Project Deliverable E – Project Schedule and Cost

GNG1103

Group 13

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# Introduction

This document will cover aspects relating to the planning of three different types of prototypes. We will go over the anticipated design for our final deliverable with a diagram. The document will discuss the tasks that will be required to be fulfilled if the upcoming deliverables are to be completed, as well as the team member who will be completing each task. Another significant portion of the planning process is a risk analysis in order to discover how to minimize possible downsides of our process. Finally, a cost analysis will be performed in order to plan for financial requirements of the project.

# Design Drawing

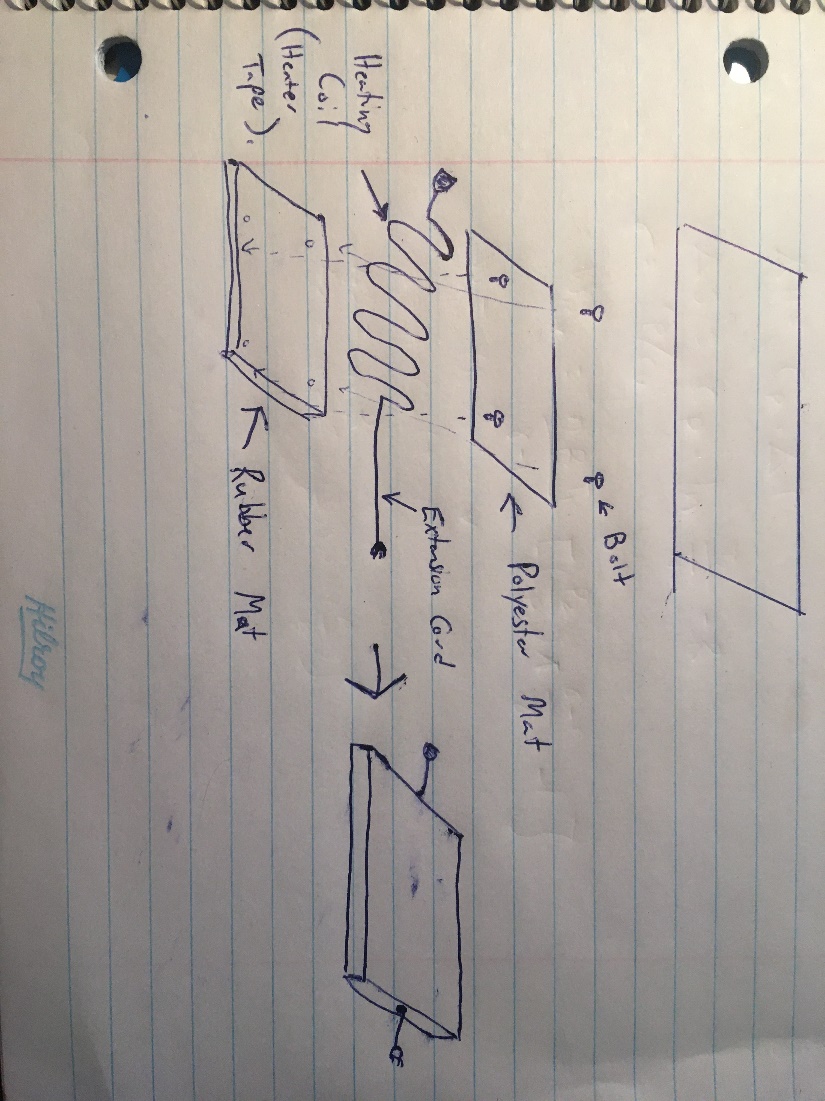


Figure 1 Anticipated Final Design of the modular heated sidewalk

This design encompasses the aspects that the final prototype should have. This includes the materials of the mat that allow for grip and traction selected, polyester and rubber. The design of the heating element and its relative position is also displayed. It is expected that bolts may be used in order to hold the prototype together, and potentially be used on the ground for potential theft prevention. The subsystem that allows for modularity is also present in the plug connection coming out of both ends of the mat.

