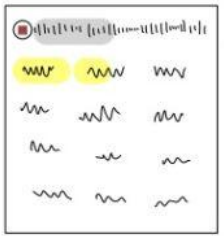
INVENTIONS 1

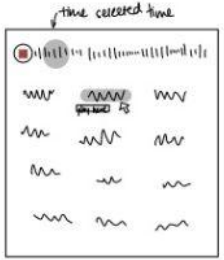
Recording Pen & App

(button can be multipurposeful
ie. single tap ⇒ to record
double tap ⇒ delete stored material)

The recording should be synchronized w/ the students writing via bluetooth



It could highlight text as recording is played



should allow student to click on a text section and replay from that section.

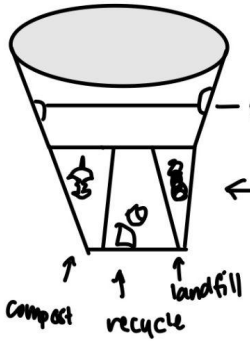
an app that allows the features to be easily accessible

app allows basic notetaking skills as well

04/10/24

INVENTIONS 1

garbage organizer

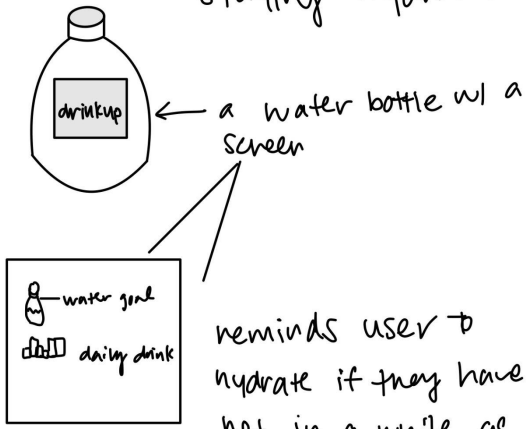


← sorts into different compartments depending on the item

to reduce inaccuracies w/ people putting their items in the wrong spots

04/11/23

staying hydrated

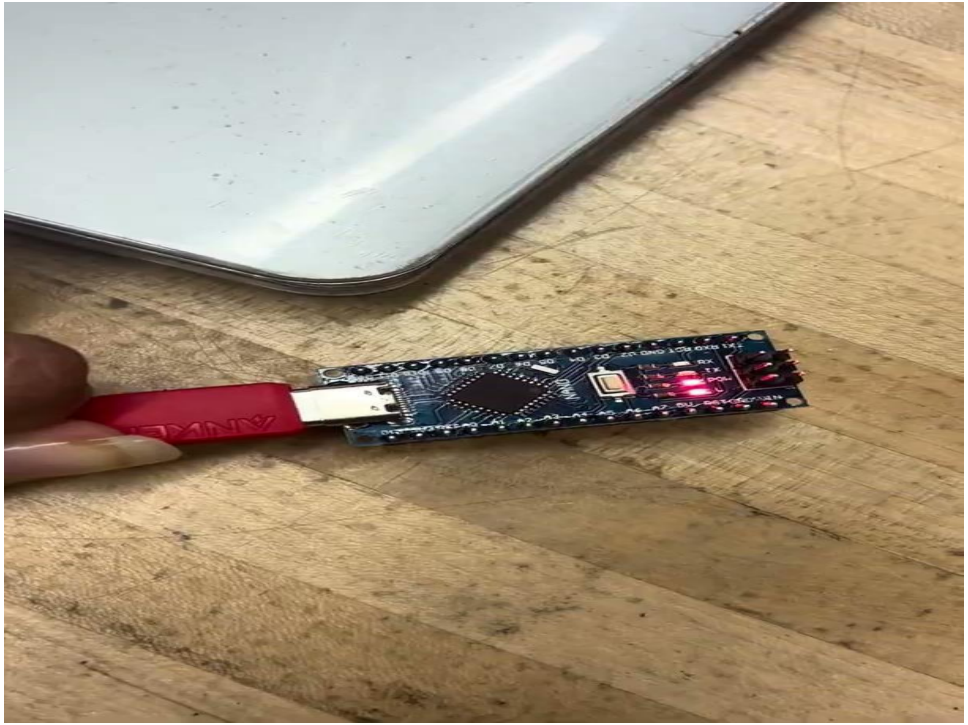


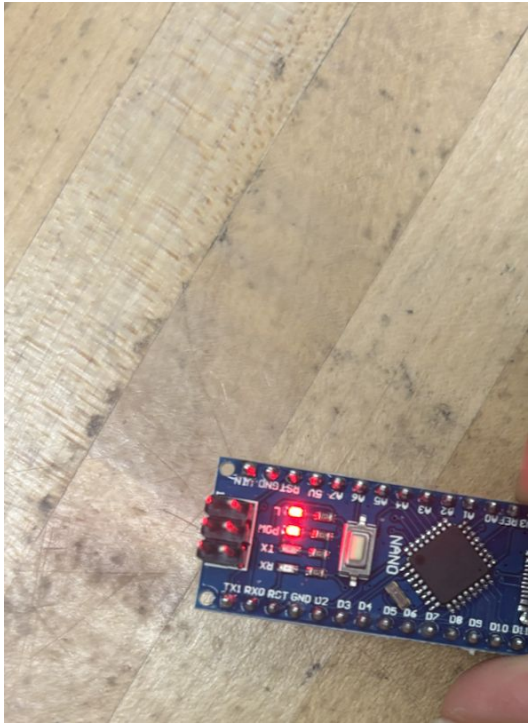
← a water bottle w/ a screen

reminds user to hydrate if they have not in a while as well as tracking water intake

04/11/23

ELECTRONIC ASSIGNMENT 1





I couldn't get the blink code to run on my computer, I have a Mac. I had to use the computer in lab. Do you know why this could be happening? I followed the instructions as stated.

Click on the video^

INVENTIONS 2

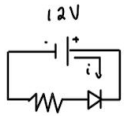
user: my dog

interests: sitting in the sun. my dog loves to sit outside, but during peak sunlight hours, he can't because no one is at home to let him out. a doggy door @ the main or back entrance is not an option, as unwanted things could use it to come in.

ideal product:

an automatic doggy door that opens by my dog pressing his nose up to the door if the weather is sunny.

LED 2

a) 

