

Deliverable E : Project Plan and Cost Estimate

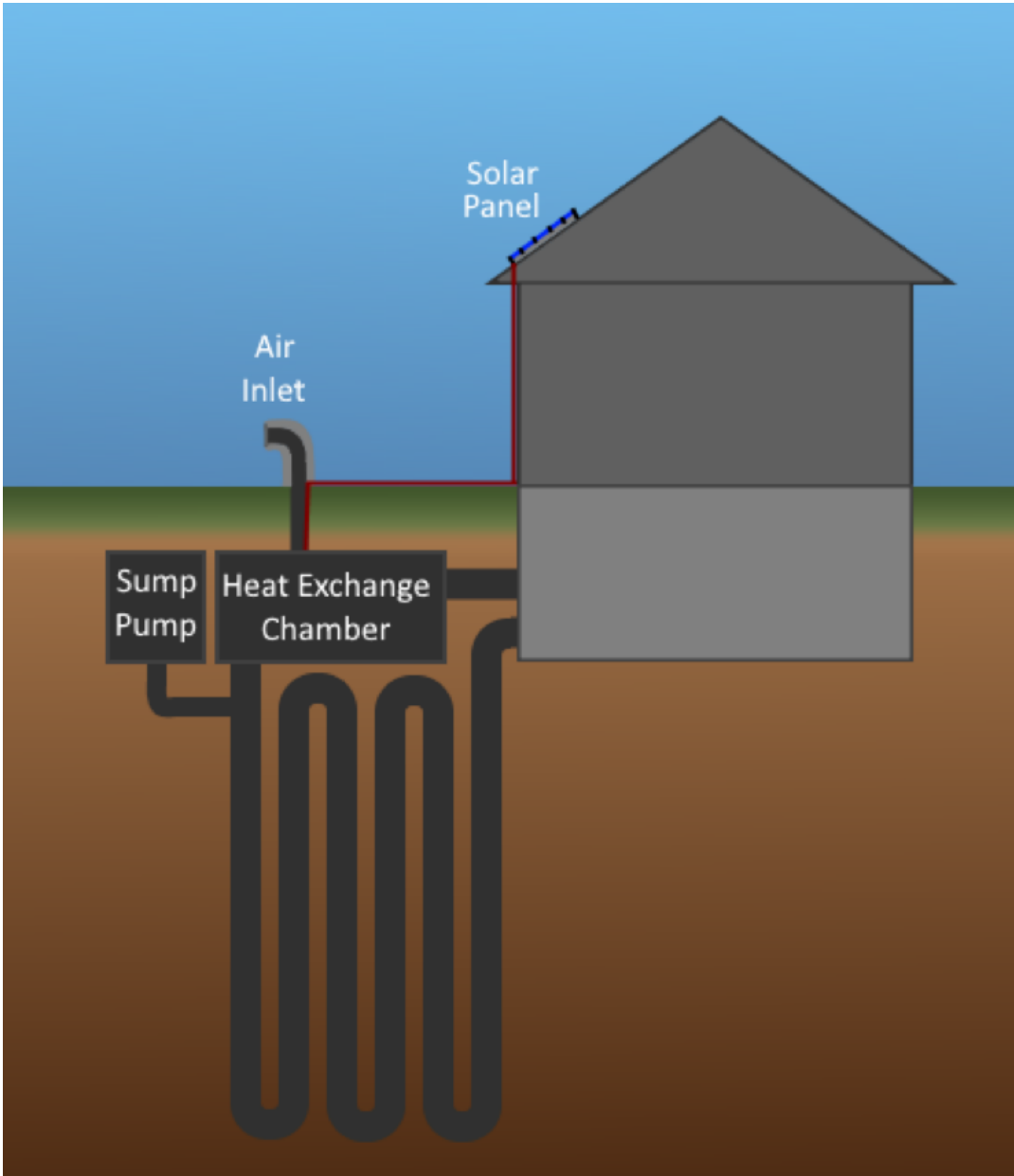
By

Group 3.1

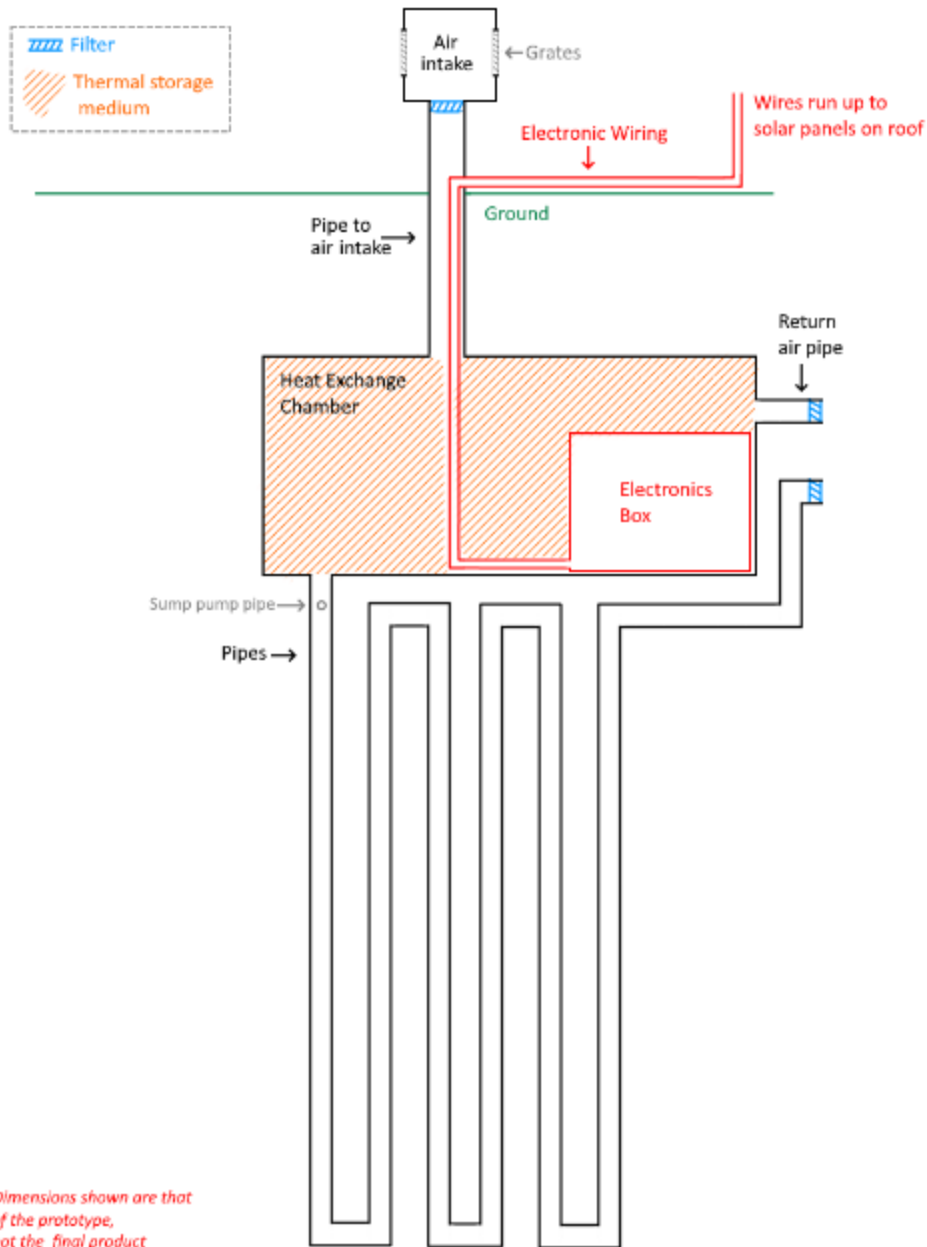
Introduction:

This document contains the bill of material that is going to be used to create our group's prototypes. The cost of our materials at the moment is lower than the budget, this is because we could run into problems sourcing some materials. Therefore this budget is subject to change during the prototyping stage of our project. All changes to the Bill of materials will be brought to the TA's attention.

