Engineering Notebook

Mechatronics Engineering 2023-2024

<Yash Sanghvi>

<y.sanghvi@my.metroed.net>

https://replit.com/@mmartinez18/Python-Scratch-Pad-Lab-1



My book time Articles

1/10/24
Today I read How we'll live on mars by stephan petranek. This book was interesting as it delves into the topic of the space launch using raptor 1 and 2. It talks about how they had to land on mars and find a regolith so they can access a water source. The whole point of them landing on mars is so they can set up the ecosystem that will be habitable in the future. If we are able to land on mars it opens a path to interspace travel anywhere. I also researched about the apple teleported reportedly able to teleport and apple from a research base in new york city to washington. This innovation was cool since it marks the first means of teleportation but the only thing that doesn't work with this is the apple with move to washington but the location will remain the same. The way this teleporter works is by using Artificial intelligence(AI), virtual reality(VR), 5g, and augmented reality(AR).

1/18/24

Design con is a conference created by engineers with the purpose of bestowing industrially critical engineering education in the heart of electronics innovation. It can help you solve engineering problems and plan how to improve designs in the future. Chips, boards, and systems are the main things being dealt with at design con. It's not just the chip itself, it's more the circuit design of the million transistors that makes these chips.

1/25/24 Squid-Robot Learned Its Moves from Marine Animals

The article I read was about the creation of a mechanical squid robot that mimics the moves of the natural world. The university of south hampton created the squid-like robot using 3d printed material and the addition of data from squids and jellyfish. This is an important article as it shows robots being able to mimic nature like animals which can be a big break in oceanic adventures. By mimicking the bone-like structure, movement, and shape of the natural animals we can start mixing the mechanical and natural world together. By using the theory of resonance the robot can traverse water space a lot easier.

Semiconductor

Heating wafer top up to 1100 degrees celsius and up to 26 exposures. Microchip is assembled by 30 so levels a

1/29/24 Google's New AI Is Learning to Diagnose Patients The DeepMind team turns to medicine with an AI model named AMIE

AMIE. The next-gen AI robot has the potential to revolutionize the medical world. Google has been working on integrating AMIE - Articulate Medical Intelligence Explorer - to help patients and physicians more optically. Google has begun experimenting with it by feeding the AI transcripts of nearly 100,000 real physician-patient dialogues, 65 clinician-written summaries of intensive care unit medical notes, and thousands of medical reasoning questions from the United States Medical Licensing Examination. Such an AI would not be able to replace physicians as it cannot account for every scenario, but it will allow patients to get fast and simplified diagnoses. AMIE uses an inner and outer self-play loop. The inner self-play loop takes human criticism and feedback to adapt to specific errors that would allow AMIE to grow. The outer self-play loop uses the conversations and adjusts using fine-tuning iterations.

1/29/24 code

```
import time
def main():
  print("staring while loop")
  counter = 0
  while(counter < 10):
    print(counter)
    counter += 1
    time.sleep(1)
print("Ending While Loop")
main()
```

Instructions:
For each day that you enter data into your Engineering Notebook, Copy this template text and table for each project entry. The difference between a Physical Engineering Notebook and this Notebook will be that your most current entry (i.e. Your newest entry) will be at the "top" like a blog… Check here for a Rubric

Sometimes you will see a comment from your teacher. Please read, and if it's a question, answer it.

Comment or Question from Mr. Burnham:

<Date> <Title - Daily/Weekly "Blog" Project Title - compelling, descriptive title>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:
- List each
- Task you are trying
- To accomplish today

Useful Reference Links:
- List any links related to today's work
-

Today's Class Notes:

What Did I Working On Today (Labs, Robot Club, Other Projects):
Describe the steps/challenges you are working on. Make sure you describe how you set up the experiment, how you executed it, and all the materials you needed to do it. Spend time writing your "reflections". Sometimes more important than the actual results, are your thoughts on "why" and "how". Here is where you accurately describe both the success and failures.

If you make mistakes in the data collected, document the mistake and highlight it with a comment, so you don't lose the work. Don't just delete it. Where did you get stuck? A detailed description of issues you got stuck on or did not understand.

Include pictures, Code or links to Code, and links to reference material.