$V = iR$

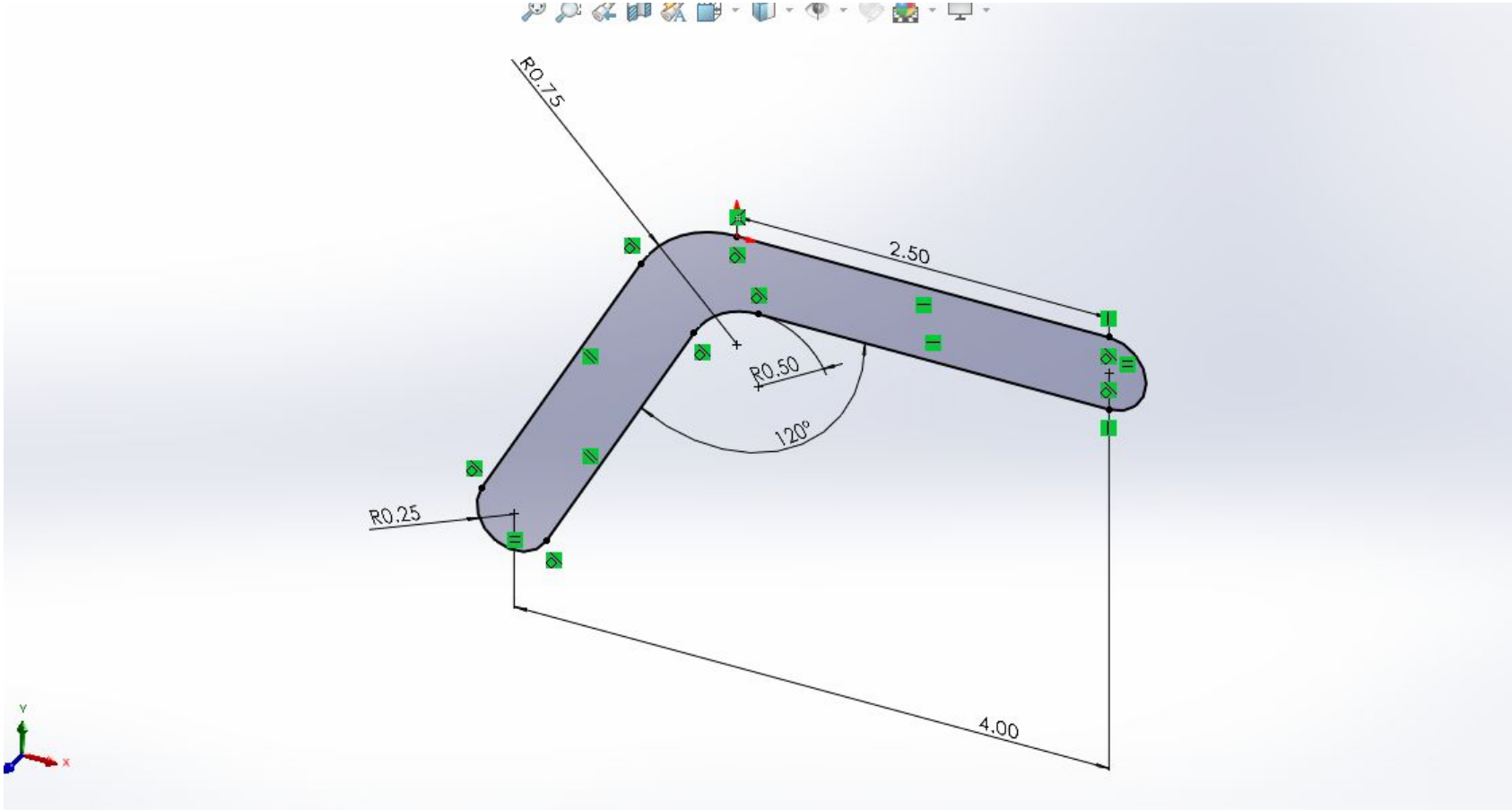
$9.9 = 0.015(R)$

b) $R = 660\,\Omega$

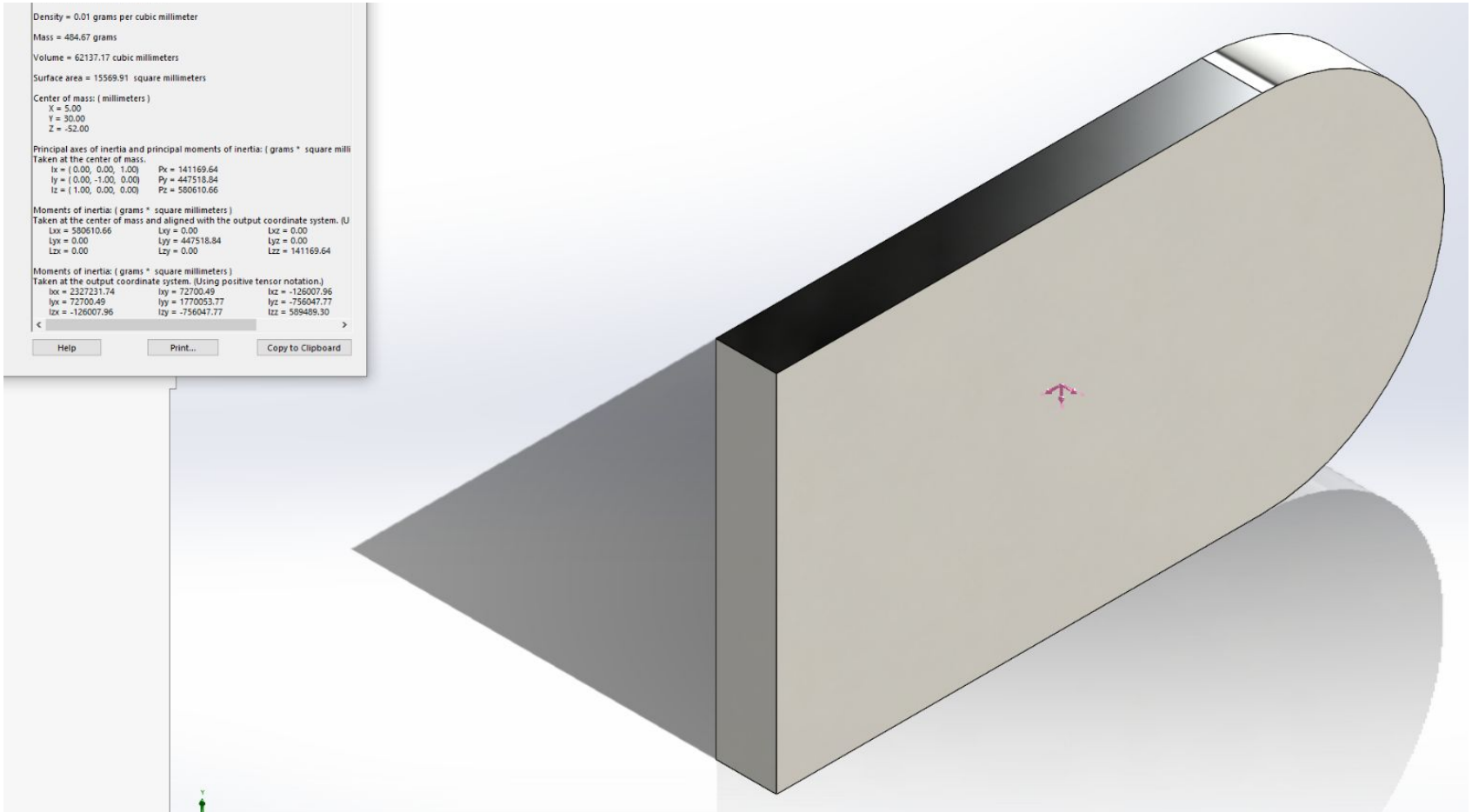
c) $680\,\Omega$

d) $\frac{9.9}{680} = 14.6\text{ mA}$

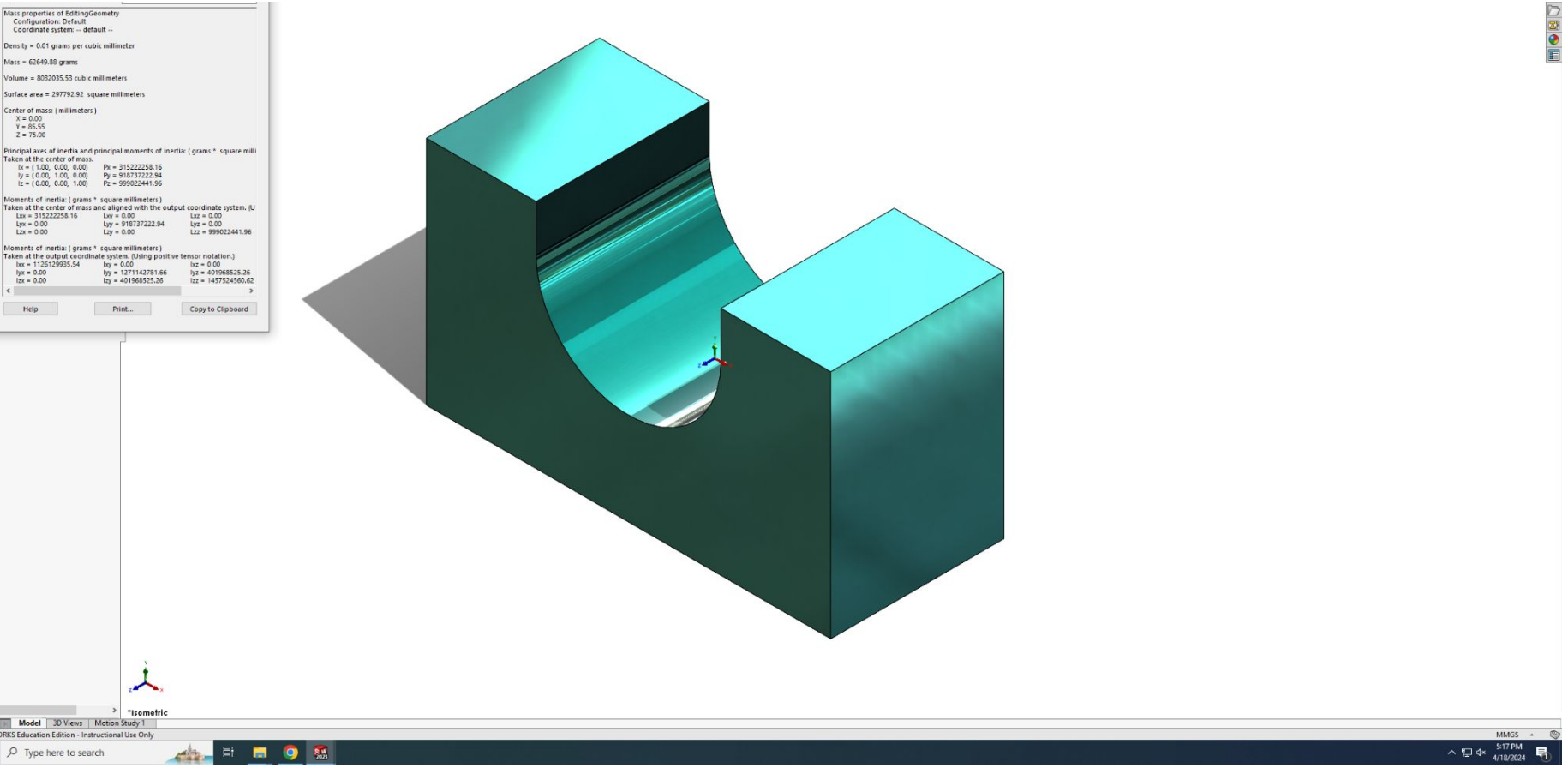
SOLIDPROFESSOR 2 PART 1



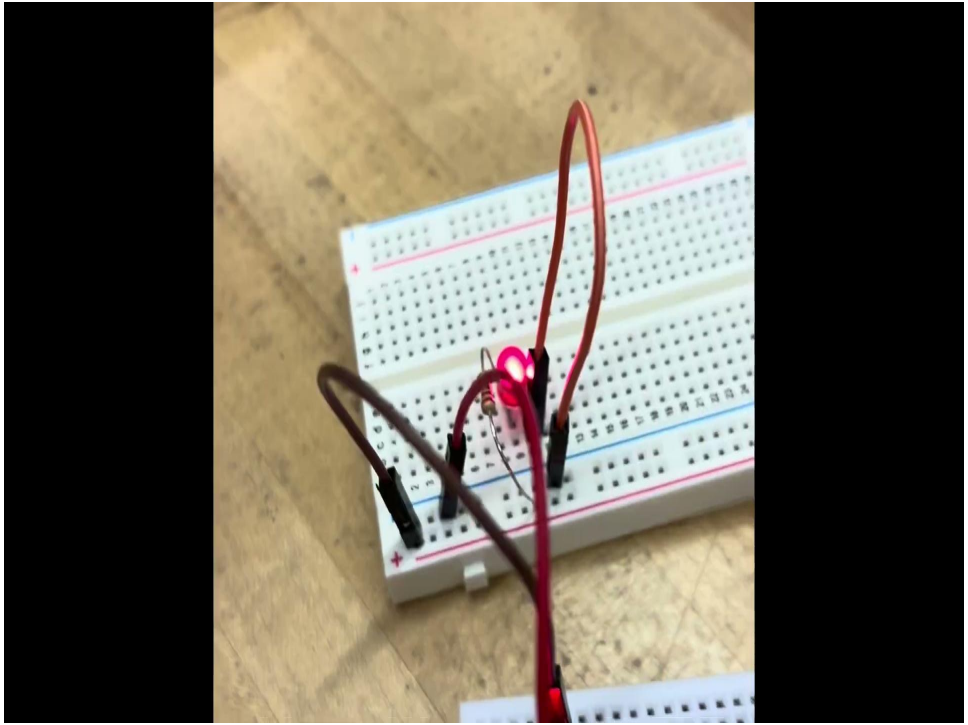
PART 2


Density = 0.01 grams per cubic millimeter
Mass = 484.67 grams
Volume = 62137.17 cubic millimeters
Surface area = 15569.91 square millimeters
Center of mass: (millimeters)
X = 5.00
Y = 30.00
Z = -52.00
Principal axes of inertia and principal moments of inertia: (grams * square milli
Taken at the center of mass.
Ix = (0.00, 0.00, 1.00) Px = 141169.64
Iy = (0.00, -1.00, 0.00) Py = 447518.84
Iz = (1.00, 0.00, 0.00) Pz = 580610.66
Moments of inertia: (grams * square millimeters)
Taken at the center of mass and aligned with the output coordinate system. (U
Lxx = 580610.66 Lxy = 0.00 Lxz = 0.00
Lyx = 0.00 Lyy = 447518.84 Lyz = 0.00
Lzx = 0.00 Lzy = 0.00 Lzz = 141169.64
Moments of inertia: (grams * square millimeters)
Taken at the output coordinate system. (Using positive tensor notation.)
Ixx = 2327231.74 Ixy = 72700.49 Ixz = -126007.96
Iyx = 72700.49 Iyy = 1770053.77 Iyz = -756047.77
Izx = -126007.96 Izy = -756047.77 Izz = 589489.30
Help
Print...
Copy to Clipboard