Plan and Schedule

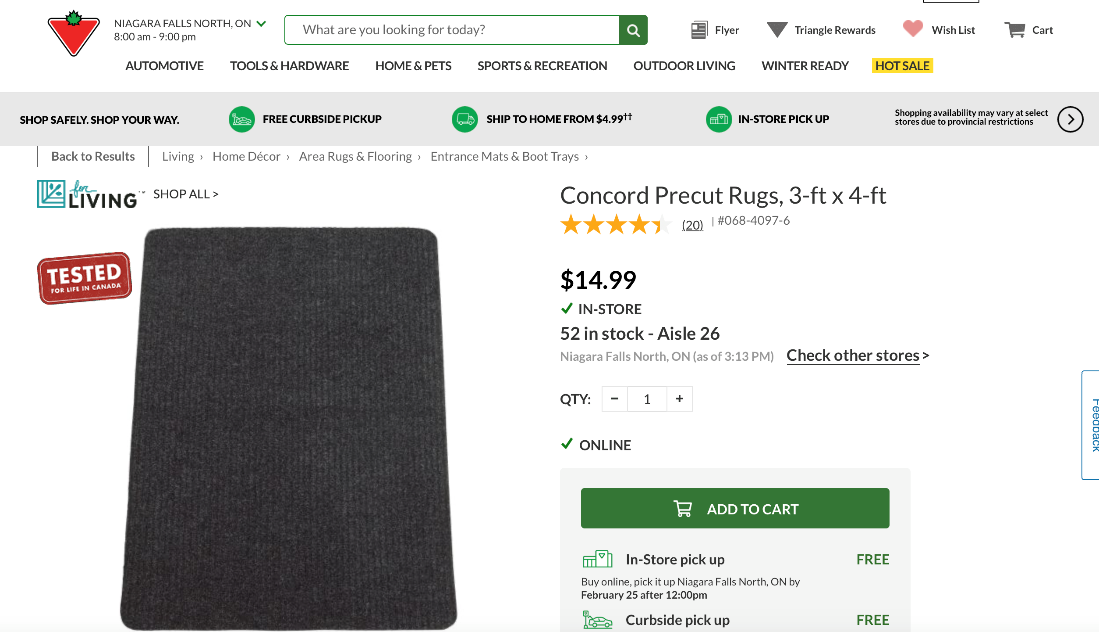
|  |  |  |
| --- | --- | --- |
| Task | Team Member | Due Date |
| First Prototype Construction | Kris | March 7 |
| First Outline Testing Plan | Bobby | March 7 |
| Analysis of Components | Yalin | March 7 |
| Document Feedback | Verina | March 7 |
| Second Prototype Construction | Kris | March 14 |
| Second Outline Testing Plan | Bobby | March 14 |
| Analytical Model | Yalin | March 14 |
| Document Feedback | Verina | March 14 |
| Third Prototype Construction | Kris | March 28 |
| Third Outline Testing Plan | Bobby | March 28 |
| Previous Results Explanation | Yalin | March 28 |
| Document Feedback | Verina | March 28 |

# Risks and Contingencies

|  |  |  |
| --- | --- | --- |
| **Risk** | **Potential Outcome** | **Contingency** |
| Task Duration Uncertainty | Project is not delivered on time or is of lower quality. | Continuously Update Schedule |
| Prototype does not function. | Product delivered is insufficient or will require more work. | Create robust testing plans to ensure optimal functionality. |
| Responsibility Uncertainty | Team members do not do work required of them. | Communicate often and ensure comprehension from all. |
| Unsatisfied Client | Poor client evaluation grade | Document client feedback after every meeting and strive to fulfill requests. |
| Modular sidewalks connected unstable. | People walk on it and get hurt. | Each of the modular pavement are well connected. |
| The electric leakage | The melted snow flows the inside heated system inside cause a safety hazard. | Mat and body part are compact. |
| The cost | It will be too expensive, and the client may refuse it. | Try to use less expensive materials. |

