

<b>Name</b>	Adam Bouissoukrane
<b>Grade</b>	Grade Eight
<b>Project Title</b>	Capturing and Converting Lost Heat to Generate Electricity

Date	Information / Data / Accomplishments
January 17, 2024	<p>Today, I decided on this project. In the process, I delved into the topic of pollution and learned about the scientific method. This project has the potential to contribute to the fight against global warming.</p> <p><b>Part 1: Starting my Project</b></p> <p>On this date, I decided my project topic was to harness lost heat and convert it into electricity. I will do this using Seebeck generators and other components. Below is my objective:</p> <p>I will design and create a system (prototype) to convert lost heat into usable electricity/energy. I aim to charge a phone or some similar device.</p> <p>My goal is as follows:</p> <p style="padding-left: 40px;">I will design, develop, create, and test a prototype product that can effectively capture lost heat and convert it into electricity. My objective is to harness the heat or exhaust from devices that emit significant amounts of (wasted) heat into their surroundings, to charge a phone or other electronic devices.</p> <p><b>Part 2: Research and the Problem</b></p> <p>Also on this date, I finished all my research about my project components and problem. See the CYSF platform for more.</p>
January 18, 2024	<p><b>Part 4: Planning My Project:</b></p> <p>On this date, I set out to make my prototype/product. I chose a device that emitted excess heat while operating: a small toaster oven.</p>



The Toaster Oven

I intend to make it so the final product can be used for any wasted heat source. The oven roof was very close to the heating element, making it just the thing I needed.

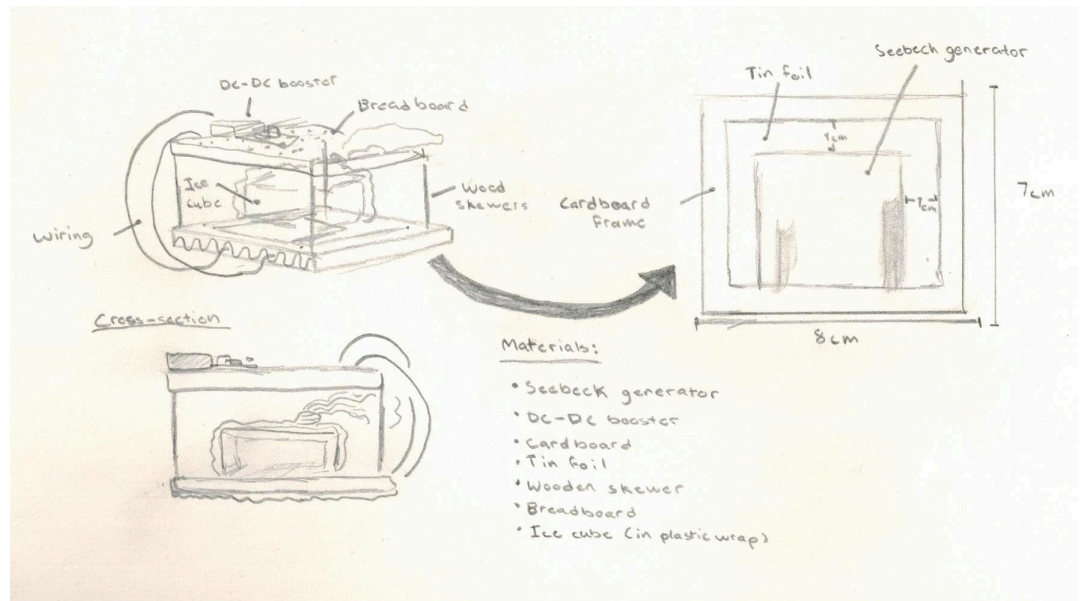
Today, I began to make my project's prototype, and I added the steps on how I made it on the CYSF platform