What Will I Work On Next Time?
- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

Tennis ball challenge

To create a tennis ball launcher using motors, one could design a mechanism utilizing a motor-driven wheel or piston to propel the ball forward. The motor would be powered by a suitable power source, such as batteries or a power supply. Control of the motor's speed and direction could be achieved through a motor controller or microcontroller, allowing for precise adjustment of launch velocity and angle. Additionally, safety features such as a trigger mechanism or sensors could be implemented to ensure safe operation. With careful design and engineering, a motorized tennis ball launcher can be constructed to provide hours of entertainment and practice for tennis enthusiasts.

<copy text between these lines>

<9/26> <Title - Daily/Weekly “Blog” Project Title - compelling, descriptive title>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):

- Flame sensor - used to detect fire by sensing infrared radiation

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<copy text between these lines>

<copy text between these lines>

<Date> <Title - Daily/Weekly “Blog” Project Title - compelling, descriptive title>

What Did I Working On Today (Labs, Robot Club, Other Projects):

1. Peter
2. Vernier Caliper
3. 10 multiple choice questions

What is the main purpose of a vernier caliper? a) Measuring temperature b) Measuring volume c) Measuring length and thickness d) Measuring weight
Which part of the vernier caliper is used to measure the main scale reading? a) Main scale b) Vernier scale c) Jaws d) Depth rod
In a vernier caliper, what is the function of the vernier scale? a) To measure small lengths with high precision b) To measure angles c) To measure weight d) To measure temperature
The main scale of a vernier caliper is typically graduated in which unit of measurement? a) Inches b) Millimeters c) Centimeters d) Meters
What is the name of the error that occurs when the jaws of a vernier caliper are not perfectly aligned with the object being measured? a) Parallax error b) Vernier error c) Zero error d) Systematic error
Which type of vernier caliper is used to measure the inside dimensions of an object?
a) Outside vernier caliper b) Inside vernier caliper c) Depth vernier caliper d) Height vernier caliper
The least count of a vernier caliper is determined by: a) The number of divisions on the main scale b) The number of divisions on the vernier scale c) The length of the jaws d) The type of material used in construction
What is the purpose of the locking screw on a vernier caliper? a) To adjust the zero error b) To secure the jaws in position when making a measurement c) To switch between metric and imperial units d) To calibrate the instrument
Which of the following statements is true about a vernier caliper? a) It can only measure length in centimeters. b) It is less accurate than a ruler. c) It can measure both internal and external dimensions. d) It is used exclusively for measuring weight.
What is the advantage of using a vernier caliper over a regular ruler for measuring length? a) Vernier calipers are more durable. b) Vernier calipers are easier to read. c) Vernier calipers provide greater precision. d) Vernier calipers are cheaper.
Answers:
c) Measuring length and thickness a) Main scale a) To measure small lengths with high precision b) Millimeters a) Parallax error b) Inside vernier caliper b) The number of divisions on the vernier scale b) To secure the jaws in position when making a measurement c) It can measure both internal and external dimensions. c) Vernier calipers provide greater precision.



Step 1- Peter

Step 2 - Vernier caliper

Step 3 - Pick a tool and create the following in your Engineering Notebooks:

As a team, pick a tool, and provide the following write-up in your Engineering Notebook:

1. Vernier caliper
2. Picture of tool (Amazon is fine)
3. A vernier caliper is used for precisely measuring the dimensions (length, width, and depth) of objects with high accuracy.
4. Move scale up and down in order to measure the length, width and depth
5. https://www.wikihow.com/Use-a-Vernier-Caliper
6. Vernier Caliper

<copy text between these lines>

<copy text between these lines>

<9/20/23> <Running an RC plane - success and fails>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):

Today we worked on running the RC plane with victor and anh. All four of us brang it out and experimented with flying after finding a way for the battery to be put in place. It was hard to fly as there were stabilizers, tilt on the plane and we were flying for the first time. We ended up displacing the propeller in the plane since the super glue on the styrofoam wore off, Also the battery that we were using died so we had to get a new battery with a connector we found. From there we opened up the planed and super glued the propeller in a way that it wouldn't hit the plane. Our next steps are working on a way to protect the propeller and run it with no problems/full control.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<copy text between these lines>