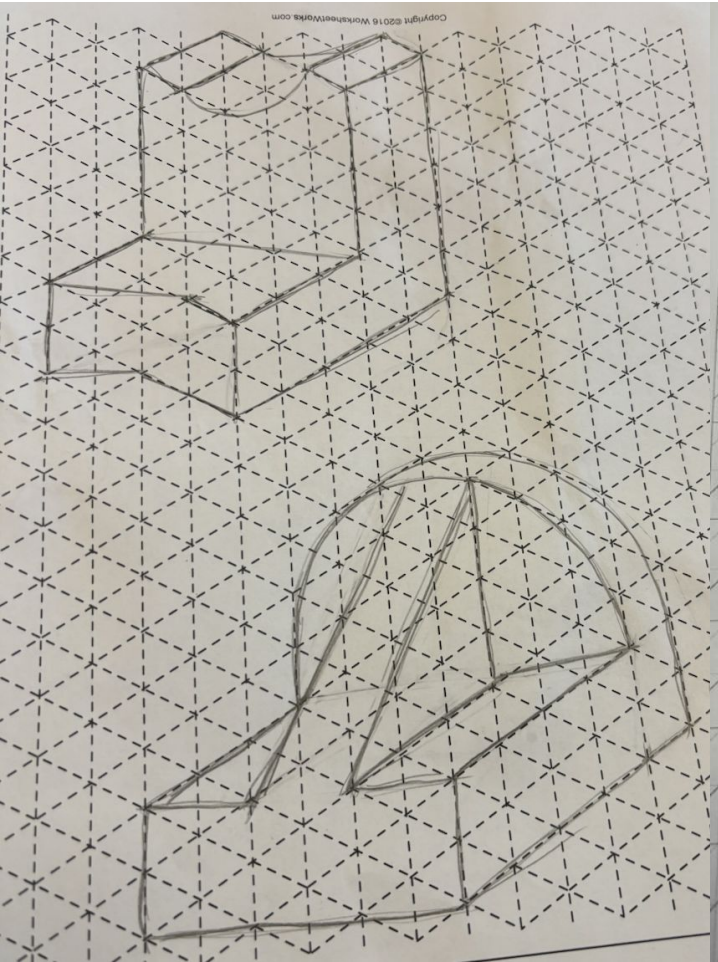
PART 3

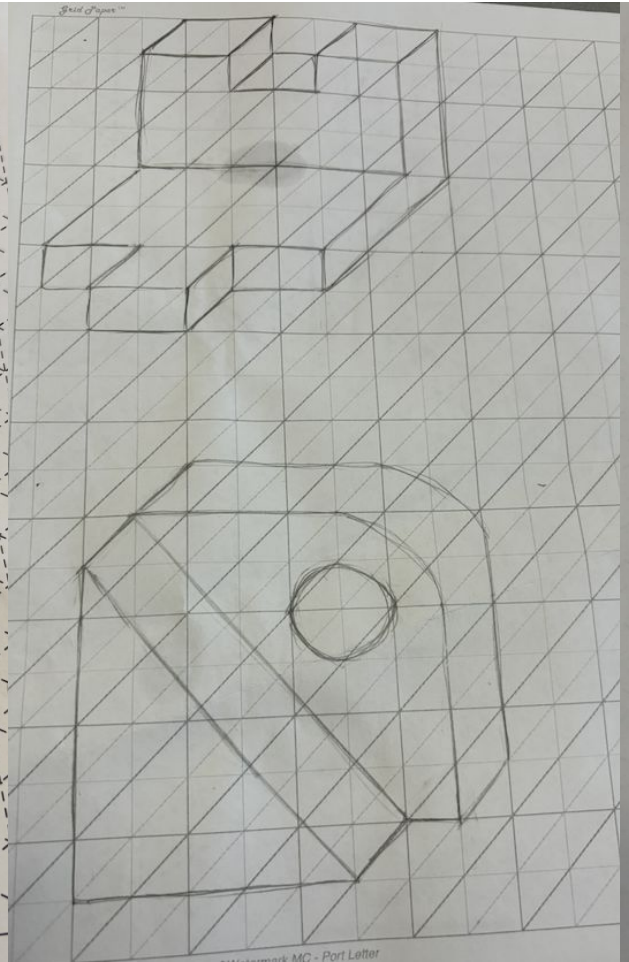

Mass properties of EditingGeometry
Configuration: Default
Coordinate system: -- default --
Density = 0.01 grams per cubic millimeter
Mass = 62649.88 grams
Volume = 8032035.53 cubic millimeters
Surface area = 297792.92 square millimeters
Center of mass: (millimeters)
X = 0.00
Y = 85.55
Z = 75.00
Principal axes of inertia and principal moments of inertia: (grams * square milli
Taken at the center of mass.
Ix = (1.00, 0.00, 0.00) Px = 315222258.16
Iy = (0.00, 1.00, 0.00) Py = 916737222.94
Iz = (0.00, 0.00, 1.00) Pz = 999022441.96
Moments of inertia: (grams * square millimeters)
Taken at the center of mass and aligned with the output coordinate system. (U
Lxx = 315222258.16 Lxy = 0.00 Lxz = 0.00
Lyx = 0.00 Lyy = 916737222.94 Lyz = 0.00
Lzx = 0.00 Lzy = 0.00 Lzz = 999022441.96
Moments of inertia: (grams * square millimeters)
Taken at the output coordinate system. (Using positive tensor notation.)
Ixx = 1126129935.54 Ixy = 0.00 Ixz = 0.00
Iyx = 0.00 Iyy = 1271142781.66 Iyz = 401968525.26
Izx = 0.00 Izy = 401968525.26 Izz = 1457524560.62
Help
Print...
Copy to Clipboard
*Isometric
Model
3D Views
Motion Study 1
ORKS Education Edition - Instructional Use Only
MMGS
Type here to search
5:17 PM
4/18/2024

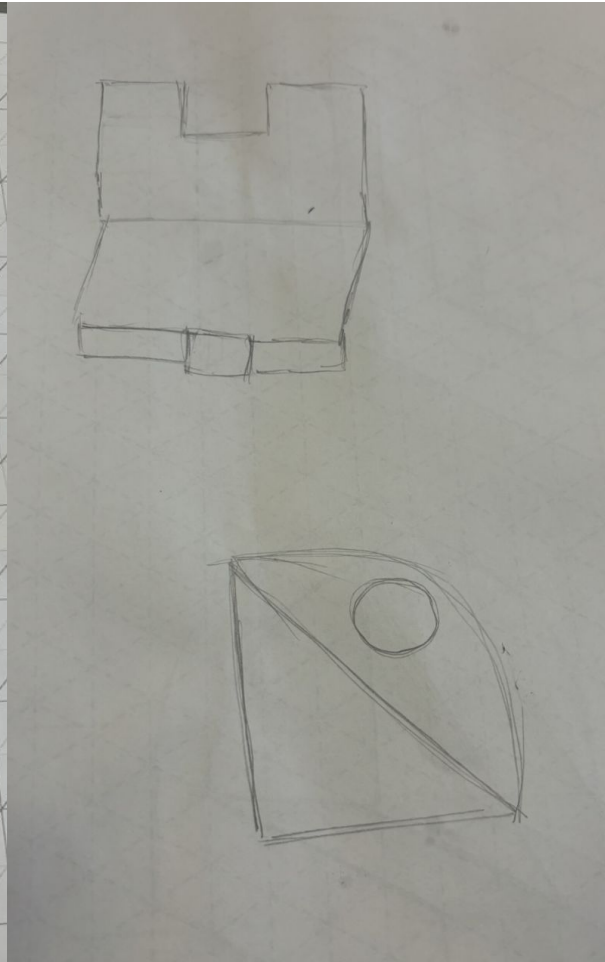
ELECTRONIC ASSIGNMENT 2



SKETCHING 2



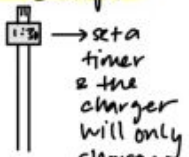




INVENTIONS 3

[Link to Interview]

timer charger



→ set a timer & the charger will only charge for that time

button charger

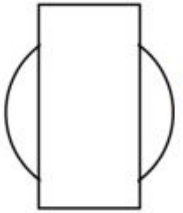
← disconnects charger from power when battery is fully charged, manually

notification

device notifies user when device is fully charged so users can manually remove it

LED

charger lights up when device is fully charged so user can see when to disconnect



Temperature charger

when phone begins overheating due to overcharging, charger will detect it & disconnect

timer charger

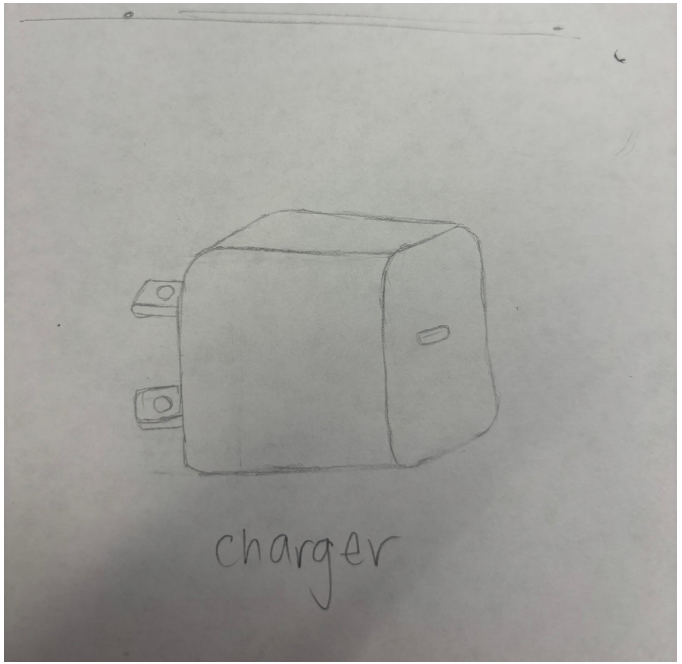
charger durability: material used to construct charger should be strong while being lightweight ⇒ plastic

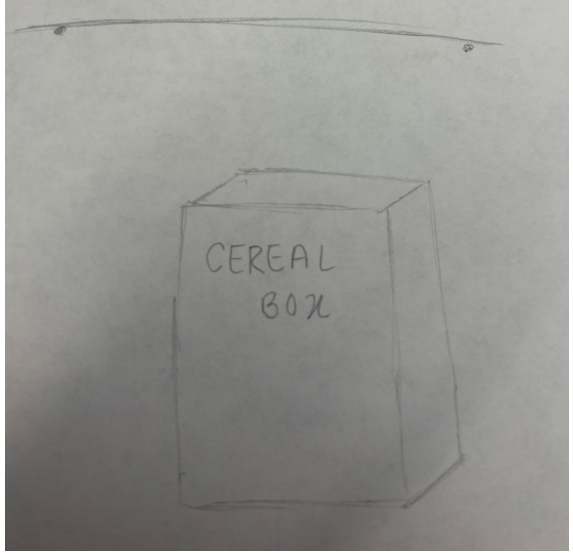
compatibility: charger is compatible w/ various devices

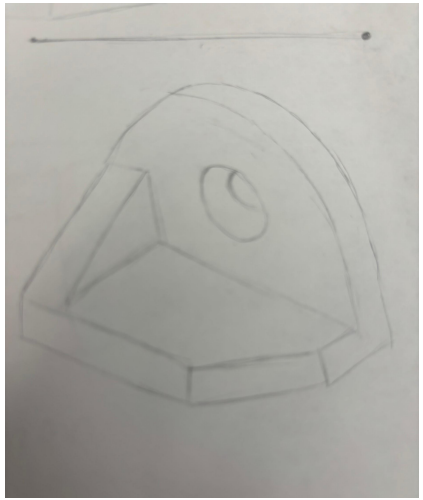
timer: user is able to set time easily, simple timers & microcontrollers necessary

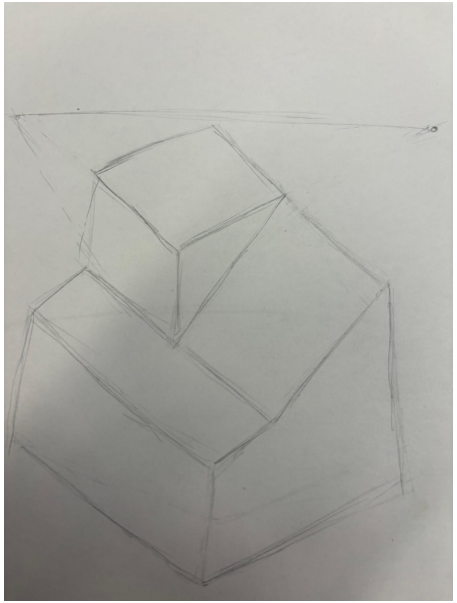
This invention solves the problem of overcharging during the night by using a timer to stop the charging after a certain amount of time