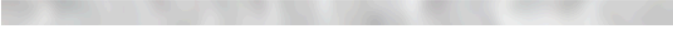


January 19, 2024

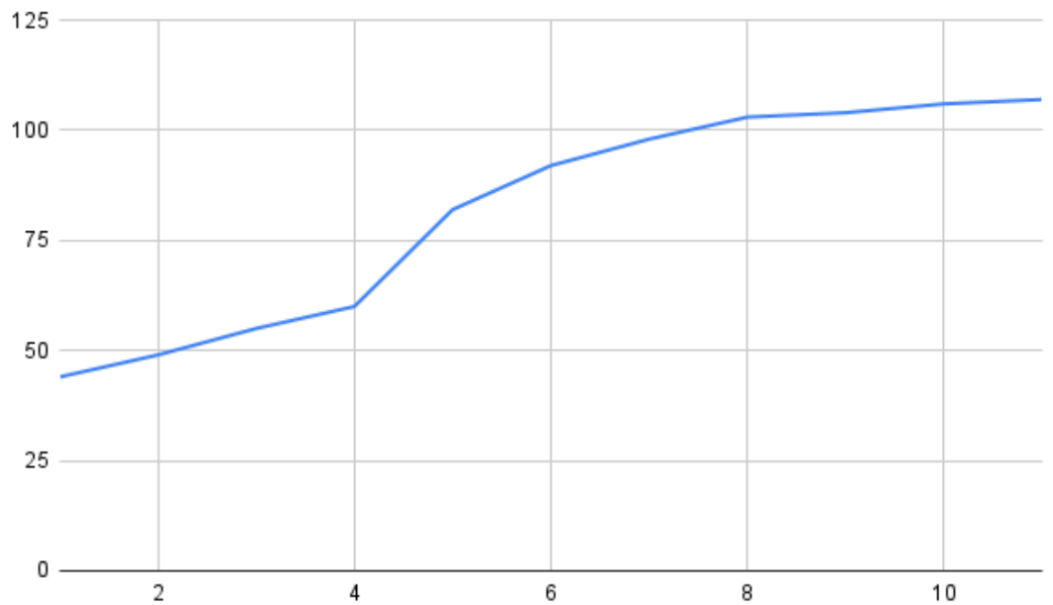
On this date, I tested my prototype to find it did not work. I concluded that it hadn't worked because the generators were not being heated enough (heat was escaping in the gap between the generators and the oven roof). I am now working on a prototype that will conduct heat more efficiently for better results.

January 22, 2024

On this date, I completed my latest prototype's concept/blueprint:



	<p>I also recorded and photographed all the steps to make my innovation on my CYSF platform (in section "Method").</p> <p>I also planned out how I will test out my project. I will measure the temperature of the oven roof, while testing the temperature of the ice, to see what the minimum temperature gradient is need for my project to work.</p>
<p>January 28, 2024</p>	<p>On this date, I purchased measuring instruments for the analysis stage of my project. I want to test how the temperature gradient is related to the energy output.</p> <p> <b>Order placed, thanks.</b></p> <p>Confirmation will be sent to your email.</p> <p><b>Shipping to Adam Bouissoukrane,</b> </p> <hr/> <p><b>Tomorrow, Jan. 29</b> Estimated delivery</p> <div style="display: flex; align-items: center;">   </div> <p><a href="#">Review or edit your recent orders &gt;</a></p> <p>I purchased a USB voltmeter/amp meter to measure the output of my product, and a temperature gun to measure the temperatures I need.</p> <p>My project is nearing its concluding stages, and I am now starting to plan my trifold.</p>
<p>January 29, 2024</p>	<p>On this date, my thermometer arrived from Amazon.</p> <p>I also purchased my trifold today. Now, alongside finishing my project's content as a whole, I am converting my project content into pages I can put straight onto my trifold.</p>
<p>February 2, 2024</p>	<p>I ended up not using the USB Volt/ampmeter as my DC/DC boost controller chip outputted ~5v consistently.</p> <p>Also on this date, I recorded the temperature of the oven over 10 minutes. Here is a graph of my findings:</p>



\*Measurements are approximate

As you might of noticed already, the Y axis is for temperature, while the X axis is for minutes.

I plan on adding a second line for the temperature of the ice while the my product is working. This will help me understand more about the required heat difference for my project.

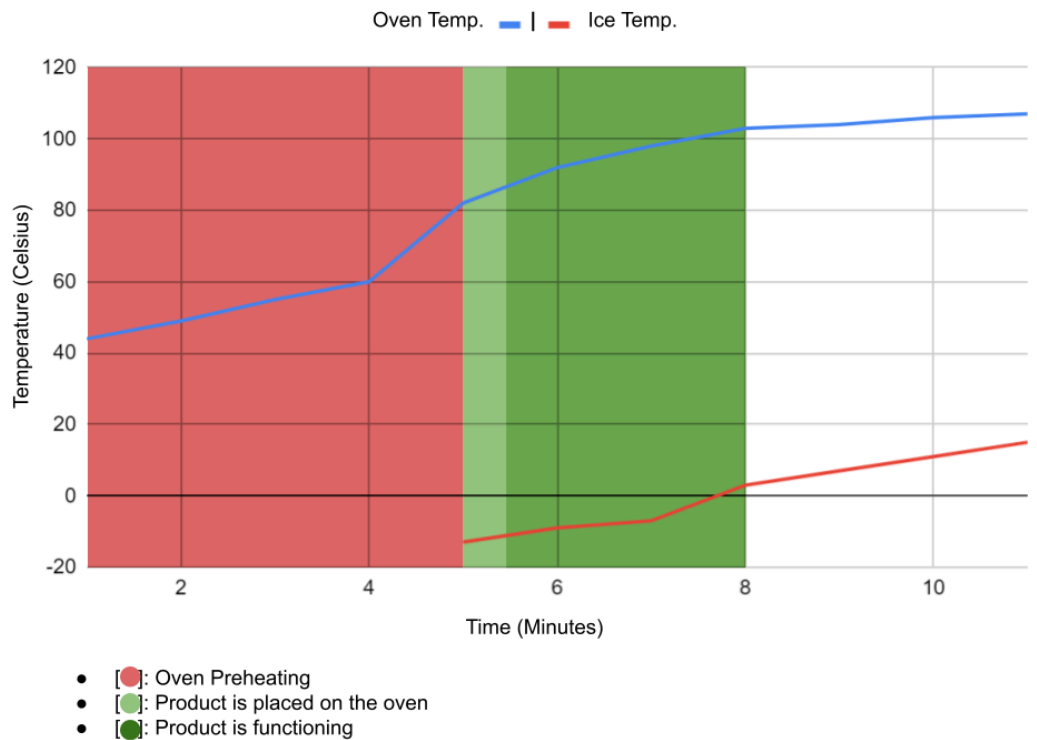
I also learned how to use a non-contact thermometer prior to testing, and found this handy website for emmissivity:

<https://www.flukeprocessinstruments.com/en-us/service-and-support/knowledge-center/infrared-technology/emissivity-metals>

I added the above link to my citations.

February 3, 2024.

On this date, I finished collecting my data.I did this by placing my product on the oven and taking time and temperature measurements every minute for 10 minutes. Here is the completed and labled graph:



From this graph, I deduced that the minimum temperature gradient for my project, being where the 2 lines are closest, is a 100-degree difference (8<sup>th</sup> minute).

I added all this information to my CYSF platform.

I also added information on the concept and working principle of non-contact/infrared thermometers onto my CYSF platform. I also did a bit about emissivity and its impact on temperature readings.

Feb. 4, 2024

Today I received feedback from my teacher, Mrs. Behairy, and polished up my content (grammar and visual fixes).

Feb. 5, 2024

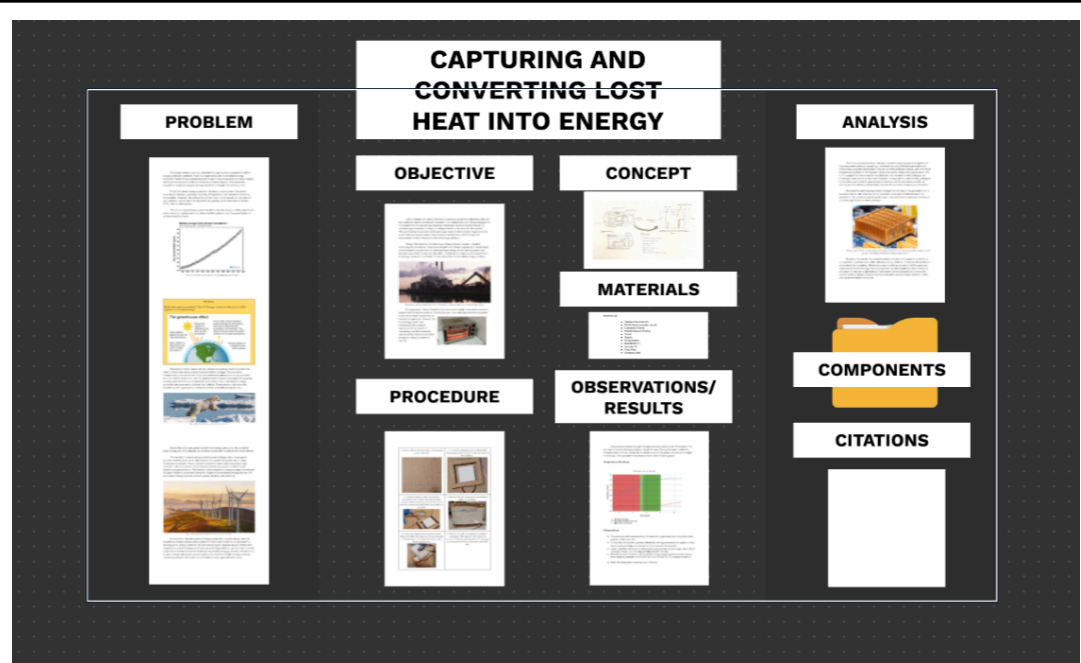
Today, I worked on the first draft of my conclusion. I wrote about how this journey started and how it ended on an optimistic note, hoping that one day this project can inspire others to build upon it or find their own intuitive ways to conquer the world's problems.

Feb. 7, 2024

As I near the project deadline, I am preparing how I will design my trifold.

Feb. 9, 2024

I have completed my project and also created a digital version using Prezi as preparation for my digital presentation.



Feb. 11, 2024

Today I recorded my digital presentation using Microsoft's Clipchamp (see CYSF platform for video). In total, the video came in at 12 minutes, a little over the maximum. I then downloaded it and uploaded it to the CYSF platform.

I also completed all the sections on the CYSF platform.