<9/19> <lab to calculate how light affects voltage>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):

Describe the steps/challenges you are working on. Make sure you describe how you set up the experiment, how you

Test	Brightness	Selected R_2	Measured V_2	Measured V_T	Derived V_P	Calculated I	Calculated R_P
1	**Covered**	1KΩ	2.971mV	5.14V			Ω
2	**Some Light**	8.74k	0.684	5.14			
3	**Room**	8.74k	0.662	5.14			
4	**Brighter**	**8.74k**	**0.523**	**5.14**			
5	**Full Bright**	**8.74k**	**0.435**	**5.14**			

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<copy text between these lines>

<Date> <Title - Daily/Weekly “Blog” Project Title - compelling, descriptive title>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes:

Love of Reading

Today I read some of the god equations by michio kaku. I skipped to the chapter on theory of everything. In this chapter I learned about how Einstein had an insane amount of principles that were complete as he didn't have one fundamental thing. The one thing he needed was a main guiding principle which he had tried every single reasonable theory of. Other scientists tried to find it too but every single theory they explored einstein had already explored and they realized that the theory would have to be crazier than crazy to work. This led them to realize that infinity - infinity is zero and that enabled them to test certain theories. Then I read about how quantum mechanics help find the purpose of life. They concluded that life is for reproduction and they used an x-ray light through natural materials photographed to find out that humans are made of a double helix strand called dna. Before this it was theorized that the soul was inserted once the kid was born but after this they realized that genes made up

What Did I Working On Today (Labs, Robot Club, Other Projects):

Circuit	Derived V1	Pick V2	Measured Vt	Calculated R2	Measured R2
1	2.68V	2.47V	5.15	1.2k	1.0k
2	2.44	2.707V	5.14V	5.34k	5.37k
3	0.26	4.88V	5.14V	9.64k	9.63k
4	**4.01**	**1.13V**	**5.14V**	**7.92k**	**7.92k**

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<copy text between these lines>

<9/12/23> <AC/DC Potentiometers, Tools, Robot Club/Open Lab>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):

Circuit	Measured V1	Measured V2	Measured Vt	Calculated R1	Calculated R2
1	0.078V	5.06V	5.14V	151.75	9844.36
2	2.750V	2.387V	5.14V	5350.19	4643.97
3	3.010V	2.130V	5.14V	5856.03	4143.97
4	**4.47V**	**0.672V**	**5.14V**	**8696.49**	**1307.39**

What is the primary purpose of a wire stripper? a. To cut wires b. To strip the insulation from wires c. To connect wires together d. To measure wire thickness

Which part of a wire stripper is used to remove the insulation from a wire? a. Handle b. Cutting edge c. Stripping notch d. Pliers

Wire strippers are commonly used in which of the following industries? a. Agriculture b. Healthcare c. Electronics d. Construction

Which type of wire stripper is often used for precision work on small wires? a. Manual wire stripper b. Automatic wire stripper c. Wire twisting tool d. Wire crimping tool

What is the benefit of using an automatic wire stripper? a. It is more cost-effective b. It requires less skill to use c. It works better on thick wires d. It can strip wires faster than manual tools

Which wire stripper type is commonly used for heavy-duty wires in construction? a. Pliers-style wire stripper b. Precision wire stripper c. Self-adjusting wire stripper d. Crimping tool

What should you adjust on a self-adjusting wire stripper to match the wire size? a. Handle grip b. Cutting edge angle c. Stripping notch size d. None of the above

When stripping a wire, which direction should you move the wire stripper? a. Toward the handle b. Away from the handle c. Sideways d. In a circular motion

Which of the following materials is commonly used to make the cutting edges of wire strippers? a. Wood b. Plastic c. Steel d. Rubber

In electrical work, why is it important to strip wires correctly? a. To make the wire look neat b. To reduce the wire's length c. To ensure proper electrical connections d. To make the wire easier to twist

Answers:

b. To strip the insulation from wires

c. Stripping notch

c. Electronics

b. Automatic wire stripper

d. It can strip wires faster than manual tools

a. Pliers-style wire stripper

c. Stripping notch size

b. Away from the handle

c. Steel

c. To ensure proper electrical connections

<8/16/23> <Explorations of laws and thoughts>

What did you read? Why was is interesting?
I read The girl who thought in Pictures By Julia Finley Mosca. This book was interesting as it was a picture book that led me through temples' life. Temple was a girl who had autism but her love for science allowed her to be someone others looked up to. She would create an invention for farms after graduating with three degrees. She then overcame her boundary and became a public speaker.