SKETCHING 3

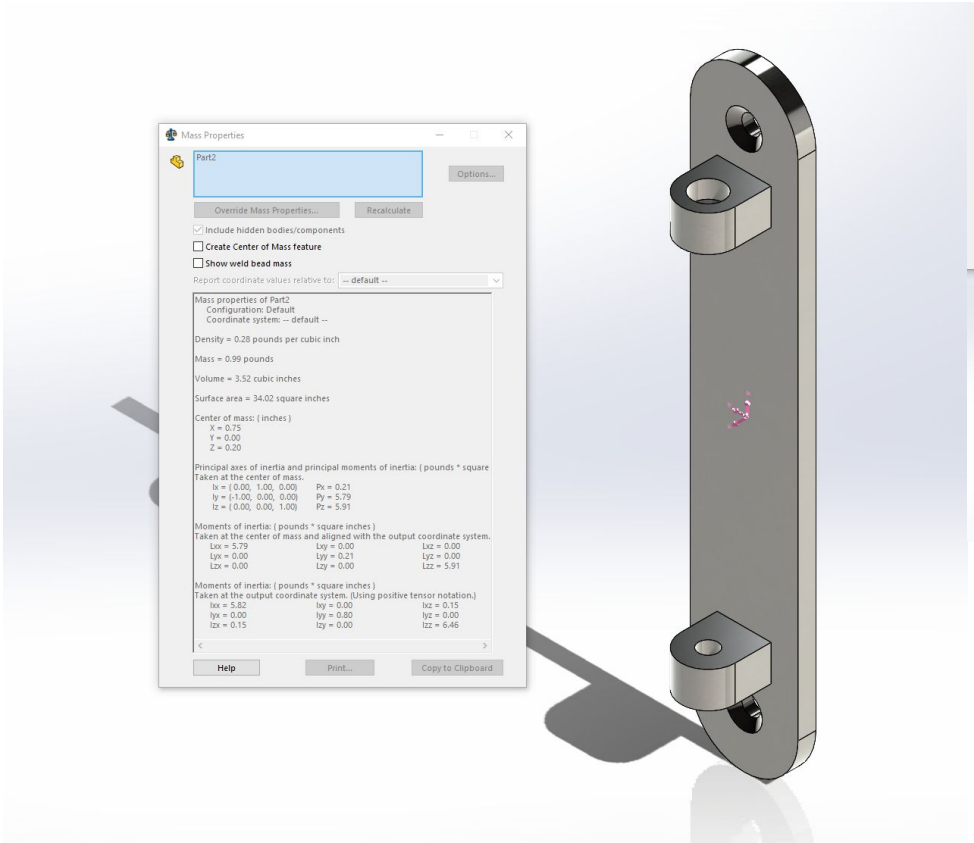


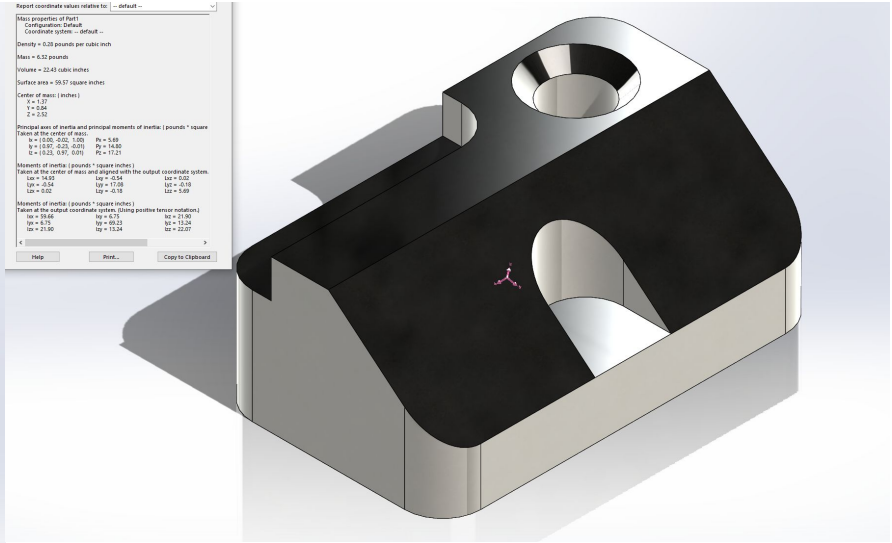






SOLIDPROFESSOR 3





ELECTRONIC ASSIGNMENT 3

https://youtu.be/U2SBd4vtJsQ

INVENTIONS 4

A. Charger does not stop charging after battery is full.

B. → charger will be lightweight & strong
- → charger has a good quality timer
- ⇒ charger is compatible w/ various devices

C. → low voltage output
- ⇒ limited connectivity (usb, usbc)
- ⇒ may not be able to use all sensors necessary due to limited processing power

lutions

Solutions

The phone itself stops charging when fully charged

2.

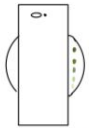
smart charging station that announces when charging is complete

3.

charger w/ thermometer

that can stop charging when thermometer overheats

4.



smart charging station.
amount of charge delivered is based on charging capacity

adapting station

5-

battery set

charger where ideal battery charge can be set & stops charging when that goal is hit.

6.

capacity 100%.

ideal batteries that can be recharged but can only charge up to 100%

a charging **remote** can monitor phone battery levels & is controlled by user

8.

solar powered charger that only charges when in direct contact w/ sunlight

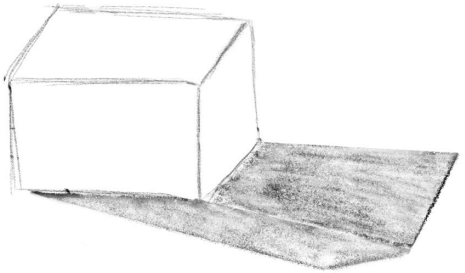
9.

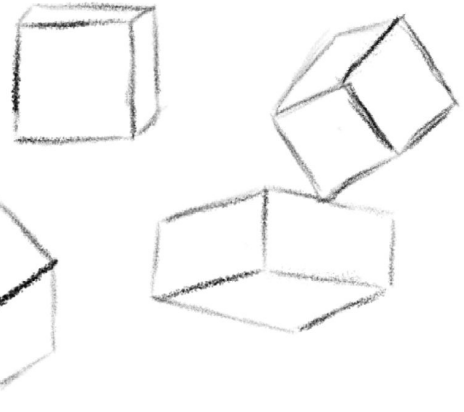
time display charger that displays time remaining until fully charged so user can unplug.

10.

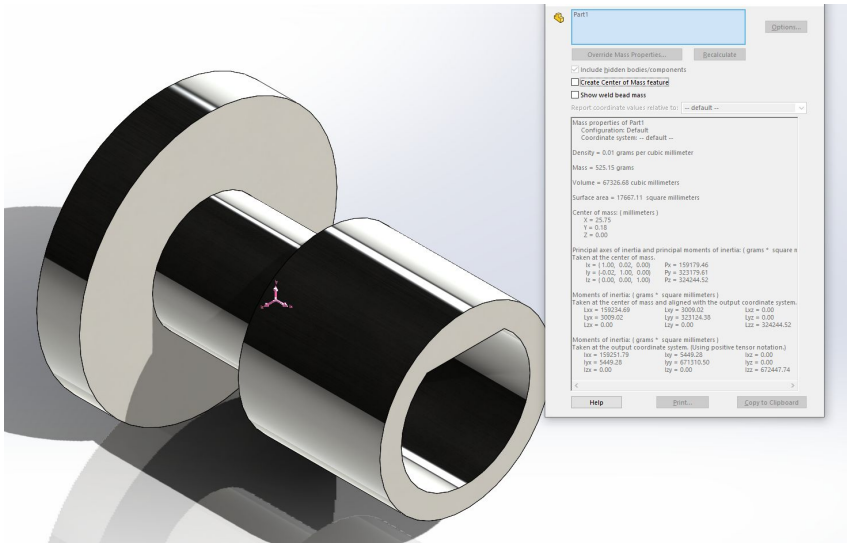
charger that follows a schedule that user can set, so charging can be activated as user wishes

