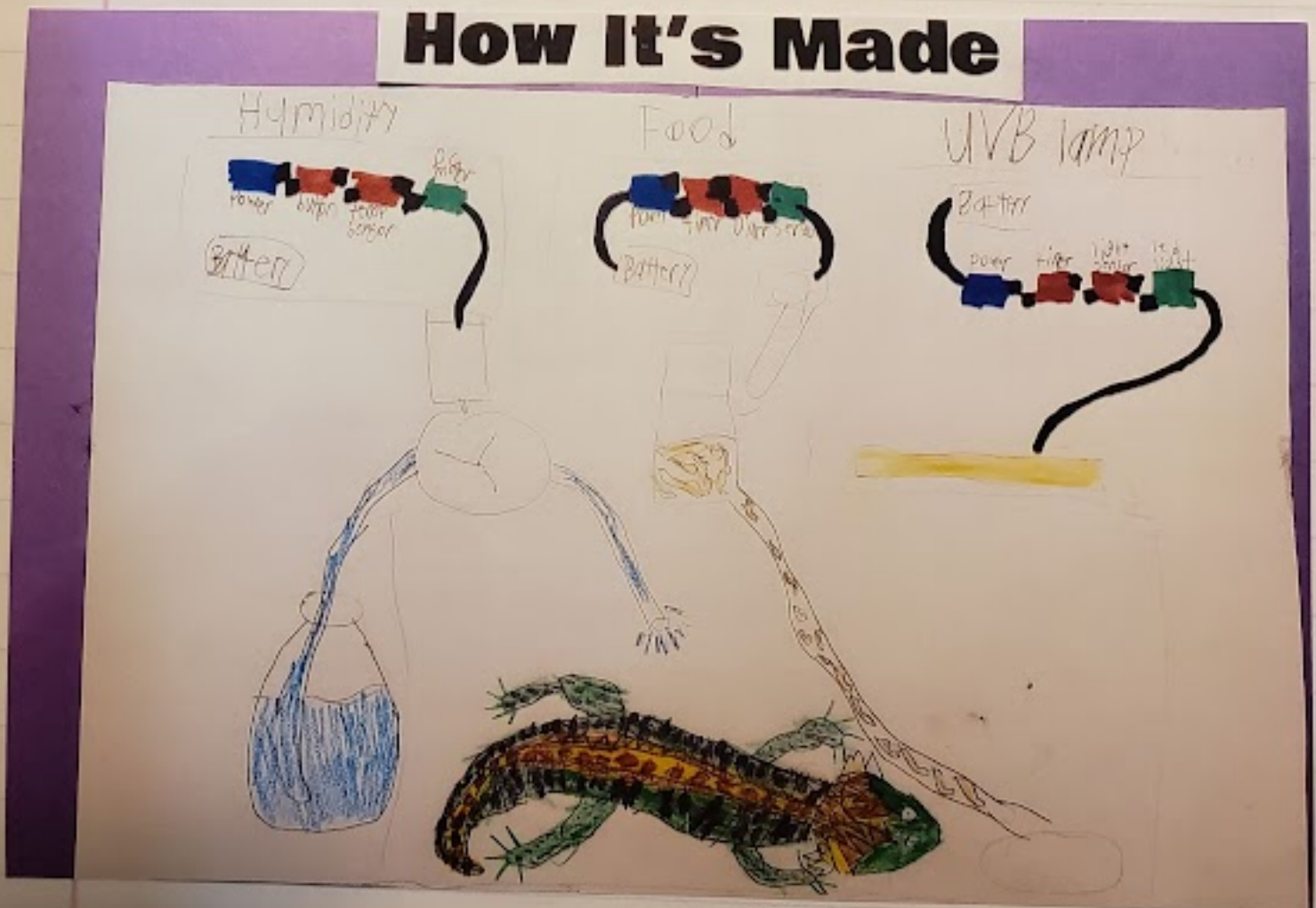
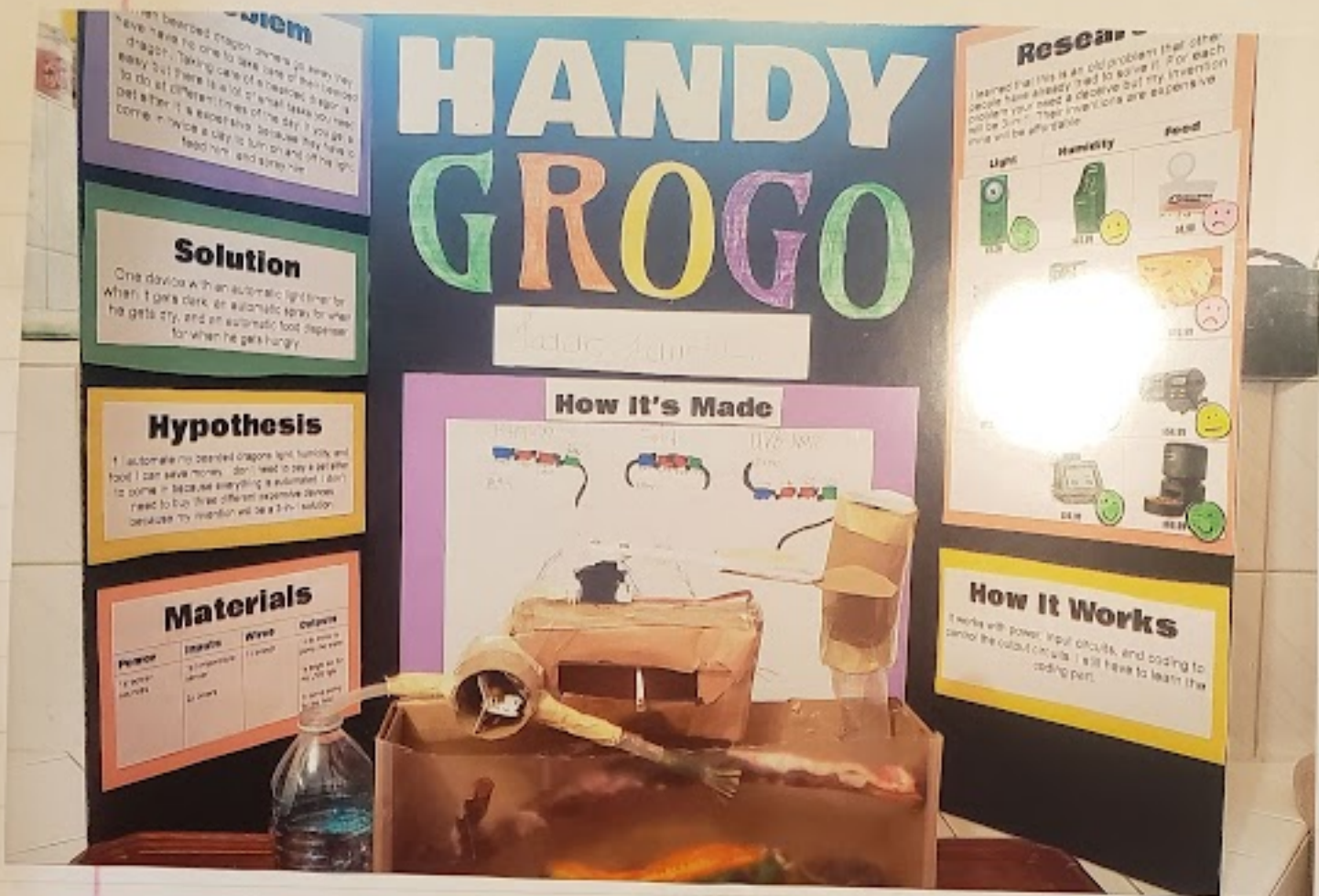
The light switch has a timer that I can set but to test it I added a light sensor. I am going to program arduino coding later but I can show you how it works with the sensor when it gets dark the light goes on.



# Water Spray

The water pump turns when connected to the power source. I created a wheel using the bread fasteners and a paper tube and connected it to the motor. When the motor turns the wheel also turns to suck the water out of the bottle and to spray it into the cage. I am going to program the code later but I can show you using a button.





## Hypothesis

If I automate my bearded dragons light, humidity, and food I can save money. I don't need to pay a pet-sitter to come in because everything is automated. I don't need to buy three different expensive devices because my invention will be a 3-in-1 solution.

## Problem

When bearded dragon owners go away they have no one to take care of their bearded dragon. Taking care of a bearded dragon is easy but there is a lot of small tasks you need to do at different times of the day. If you get a pet sitter it is expensive because they have to come in twice a day to turn on and off his light, feed him, and spray him.

## Solution

One device with an automatic light timer for when it gets dark, an automatic spray for when he gets dry, and an automatic food dispenser for when he gets hungry.

## Materials

| Power            | Inputs                             | Wires     | Outputs                                                                                        |
|------------------|------------------------------------|-----------|------------------------------------------------------------------------------------------------|
| 1x power sources | 1x temperature sensor<br>2x timers | 1x branch | 1x dc motor to pump the water<br>1x bright led for my UVB light<br>1x servo swing for the food |