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes: ohm's law

- V=IR, I=V/R, R=V/I
- Relationship between voltage, current, and resistance
- V= Voltage, I= Current, R= Resistance
- V= Measurement of a difference of electrical potential
    - From higher to lower
    - 9 volts - from 0-9
- I= Rate at which electrons flow through a current point
    - Measured in amps
- R= Measure opposition to flow of electricity
- v= 9V I=30mA(.03Amps) R= 9/0.03 = 300Ohms
- R↑ = C↓

What Did I Working On Today (Ohm's law, Multimeters, and circuit boards):
One challenge I encountered while using a multimeter was which section to put it on. I also had problems on the circuit board finding the pathway to measure voltages.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<8/18/23> <ScreenShots, Tinker this, Multimeter practice >

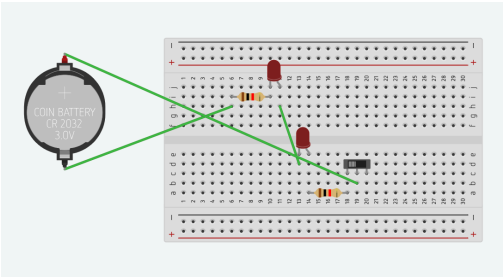
The goal for today is to

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-



Today's Class Notes:

- How to take a screenshot
  - Click prt scr
  - Drag the screenshot into desktop
  - Upload the file

What Did I Working On Today (Labs, Robot Club, Other Projects):

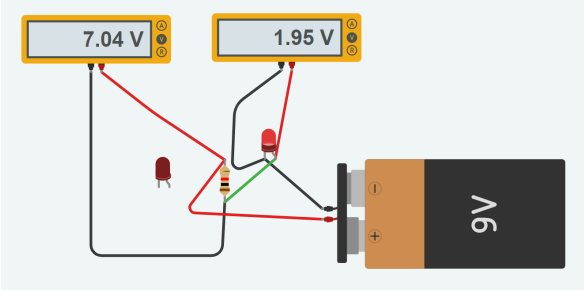
Resistor #	Resistor Value (from color code)	Measured Ω	Measured Volts	Measured I	Calculated I
Resistor #1	10 ohms	10.8 ohms	5.16	477.7	477.8
Resistor #2	270 ohms	269.6 ohms	5.2	18.45	19.29
Resistor #3	10M ohms	10.21M ohms	5.18	0.00051	0.00051
Resistor #4	470k ohms	0.461M ohms	5.19	0.011	0.011
Resistor #5	20k ohms	19.69k ohms	5.19	0.26	0.26

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<8/21/23> <Ohms, multimeters, breadboards and DMM>

Today's project goal is to finish up the lab on resistor values.
Another goal of today would be learning scientific notation.



Planned Task List:

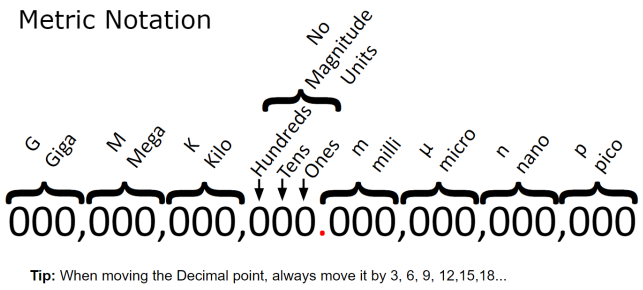
- Measure Current
- Calculate current using ohms law
- Finish quiz on ohms law and breadboard final
- Read article on chat GPT and woman in technology
- Deconstruct the printer and loot it

Useful Reference Links:

- 2.4.1.1 - 2023/06 - STEM Magazine - Jun 2022/06 - STEM Magazine - Jun 2022
- Engineering Notation
- THE BEST Multimeter tutorial?