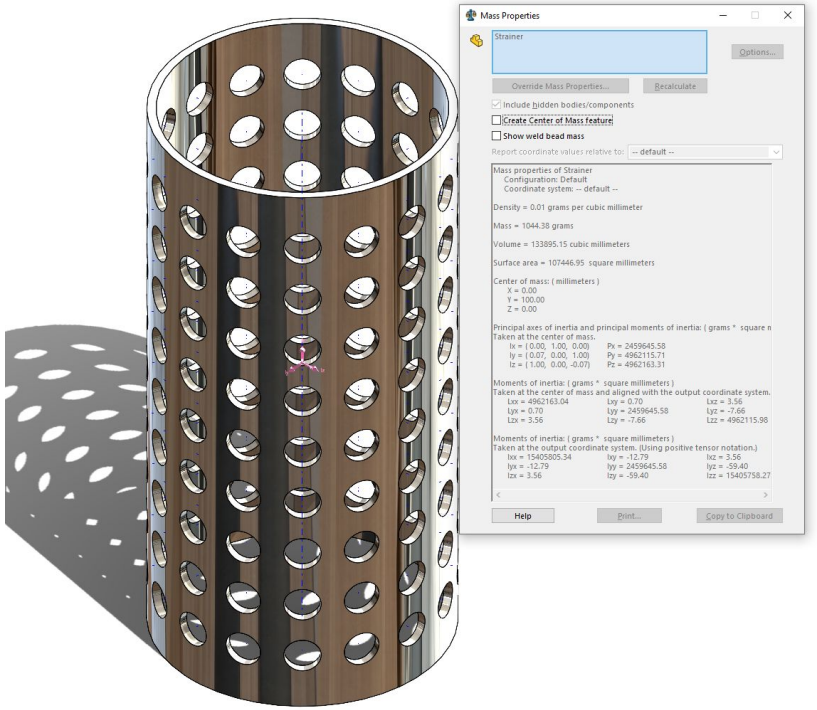
SKETCHING 4



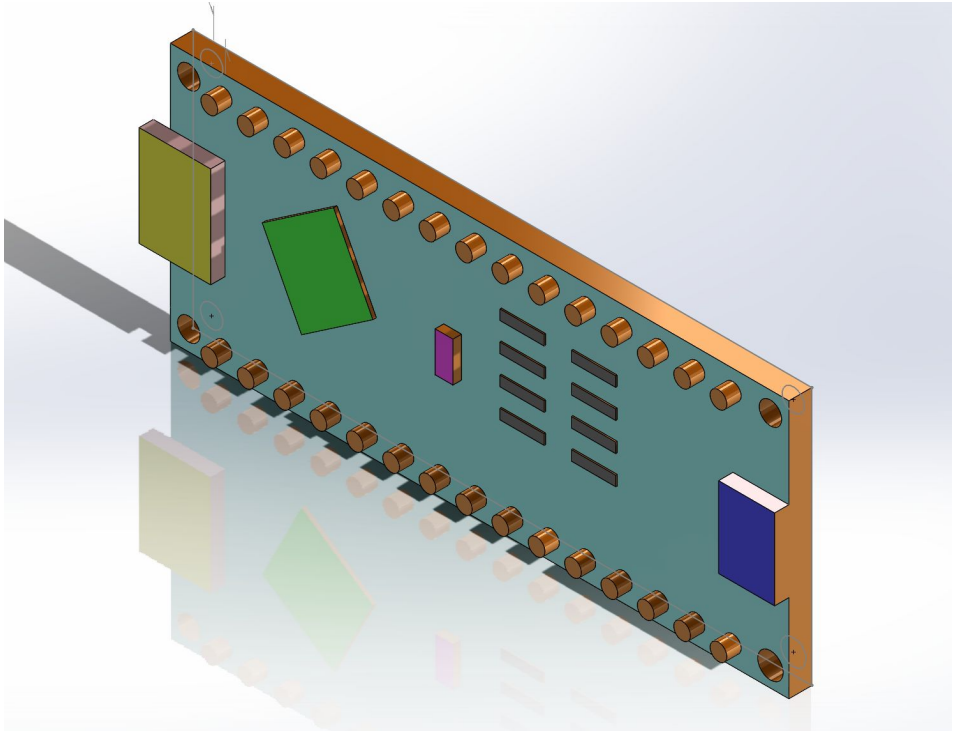


SOLIDPROFESSOR 4





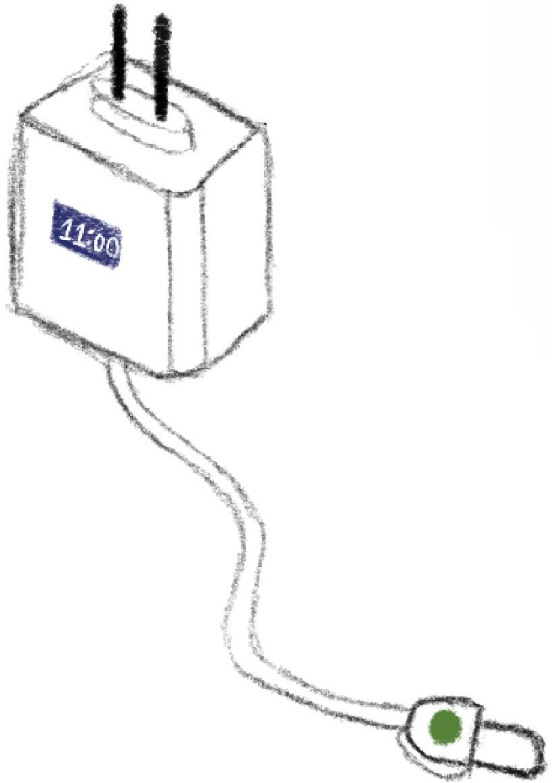
CUSTOM PARTS 4



ELECTRONICS ASSIGNMENT 4

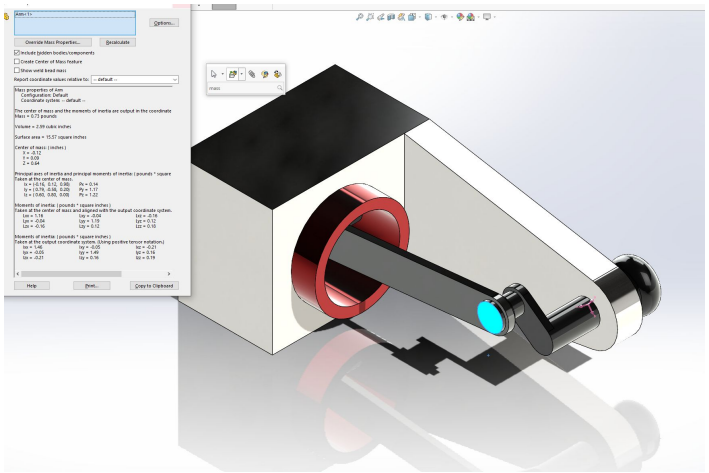
https://youtu.be/90EMNxfTCPk

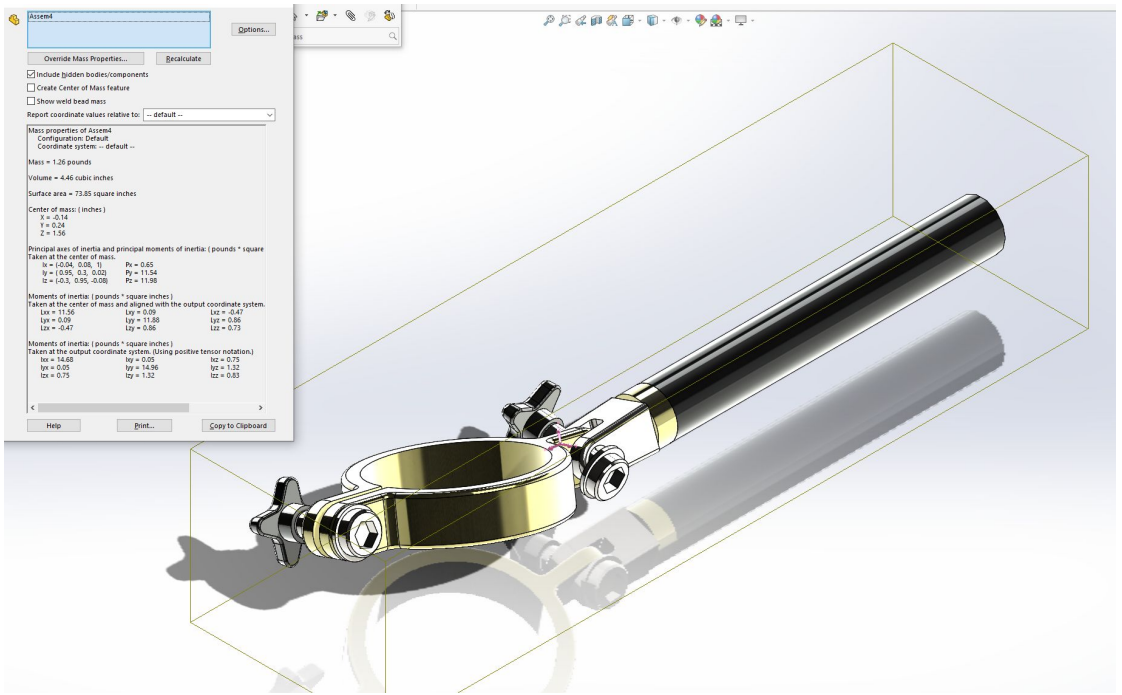
INVENTIONS & SKETCHING 5



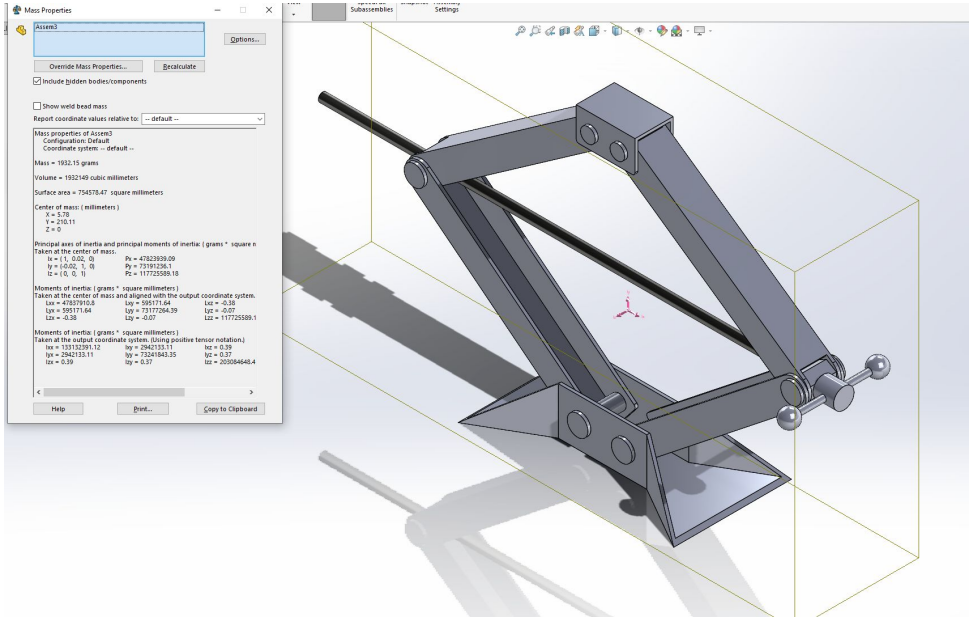
	Regular		My design
Rate	S	–	S
COST	S	–	S
effort	+	+	S
materials	—	+	—

SOLIDPROFESSOR 5

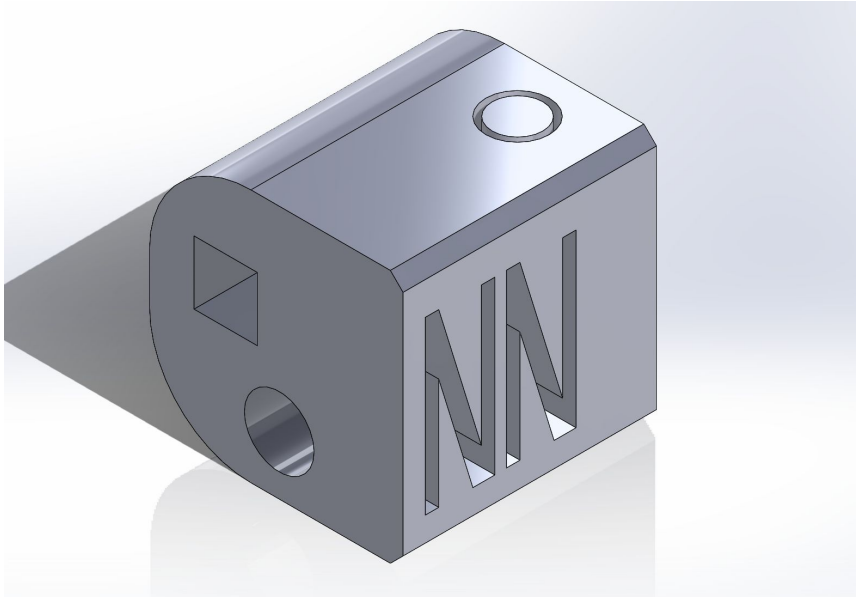




SOLIDPROFESSOR 5



CUSTOM PARTS 5



ELECTRONICS ASSIGNMENT 5

https://youtube.com/shorts/QeSzPPUhvGo?feature=share

GEARS 6

58 : 1

100 rads/s

0.1 Nm

203 : 1

$\tau_0 = 0.1$

$\omega_0 = 100$

a) $\tau_0 = \tau_m G$

$= 0.1(58)$

$= 5.8$ Nm

$\omega_0 = \frac{1}{G}\omega_m$

$\omega_0 = \frac{1}{58}(1000)$

$\omega_0 = \frac{1000}{58}$ rads/sec

b) $\tau_0 = 203(0.1)$

20.3 Nm

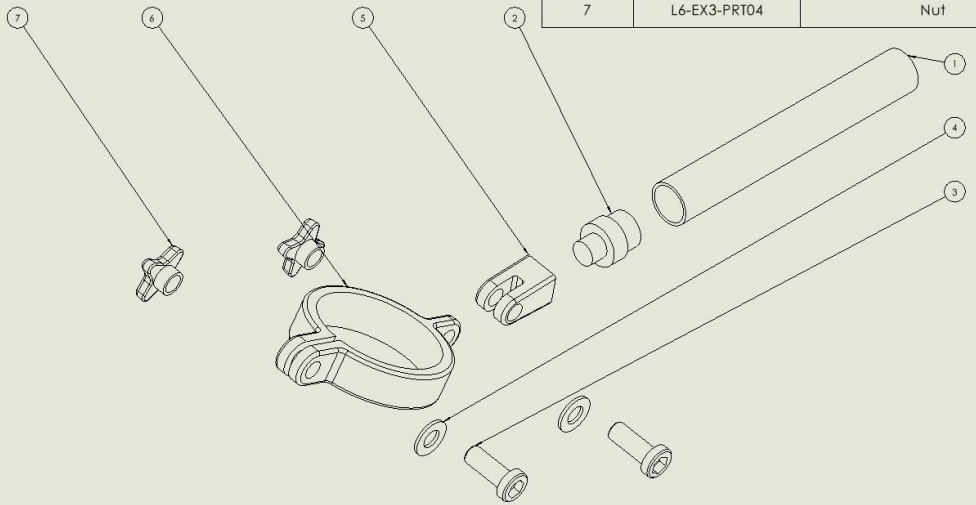
$\omega_0 = \frac{1000}{203}$ rads/sec

ELECTRONIC ASSIGNMENTS 6

https://youtube.com/shorts/P30A1-QDi6I?feature=share

SOLIDPROFESSOR 7

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	L6-EX3-PRT01	Boom	1
2	L6-EX3-PRT06	Swivel Adapter	1
3	L6-EX3-PRT03	Cap Screw	2
4	L6-EX3-PRT07	Washer	2
5	L6-EX3-PRT05	Swivel	1
6	L6-EX3-PRT02	Brace	1
7	L6-EX3-PRT04	Nut	2