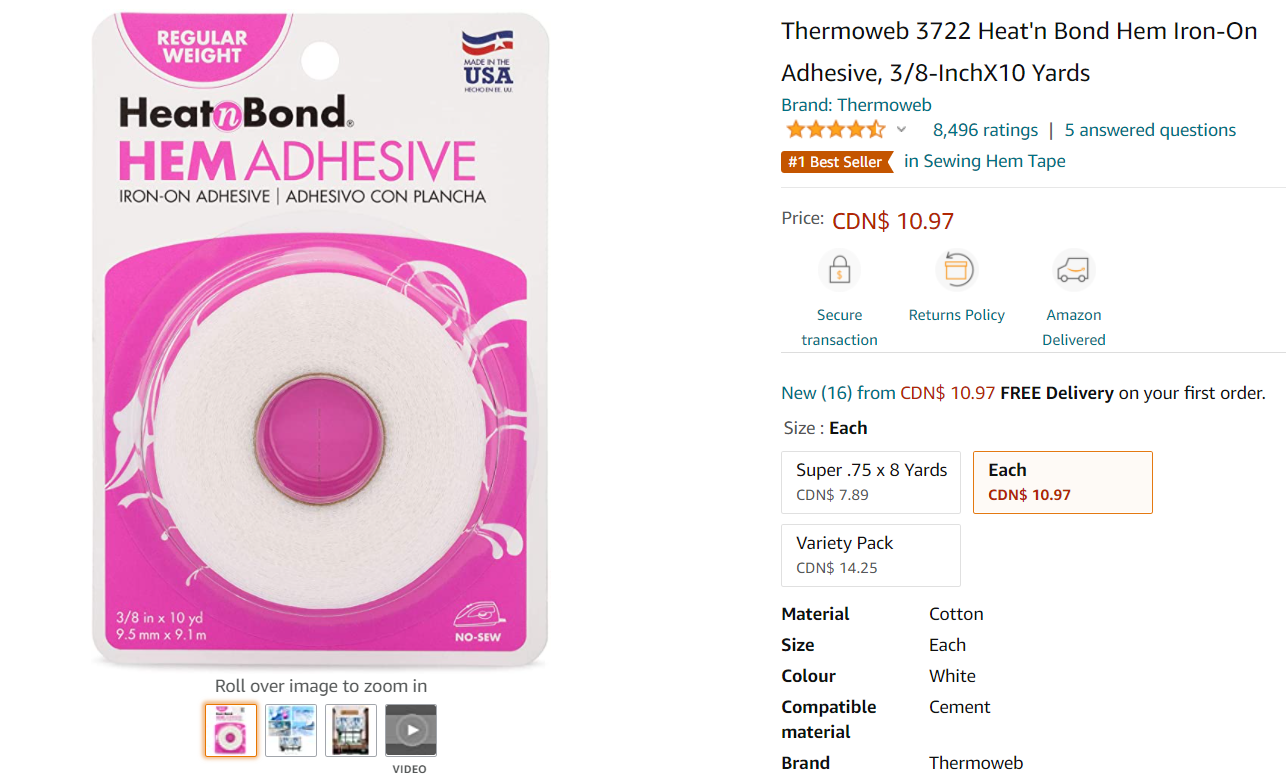
# Cost Estimate

1. Heated sidewalk mat material: $14.99