Today's Class Notes:

- Scientific Notation
  - Engineering notation always a power of 3
    - .00548 is 5.48*10^-3
    - .00000527*10^-6
  - Can only be 10 to the power of 3,6,9,12…



What Did I Working On Today (Labs, Robot Club, Other Projects):
Today we learned how to use a multimeter in order to calculate the current of a resistor. We also learned how to use volts and resistor values previously measured in order to verify our calculations. One more thing that we learned was about how scientific notation works in the engineering world.

Include pictures, Code or links to Code, and links to reference material.

What Will I Work On Next Time?

- Verifying my calculations
- Use more scientific notation
- Get familiar with a multimeter

<8/22/23> <Not a Bot, Soldering>

Today we will sign ourself up for the not a bot newsletter on tech and AI. We will be soldering the motors that we looted from the printers.

Planned Task List:

- Subscribe to Not a Bot newsletter
- Engineering notation practice quiz

Useful Reference Links:

- https://www.notabot.tech/
- Engineering Notation
- Digital Multi Meter (DMM) Introduction - Resistance Is Futile
-
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):

Today in class I worked on soldering two wires onto a battery. Okay so the steps to doing this are pretty interesting. First disconnect the wires from the motor if it is connected and remove any extra wiring on the motor by soldering the part and pulling out the wire using wire clippers. Now clip off the wire in a way that there are open ends of wires. Twist the wires enough so that they are entangled and now you are ready. Make sure to wet the sponge and then take lead and your wire. Put the wire on an octopus holding thing and put the led on one side and the solder on the other. Make sure that the solder is touching the wire not the lead because the lead will be melted instantly. Once you coat the wire with lead do the same with the place you are applying the wire to. In this case you will have to put the lead on one side of the battery and solder on the other. Once both are coated with lead take the wire and solder it onto the other part and keep it there until u see the lead hardening. Once that happens take the solder out and hold the wire firmly making sure it doesn't move much. Now you have soldered it and do the same with the other side. If you clump off the lead using the solder use a solder remover and suck out the hot solder. Once removed u can just repeat the process.











What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<8/23/23> <Love Of Reading, DMM, SVCTE Orientation, Soldering & Printers>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes:

Love of reading

The book that I read talked about the advancements of AI. It explained how the discovery of chat gpt has so many upsides. How AI is able to build off the information imputed and create outputs that are insanely complex but correct.

What Did I Working On Today (Labs, Robot Club, Other Projects):

Describe the steps/challenges you are working on. Make sure you describe how you set up the experiment, how you executed it, and all the materials you needed to do it. Spend time writing your "reflections". Sometimes more important than the actual results, are your thoughts on "why" and "how". Here is where you accurately describe both the success and failures.

If you make mistakes in the data collected, document the mistake and highlight it with a comment, so you don't lose the work. Don't just delete it. Where did you get stuck? A detailed description of issues you got stuck on or did not understand.

Include pictures, Code or links to Code, and links to reference material.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<8/24/23> <AI, Arduino, Udemy, Soldering & Printers>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

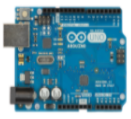
- AI gives woman voice back article
- Get the arduino and use it to move a motor
- Sign up for udemy
- Solder wires together best 4 gets graded
- Finish with the deconstruction of printers

Useful Reference Links:

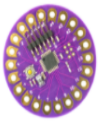
- 2.4.3.6.8 - AI - How AI Gave a Paralyzed Woman Her Voice Back
- Arduino Introduction - Connecting Hardware & Code To The Outside World
- Soldering
- How to Do It: Basic Soldering

Today's Class Notes:

- Microprocessor
  - Needs help from other components to be able to function
    - Contatins
      - CPU
    - Needs DRAM and hard drives
- Aduino
  - Open source
  - Anyone can build their own or edit it
  - Write a program that goes through usb port -
- Types of Aduinos



Arduino Uno



Lilypad Arduino



Arduino Mega



Red board Arduino



Arduino Leonardo

What Did I Working On Today (Labs, Robot Club, Other Projects):

Today in class we read an article on how AI gave voice back to a paralyzed woman.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<8/25/23> <Reflection, Arduino, Udemy, Airplanes, Soldering & Printers>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):

We started off by splitting up the work. I would make a paper airplane that goes the furthest while he makes one that will be the most accurate. The next step for us was to build the launcher. We took a metal rod and used the machine to cut it into two equal rods. From there we took wood and drilled two holes which we would insert the rods and then super glue them so they wouldn't move. .