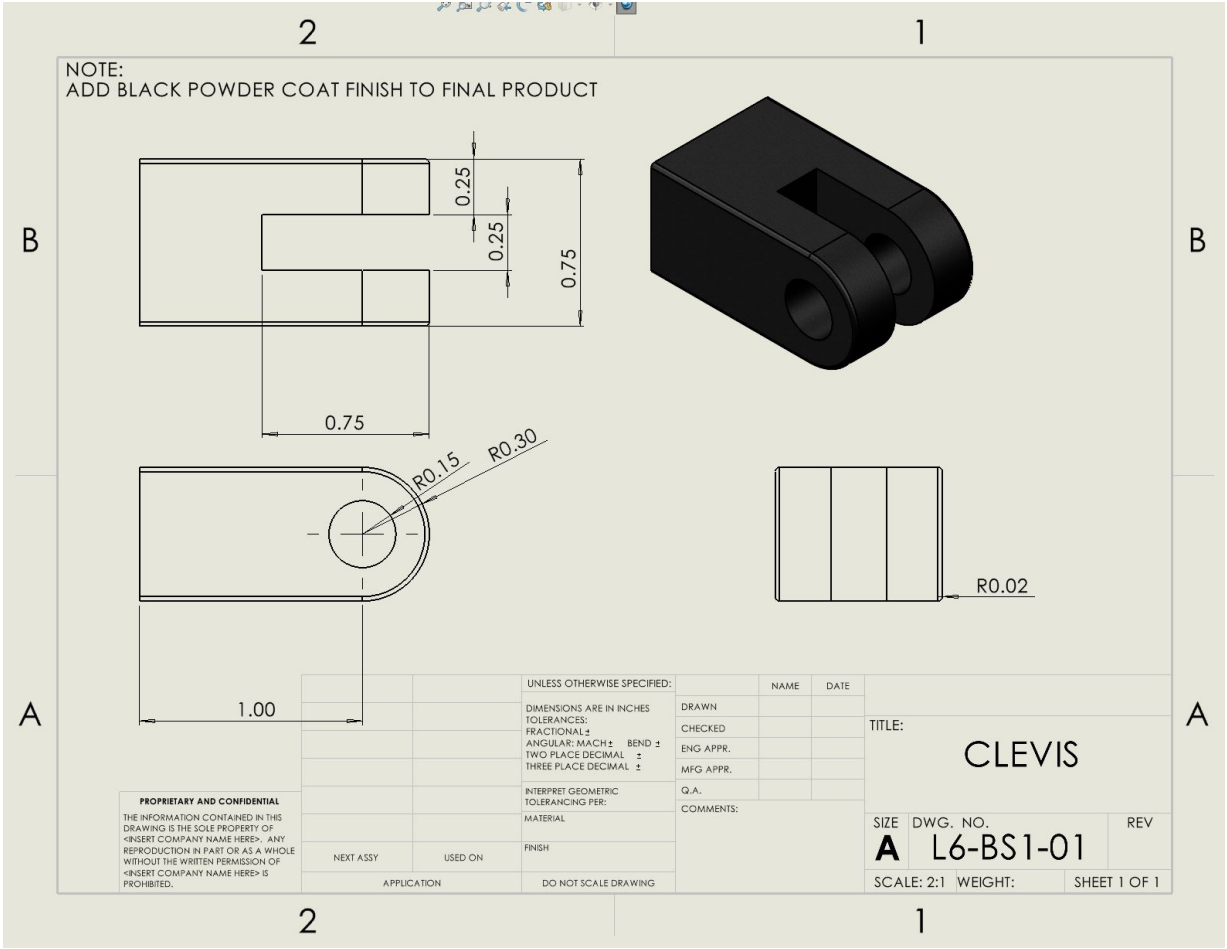


TITLE:
Brace Assembly

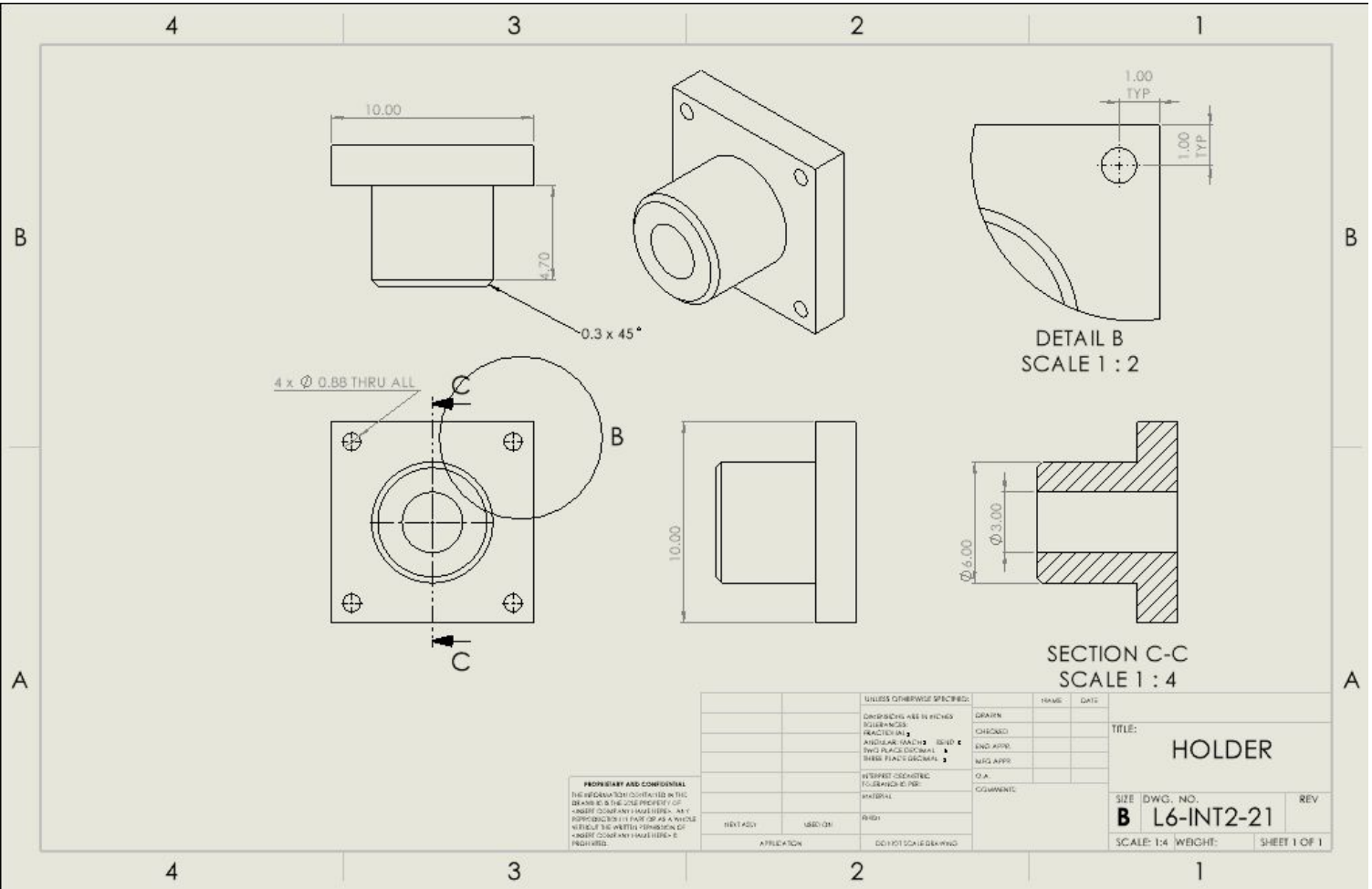
SIZE C DWG. NO. L6-EX3-ASM01 REV

SCALE: 1:1 WEIGHT: SHEET 1 OF 1

SOLIDPROFESSOR 7



SOLIDPROFESSOR 7

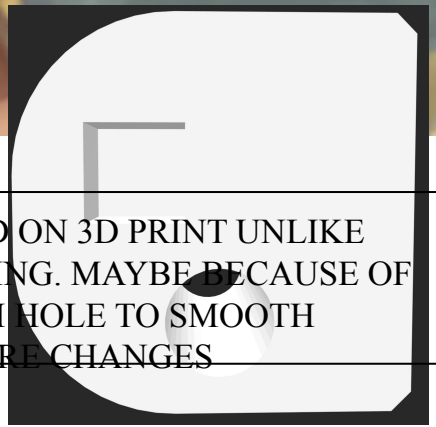


MEASUREMENT- 5 MM
IN SOLIDWORKS.
PART IS 0.2 MM LESS
THAN EXPECTED

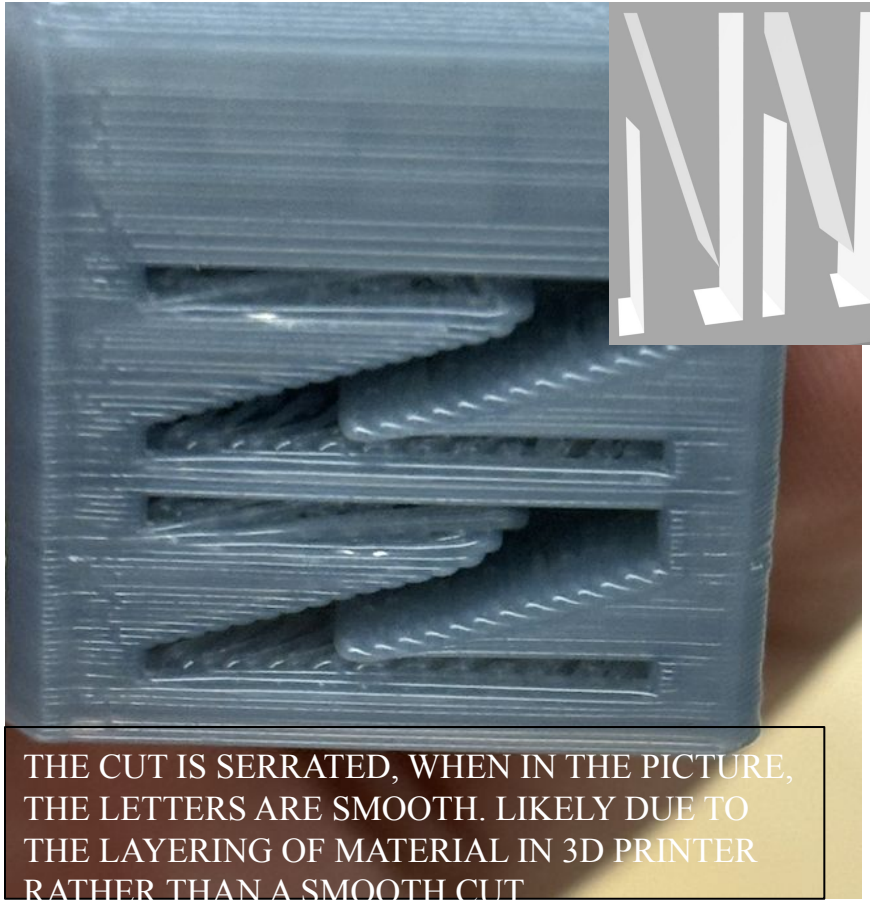
MEASUREMENT- 5 MM
IN SOLIDWORKS.
PART EXCEEDS
DIAMETER BY 0.3 MM

MEASUREMENT- 5 MM
IN SOLIDWORKS.
PART IS 0.2 MM LESS
THAN EXPECTED

CUSTOM PARTS 7



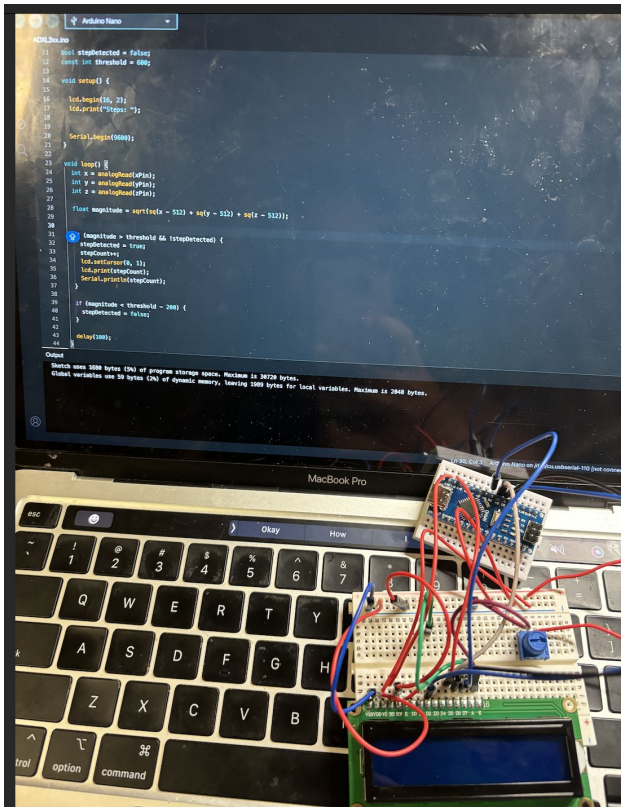
EDGES ARE INDENTED ON 3D PRINT UNLIKE THE ORIGINAL DRAWING. MAYBE BECAUSE OF THE CHANGING FROM HOLE TO SMOOTH SURFACE, THE TEXTURE CHANGES