Design Drawing:

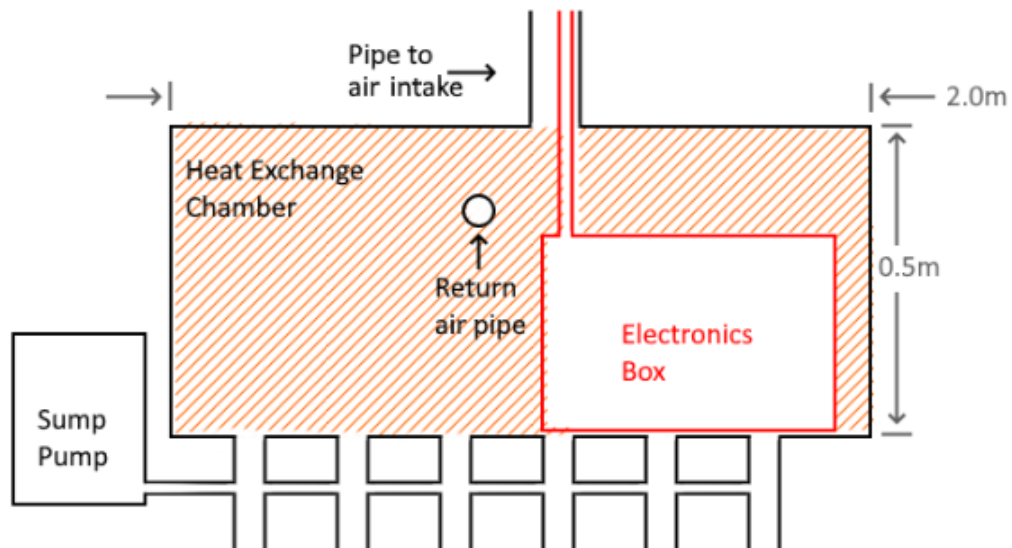


Side view



**Dimensions shown are that of the prototype, not the final product*
**Objects depicted are not to scale*

Front view of HEC



**Dimensions shown are that of the prototype, not the final product*
**Objects depicted are not to scale*

Bill of Materials:

[+](#) Bill of Materials

<https://docs.google.com/spreadsheets/d/1bFdFrYfN0vyP3FZnwodpeyKOGMXFbWpmUW0L-UXL06A/edit?usp=sharing>

List of equipment:

- Screw drivers
- Impact driver
- Screws
- 3D printer
- Hammer
- Soldering iron
- Drill
- Measuring tape
- Level

Significant Project Risks and measures:

	Risk	Measures
Battery (Sulfuric acid leakage)	<ul style="list-style-type: none">● Corrosive damage to skin● Fire hazard● Burns to eyes, nose and throat.	<ul style="list-style-type: none">● If body contact, rinse with plenty of water for at least 15 minutes. Remove contaminated clothing, including shoes. Seek immediate medical attention● If sulfuric acid gets into the eyes Immediately open your eyelids and rinse with plenty of water for at least 20 minutes. Seek medical attention immediately.● If inhaling sulfuric acid, move immediately to fresh air outside. If breathing stops, immediately perform artificial respiration. Seek medical attention immediately

Battery(Burning)	<ul style="list-style-type: none"> ● Burns ● Inhalation of hazardous substances ● Fire hazard 	<ul style="list-style-type: none"> ● Cut off power immediately. Wear acid-resistant clothing, gloves, eye protection and face protection. Use appropriate media to extinguish the fire. ● In the event of a serious fire, immediately call the fire alarm.
Material/Component acquisition.	<ul style="list-style-type: none"> ● Unable to purchase the desired component at the desired price due to circumstance. ● Store ran out of stock. ● Price changes. ● Component taken off store. ● Shipping problems. 	<ul style="list-style-type: none"> ● Attempt to find alternative sources for components. ● Find an available alternative component. ● Redesign prototype to exclude component (worst case scenario)
Prototype assembly.	<ul style="list-style-type: none"> ● Buying all your parts and finding that they don't fit together properly. ● Producing a dangerous design that could harm the user. ● Complex wire connections require expertise and are dangerous. 	<ul style="list-style-type: none"> ● Make sure to confirm the size before buying the material. ● Test the product before completing the final design. ● To ensure that the power is off.

Stopping Criteria:

1. Any damage, harm or mistreatment to materials and/or parts while working during the production process
2. Any harm, injury and/or mistreatment to team members while working during the production process
3. Simulations should not be performed if these costs outweigh the potential savings of changing the current system
4. Any damage, harm or mistreatment to equipments and/or tools while working during the production process
5. The production process causing the increased potential for hazardous dangers and/or risks affecting team members

6. Prevention and/or protection resources not working properly to prevent members from hazards and/or risks during the production process

Prototyping plan:

- Build the first prototype according to the design the group chooses.
- Discuss the prototype with the group and make necessary changes.
 - All team members must agree on changes.
- Discuss the prototype with the client.
 - Make sure that the changes the client wants are made
- Develop a design for the second prototype.