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<8/29/23> <STEM Magazine, AC/DC Series Circuits, Airplanes, Soldering & Printers>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- How To Solder - Intro/Joining Stranded Wires - Part 1 Links to an external site.
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):

Circuit	Measured R1	Measured R2	Measured RT	Calc R1+R2	Measured Vt	Measured V1	Measured V2	Calc Current	Measured Current
1	322.9 ohms	323.6 ohms	0.646k ohms	646.5 ohms	5.12 V	2.555V	2.560V	7.92 V	**7.78 V**
2	100.3 ohms	.985k ohms	1.086k ohms	1.085.3 ohms	5.14 V	0.463V	4.51 V	5.13 V	**4.973 V**
3	0.514k ohms	0.516k ohms	1.03k ohms	1.037k ohms	5.14 V	2.551 V	2.568 V	5.119 V	**5.08 V**
4	**0.744k ohms**	**0.747k ohms**	**1.492k ohms**	**1.491k ohms**	**5.14 V**	**2.553 V**	**2.559 V**	**5.112 V**	5.11 V

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.

<8/30/23> <Love Of reading, AC/DC Series Circuits, Arduino I/O, Soldering & Printers>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes:

Love of Reading:
Today I read the stem article on how AI can revolutionize the world. Some main takeaways from the article is that they can do repetitive tasks with less mistakes, answer customer support questions, and automate costs.

What Did I Working On Today (Labs, Robot Club, Other Projects):

Describe the steps/challenges you are working on. Make sure you describe how you set up the experiment, how you executed it, and all the materials you needed to do it. Spend time writing your "reflections". Sometimes more important than the actual results, are your thoughts on "why" and "how". Here is where you accurately describe both the success and failures.

If you make mistakes in the data collected, document the mistake and highlight it with a comment, so you don't lose the work. Don't just delete it. Where did you get stuck? A detailed description of issues you got stuck on or did not understand.

Include pictures, Code or links to Code, and links to reference material.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<9/1/23> <Series Circuit, Arduino I/O, Soldering, Planes & Printers>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):

```
const int ledPin = 13;      // LED connected to digital pin 13
const int switchPin = 2;    // Switch button connected to digital pin 2
int switchState112 = 0;         // variable to store the switch state

void setup() {
  pinMode(ledPin, OUTPUT);      // set the LED pin as an output
  pinMode(switchPin, INPUT);    // set the switch pin as an input
}

void loop() {
  switchState112 = digitalRead(switchPin);  // read the state of the switch button

  if (switchState112 == HIGH) {     // if the switch button is pressed
    digitalWrite(ledPin, HIGH); // turn on the LED
  } else {
    digitalWrite(ledPin, LOW);  // turn off the LED
  }
}
```

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<9/7/23> <Catch Up, Soldering, Arduino, 3D Print, and Open Lab>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

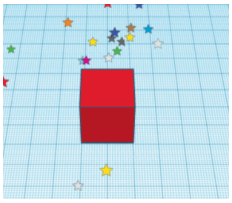
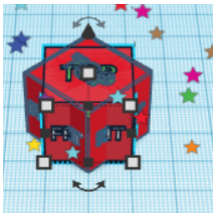
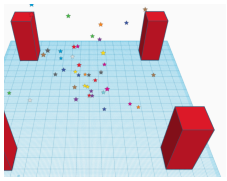
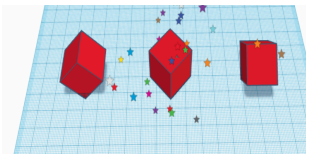
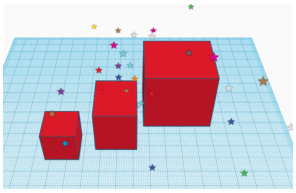
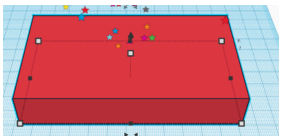
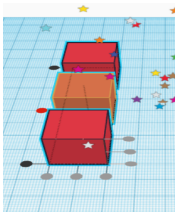
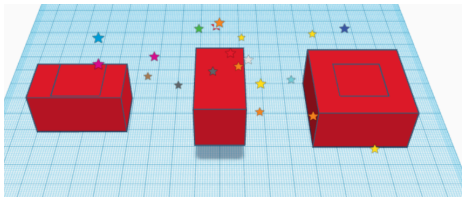
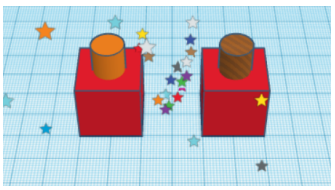
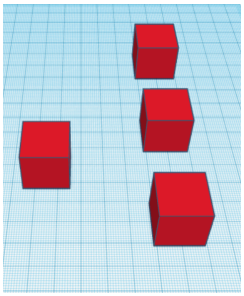
Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):