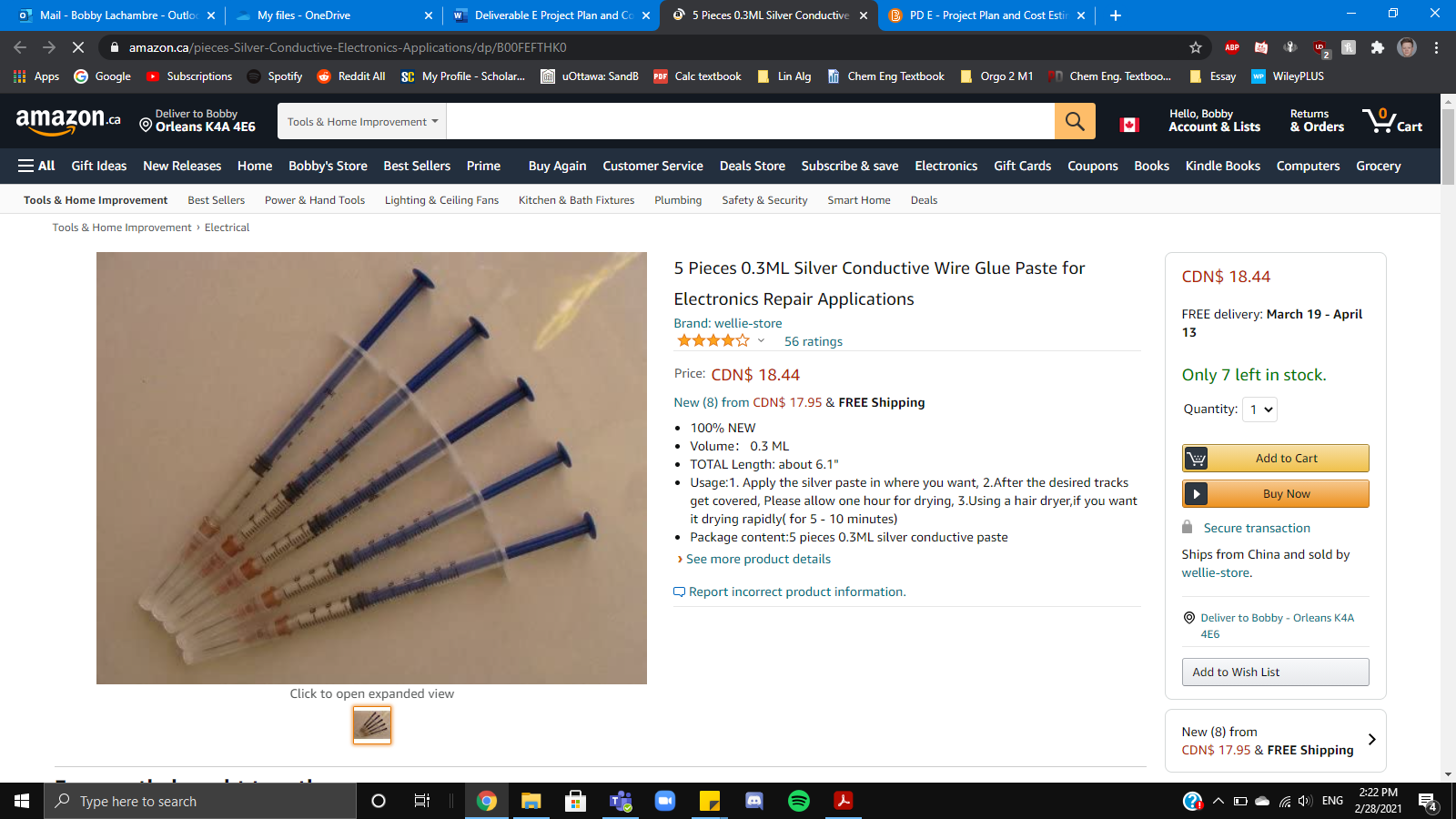
<https://www.canadiantire.ca/en/pdp/concord-precut-rugs-3-ft-x-4-ft-0684097p.html#srp>