THE CUT IS SERRATED, WHEN IN THE PICTURE, THE LETTERS ARE SMOOTH. LIKELY DUE TO THE LAYERING OF MATERIAL IN 3D PRINTER RATHER THAN A SMOOTH CUT

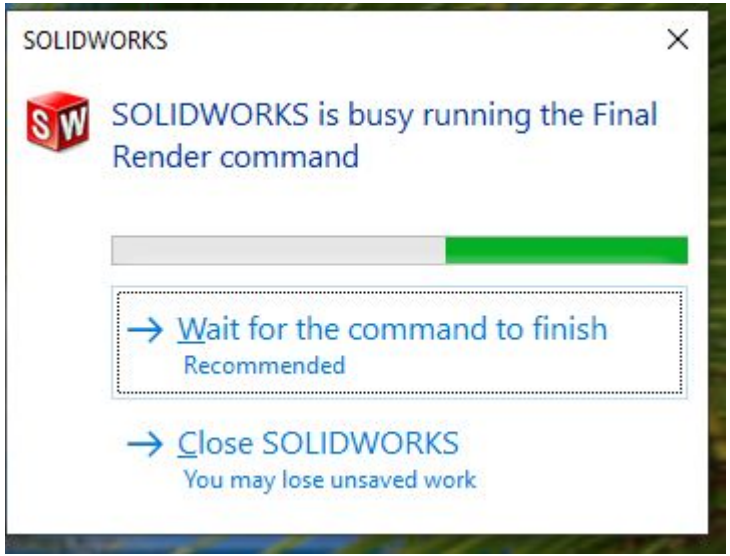
CUSTOM PARTS 7

INVENTION 7



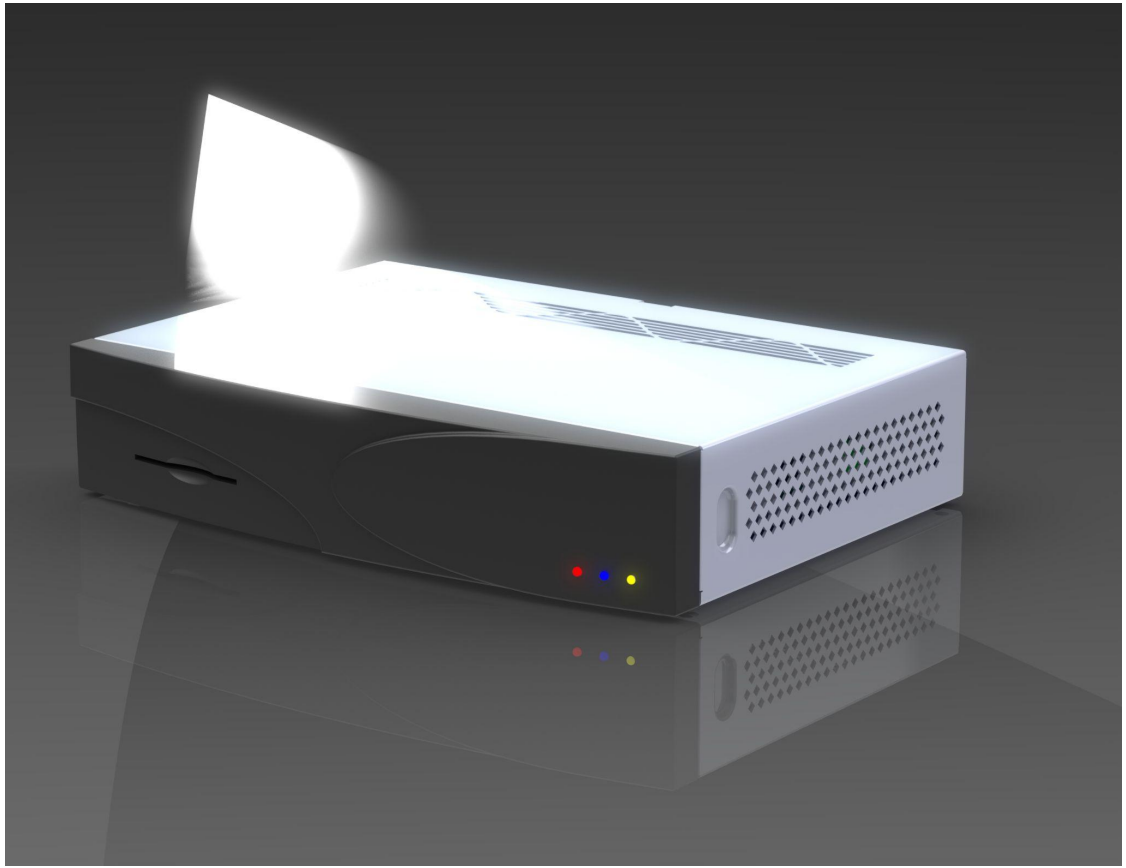
THE CODE IS WRITTEN, BUT NOT WORKING WITH THE ARDUINO. THE BREADBOARD MIGHT BE BROKEN SO I GOT A REPLACEMENT. THE LCD IS WIRED, I NEED TO CONNECT THE ACCELEROMETER WITH THE ARDUINO AND LCD, AND MAKE SURE THE CODE IS RUNNING SMOOTHLY. THEN I NEED TO FINISH THE ASSEMBLY.

SOLIDPROFESSOR 8



I promise i waited really long for the rendering, it just wouldn't work, and none of my work saved, so I took a ss, before I had to delete it. It had just take upwards of 45 minutes. I promise I did i though:(

SOLIDPROFESSOR 8

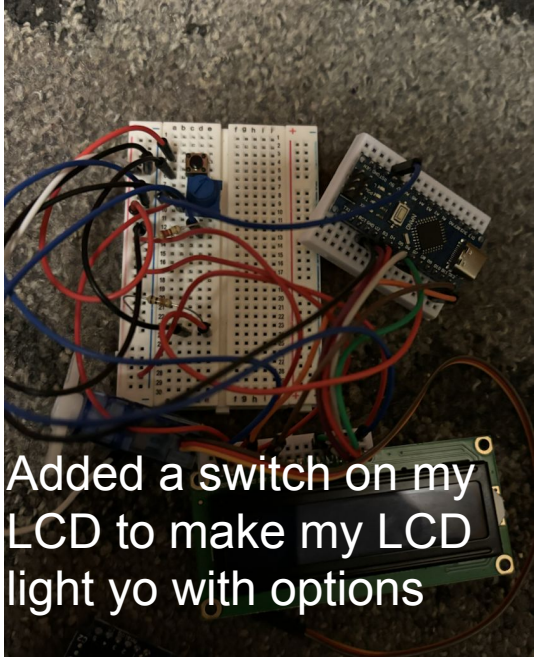


INVENTION 8

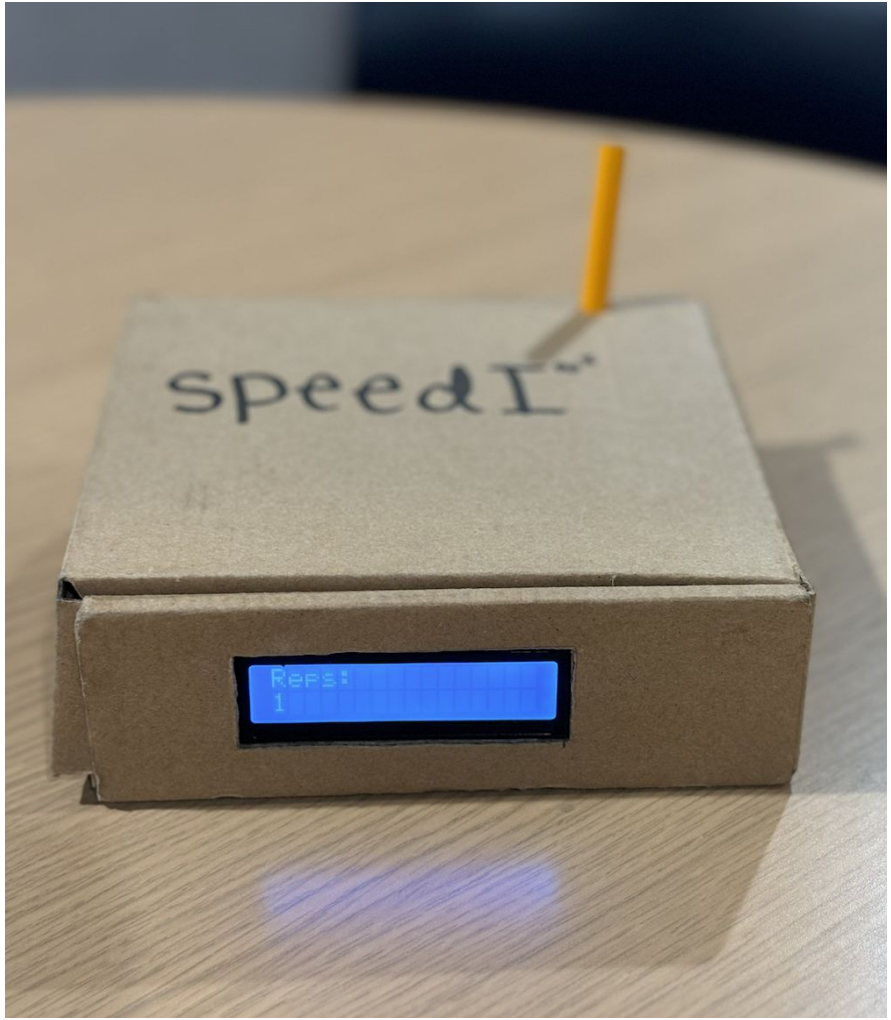
For my video, I would video someone walking with the box and the steps increasing on the LCD monitor. I would also have them pressing the button, so you can see the switch to see different settings.

```
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

const int switchPin = 6;
int switchState = 0;
int prevSwitchState = 0;
int reply;

void setup() {
lcd.begin(16, 2);
pinMode(switchPin,INPUT);
lcd.print("Steps");

lcd.setCursor(0, 1);
lcd.print("Speed!");
}

void loop() {
switchState = digitalRead(switchPin);

if (switchState != prevSwitchState) {
if (switchState == LOW) {
reply = random(8);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print(":");
lcd.setCursor(0, 1);
switch(reply){
case 0:
lcd.print("Yes");
break;
case 1:
lcd.print("I");
break;
case 2:
lcd.print("Certainly");
```