Today I worked on furthering my knowledge with 3d printing. Some of the exercises that I ran were these 10 steps.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<copy text between these lines>

<9/8/23> <Voltage Dividers - Robot Club/Open Lab>

Write a short paragraph of today's Project Goals…25 words

What Did I Working On Today (Labs, Robot Club, Other Projects):

Circuit	R1	R2	Calc R_1+R_2	Calculated V_T	Calculated I_T	Calculated V_1	Calculated V_2
1	330Ω	680Ω	1010Ω	5V	4.95mili	1.63v	**3.37v**
2	1kΩ	2kΩ	3kΩ	5V	1.67mili	1.67v	**3.34v**
3	680Ω	1000Ω	1680Ω	5V	2.98mili	2.03v	**2.98v**

It = Vt/(R1+R2)
It*r1 = V1

Circuit	R1	R2	Calc R_1+R_2	Calculated V_T	Calculated V_1	Calculated V_2
1	330Ω	680Ω	1010	5.V	1.63	**3.37**
2	1k	2k	3k	5V	1.67	**3.33**
3	680	1k	1680	5V	2.02	**2.98**
4	330	330	660	5V	2.5	**2.5**
5	680	1k	1680	5.14V	2.043	**3.082**

V*(r1/Rt)=v1

Circuit	R1	R2	Calc R_1+R_2	Measured V_T	Measured V_1	Measured V_2
5	680	1k	1680	5.14V	2.043	3.082

<copy text between these lines>

<9/11/23> <Pa$$W0rd, Voltage Dividers, Tools, Arduino, Robot Club/Open Lab>

Write a short paragraph of today's Project Goals…25 words

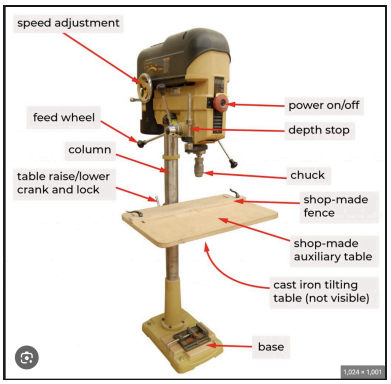
Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes: <enter class lecture notes here>





What Did I Working On Today (Labs, Robot Club, Other Projects):

1. Drill press
2. Picture of tool (Amazon is fine)
3. The drill press is used when cutting through plastic and metal to make a precise incision.
4. The tool is made up of various components : base, table, column, spindle and drill head. The main things you wanna know are how to use the key to safely remove the drill head and how to turn it on and off. To on the drill pull out the red button. There are lasers and light so you know where the drill press is running into. Also always remember to keep fingers away and glasses on.
5. Drill press safety steps
6. Drill press tip Drill press tip pt 2 tik tok

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<copy text between these lines>

<9/27/23> <Title - Daily/Weekly “Blog” Project Title - compelling, descriptive title>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes:

Humidity sensor - gives constant reading of temp around using DHT.h library

What Did I Working On Today (Labs, Robot Club, Other Projects):

Love of reading: Six Easy pieces - Richard P. Feynman

This book taught me how there are two types of physicists. Theoretical and experimental physicists: one that theorizes and one that experiments. I also learned about how a mom realized that giving 28 blocks to their kid will always have 28 come back. This shows that once there it can only be misplaced but not destroyed/removed. She also learned how to do mass and water displacement.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<copy text between these lines>

<10/9/23> <37 Sensors, SkillsUSA, Relays, Explora Vision, Robot Club/Open Lab>

Stay on task and change the material from cardboard to foam board for the airplane.