1. Adhesive tape: $7.78



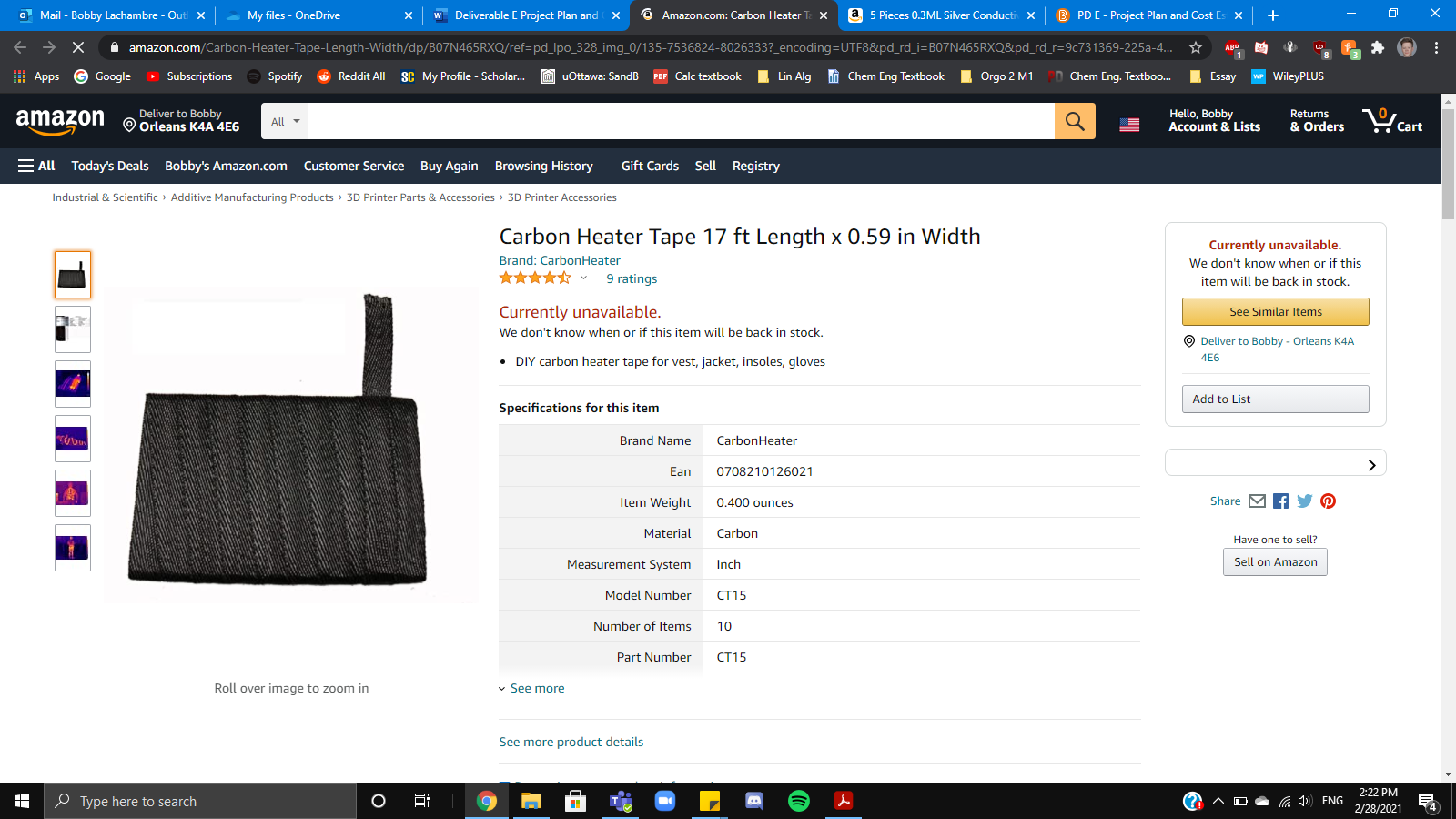
<https://www.amazon.ca/Thermoweb-Heatn-Iron-Adhesive-8-InchX10/dp/B000XZTSYQ?ref_=Oct_s9_apbd_orecs_hd_bw_b7FojCN&pf_rd_r=9708X5HVR8N9WC5W39M3&pf_rd_p=19845daf-7a5c-5b8b-9cbe-edcf4f973906&pf_rd_s=merchandised-search-10&pf_rd_t=BROWSE&pf_rd_i=6646665011>

1. Silver Conductive Wire Glue: $18.44



<https://www.amazon.ca/pieces-Silver-Conductive-Electronics-Applications/dp/B00FEFTHK0>