Updated code with switch



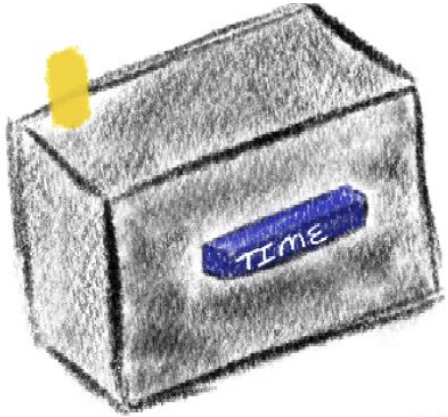
Need to connect accelerometer and LCD. Need to make a cardboard casing for accelerometer


speedI
Reps:
1

INVENTION 10

Link to Video: https://youtu.be/2CX4IQQ2ZJ0

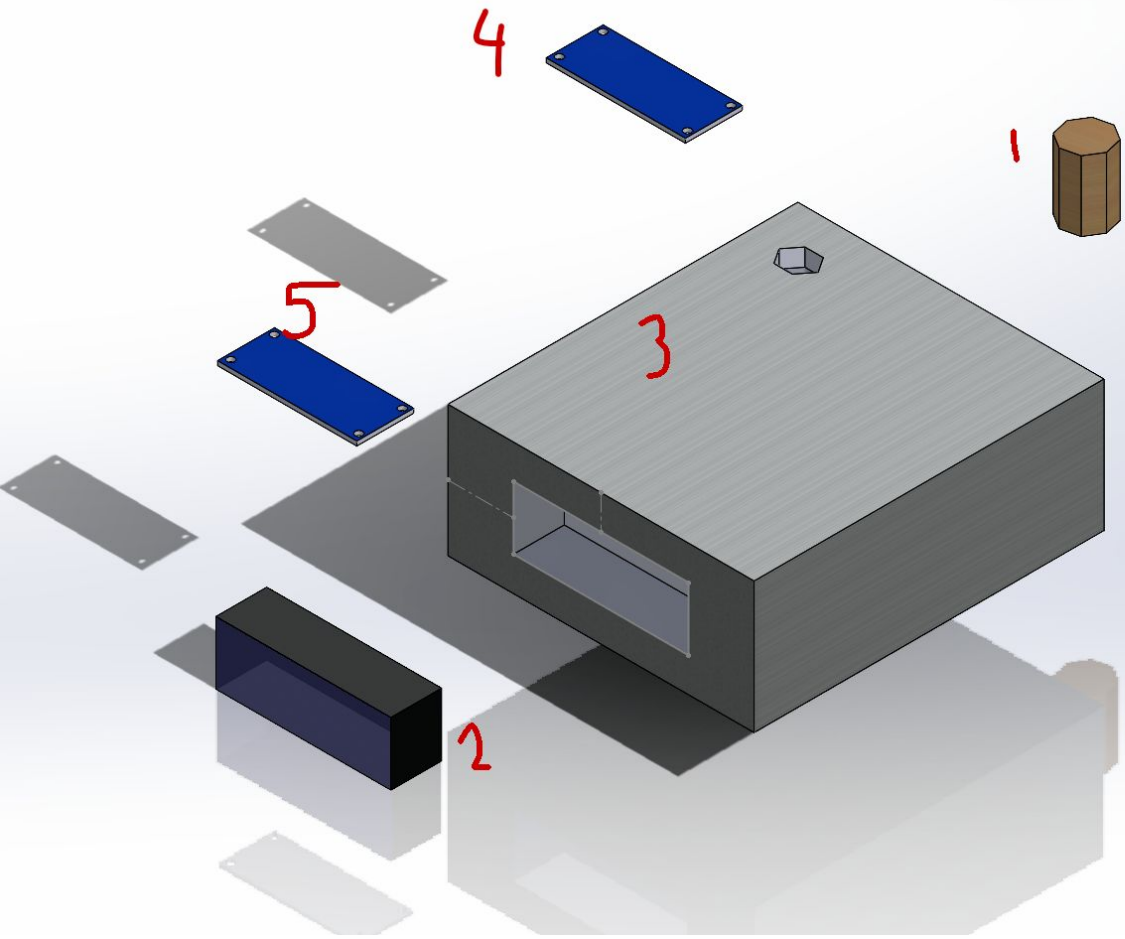
Initially, I was hoping to make a pedometer, which would track steps. But I felt that was too common and when I was testing the accelerometer, I realized that it was not as sensitive, and it worked better when reps were taken: lunges, squats, etc. So I decided to re-purpose it because the equipment was also not small enough to go around the ankle where the steps could've been measured easier. I used the Arduino Project Book code for project 11, and I wired the LCD really similarly, so I could use a button to display different things on the LCD. Rather than the male-to-male wires, I used female-to-female to connect the LCD to Arduino Nano.



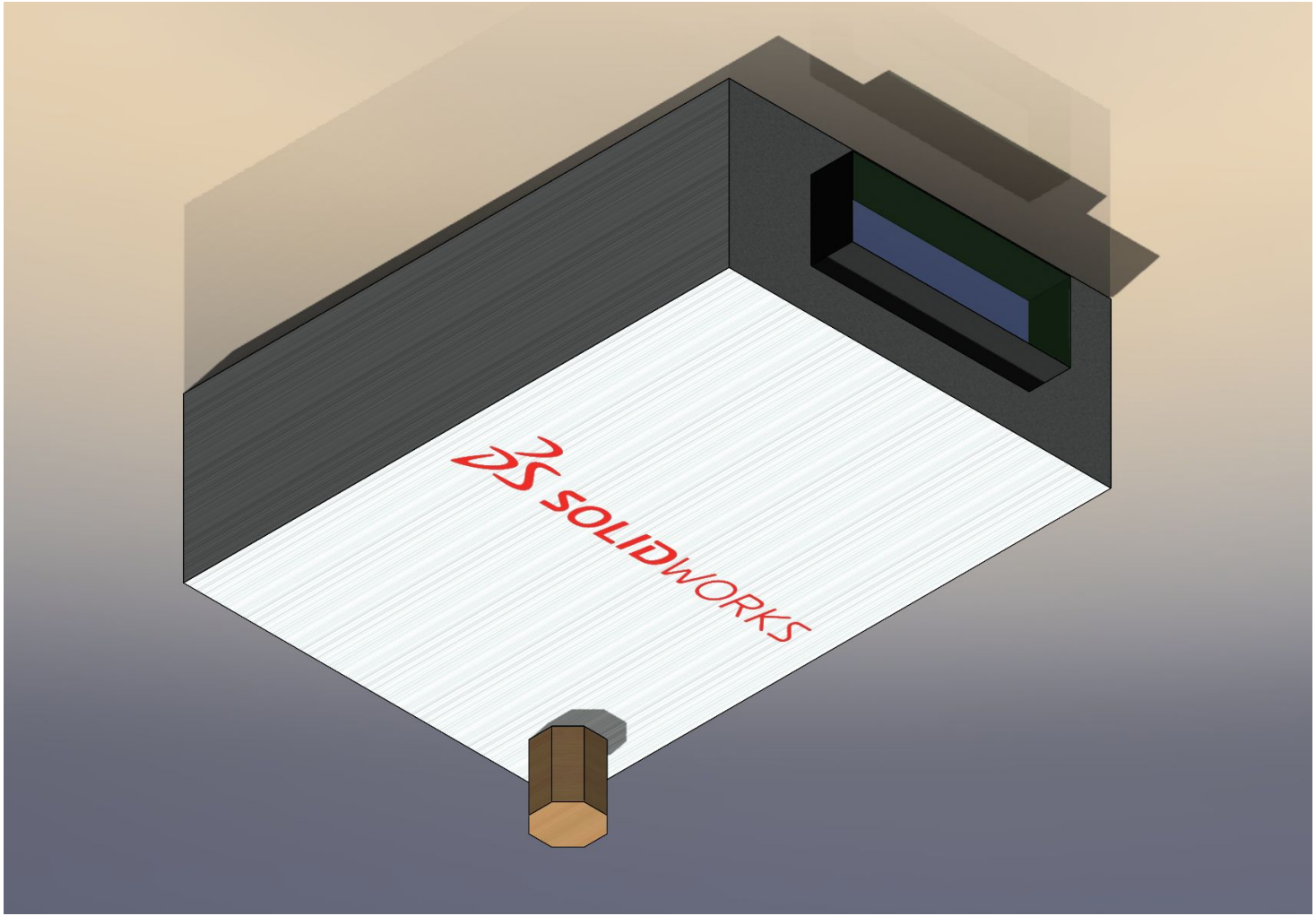
LCD SCREEN: displays timely messages & reps

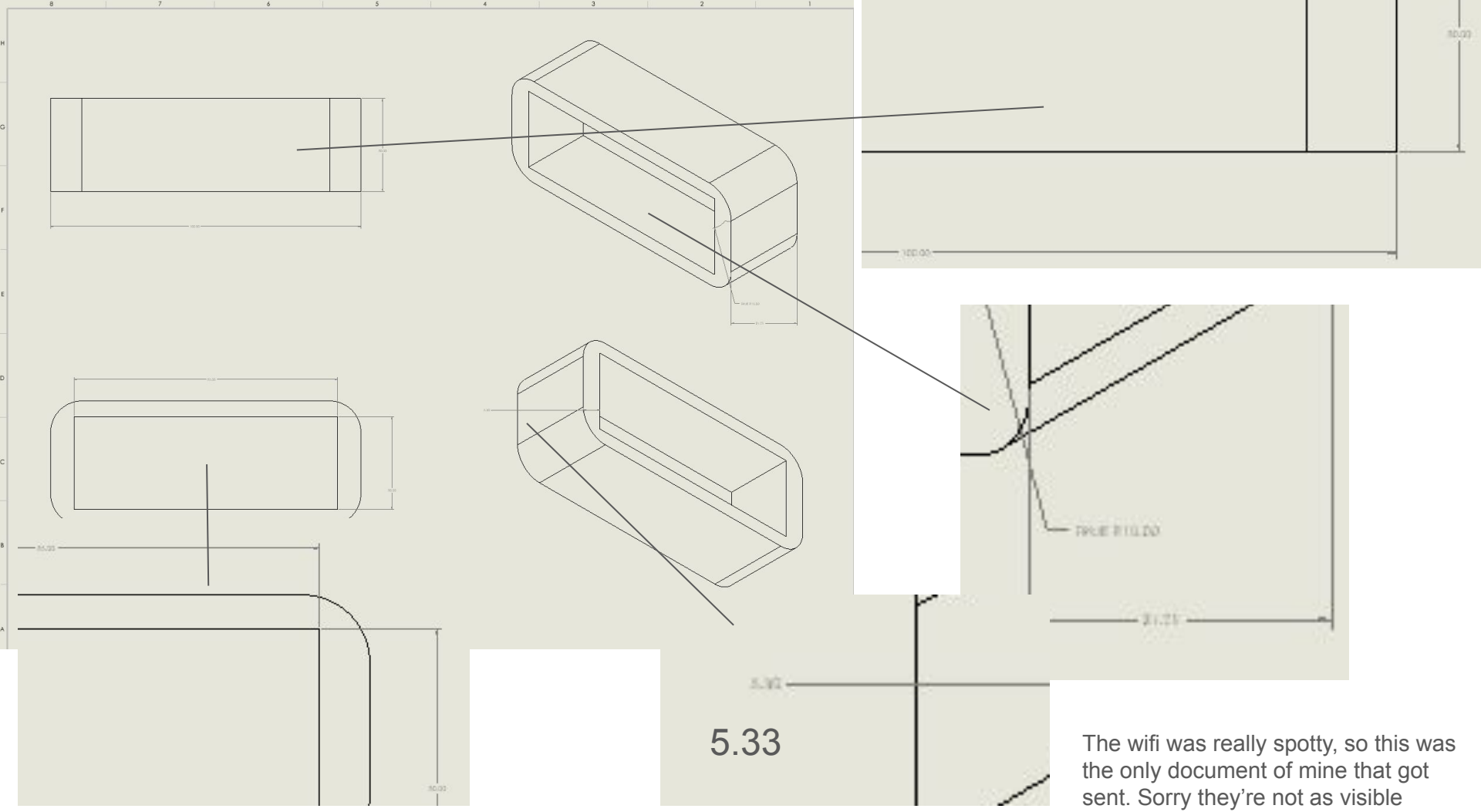
Box: contains circuit pieces neatly inside, making it user friendly

Button: for user interaction



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BUTTON	Allows user interaction	1
2	LCD	Displays data	1
3	BOX	Holds arduino components	1
4	ACCELEROMETER	Tracks reps	1
5	Arduino		1


SOLIDWORKS



5.33

The wifi was really spotty, so this was the only document of mine that got sent. Sorry they’re not as visible

CUSTOM PART