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- 2.4.1.1 - 2022/11 - STEM Magazine - Nov 2022 - 📖 📝 Reading/Writing Activity - ⛏️ Developing *
-

Today's Class Notes: <enter class lecture notes here>

What Did I Working On Today (Labs, Robot Club, Other Projects):
Read the stem magazine. I learned about three new languages: Go, Swift, and R. Google created Go, Swift for Apple products and similar corporations, and R applied in statistical analysis and machine learning.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<copy text between these lines>

<10/10/23> <SkillsUSA, Explora Vision, Ultra Sonic, Robot Club/Open Lab>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes:

What Did I Working On Today (Labs, Robot Club, Other Projects):

10 possible issues

1. Identity theft
2. Medical bills
3. Switch to electric
4. Pollution
5. More protein vegetarian food
6. Artificial food

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<10/23/21> <Piezo eclectic device >

What Did I Working On Today (Labs, Robot Club, Other Projects):

A piezoelectric device is a device that converts eclectic energy into mechanical energy. This device has various uses including being used as a speaker, pressure plate system, and touch screen. When power is added to the eclectic piezo device it vibrates which can allow it to make sound and it can also be used as a pressure plate/touchscreen. Also if power is added to the crystal and it condenses then it can be used as an electrical charge for things like batteries.

<11/3/23> <AI and Student Monitoring Tools>

What Did I Working On Today (Labs, Robot Club, Other Projects):
This article says that Biden passed the law to fight against tech based discrimination. The reason for this is that students being punished for the use of AI is unacceptable as AI has a lot of learning benefits. It is being used in some schools as facial recognition and adaptive testing to allow students a higher chance at education. One thing when AI tech is being sent to places such as schools it has to go through a various amount of background checks so it doesn't cause harm like the building of nuclear weapons.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min

<11/27/23> <Open AI>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes:

What Did I Working On Today (Labs, Robot Club, Other Projects):
Inside OpenAI, a rift between billionaires and altruistic researchers unravelled over the future of artificial intelligence

Open AI is a widely debated topic in this day and age. Regulations concerning Open AI have grown since the publication of the Chat GPT. Chat GPT is an open-source artificial intelligence platform that uses machine learning to return answers to user inputs. The publication of Chat GPT created a giant public interest in AI and how it can affect our future.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)

<11/30/23> <User input>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes:

What Did I Working On Today (Labs, Robot Club, Other Projects):

```
void setup(){
  Serial.begin(9600);
  while (!Serial);

  Serial.println("what is your first and last name");

  while (Serial.available() == 0){
    //hello
  }

  String userName = Serial.readString();
  Serial.print("hello ");
  Serial.println(userName);
}

void loop(){
}
//asks user to insert name and then responds with hello (user input)
//you can add more strings if you create more while (Serial.available () == 0){} functions
//From there all you have to do is call the string which is string userName = Serial.readString();
```

<Date> <Title - Daily/Weekly “Blog” Project Title - compelling, descriptive title>

Write a short paragraph of today's Project Goals…25 words

Planned Task List:

- List each
- Task you are trying
- To accomplish today

Useful Reference Links:

- List any links related to today's work
-

Today's Class Notes:

What Did I Working On Today (Labs, Robot Club, Other Projects):
Describe the steps/challenges you are working on. Make sure you describe how you set up the experiment, how you executed it, and all the materials you needed to do it. Spend time writing your "reflections". Sometimes more important than the actual results, are your thoughts on "why" and "how". Here is where you accurately describe both the success and failures.

If you make mistakes in the data collected, document the mistake and highlight it with a comment, so you don’t lose the work. Don’t just delete it. Where did you get stuck? A detailed description of issues you got stuck on or did not understand.

Include pictures, Code or links to Code, and links to reference material.

What Will I Work On Next Time?

- (fill this out at the end of class/open lab activity time)
- List your next 2-5 steps or activities.
- This is key!!!
- You need to be thinking about this project as a whole, and break it down into
- small tasks you can complete in 30-60 min