1. Carbon Heater Tape for 17 ft Length x 0.59 in Width: $45.50

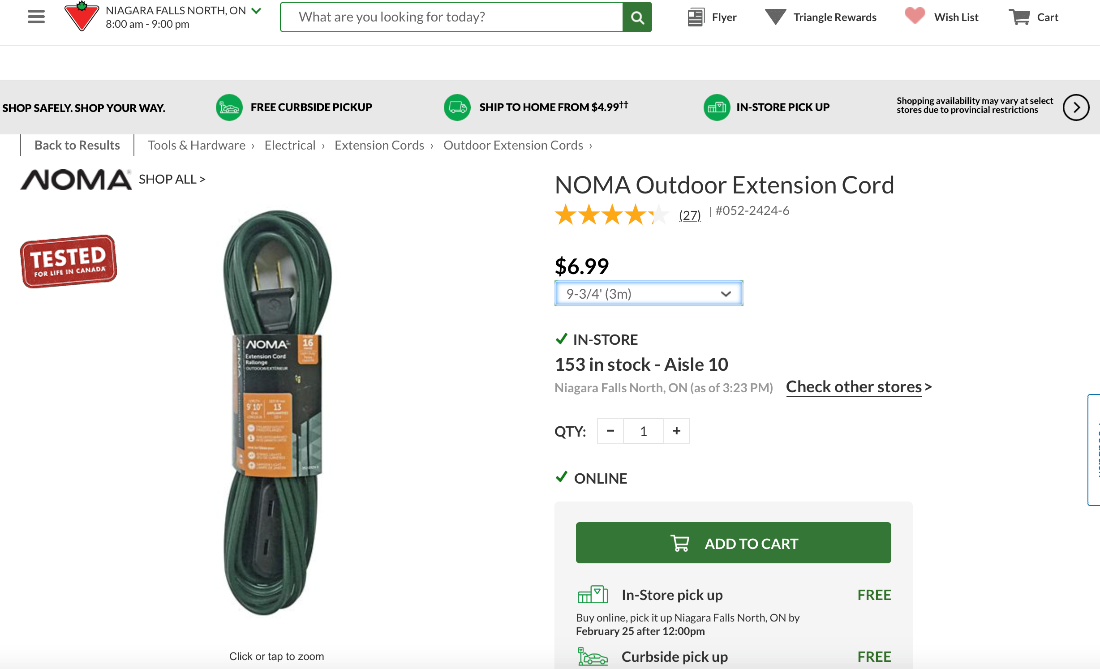


<https://www.amazon.ca/Carbon-Heater-Tape-Length-Width/dp/B07N465RXQ>

or

<https://www.amazon.com/Carbon-Heater-Tape-Length-Width/dp/B07N465RXQ/ref=pd_lpo_328_img_0/135-7536824-8026333?_encoding=UTF8&pd_rd_i=B07N465RXQ&pd_rd_r=9c731369-225a-4a0d-91d1-7b5f4bcb5983&pd_rd_w=Spnhw&pd_rd_wg=LXnk7&pf_rd_p=16b28406-aa34-451d-8a2e-b3930ada000c&pf_rd_r=R8M2QPJ6J01TX2QQ1F0A&psc=1&refRID=R8M2QPJ6J01TX2QQ1F0A>

1. Extension Cord: $6.99



<https://www.canadiantire.ca/en/pdp/noma-outdoor-extension-cord-0522424p.html#srp>

# Calculation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Bill of Materials** |  |  |
| Item Number | Item Description | Quantity | Unit Price | Amount |
| 1 | Heated sidewalk mat material | 1 | $14.99 | $14.99 |
| 2 | Adhesive Tape | 1 | $7.78 | $7.78 |
| 3 | Conductive Wire Glue | 1 | $18.44 | $18.44 |
| 4 | Carbon Heater Tape | 1 | $45.50 | $45.50 |
| 5 | Extension Cord | 1 | $6.99 | $6.99 |
|  |  |  | Total | $93.70 |

## Unit conversion

Mat: 3ft\*4ft=0.9144m\*1.2192m=1.11483648m^2

Adhesive tape: 3/8inch\*10yards=0.9525cm\*73.5cm

Silver Conductive Wire Glue: 15ml

Carbon Heater Tape: 17ft\*0.59inch=5.1816m\*1.4986cm

Extension cord: 3m length

Detailed size

Because the shape of heat distribution over required surface area is coil. we set the horizontal cord length is 40cm, 6 length as total. And there are 5 gaps between each horizontal cord is 10cm. The left cord is 10 cm, which contains turning point and connected consumption.

The top area covers all the cord, the wide is 44cm (both sides to cover the cord with 2cm), the length is 58cm (providing space for top and bottom to connect with another device). We put glue and tape as dots, which save the material that we have and prevent them lack of.

# Conclusion

This project plan covers our previous concept design, with reference to each material online. The total cost estimate satisfies the budget. More robust prototypes will continue to be built in the future using the tasks and schedule outlined in this document. The group will move forward with the project development keeping in mind the potential risks that were outlined and implementing the contingencies we have identified.

Wrike:

