

Deliverable B

Potential social and environmental benefits and costs

- Socially it allows the client to interact with the environment by allowing them to open and close their window so that they can feel the breeze of the wind.
- The product will be inclusive to people with various degrees of disability as well as people who just want to have an automatic window opener (use the smart phone, voice controlled).
- Since the product does not require many raw materials or machine work, it would not have a huge impact on the environment since if it was built in a factory, it would produce more pollution.
- Not having a lot of material would also lower the overall cost of the product, meaning that it can be sold cheaper, this would make our product more accessible to a variety of customers.
- The product will be powered via plugged into the wall, this will remove the need for batteries and thus reducing the waste on the environment. This solution is also more reliable since it would be hard to change the batteries often if they end up dying.
- Needs to be foolproof, allotting the ability to manually open the window without prior knowledge. The ability to be opened manually will allow for the system to be protected from damage. This will be expanded upon later in the document.

Chat gpt prompt: "In our engineering design class, we need to develop a mechanism that can open and close a window from an app so our client, who is disabled, can open and close it by themselves. We need help with this question is our deliverable:

Sustainability report

Mixture of chatGPT points and my own ideas.

Our window opener and closer allows those with mobility disabilities to independently open and close windows in their home. This will have a positive social impact because the device will give the user more freedom by giving them extra control of their environment. Users will be able to control their environment in many ways. Such as the noise level, temperature, and fresh air. Being able to control these three variables without the need for a caregiver can greatly improve the quality of life of someone incapable of opening a window. Another positive social impact is that the caregiver will be able to focus on other tasks to help the care receiver.

There are also notable economic impacts to consider. Firstly, the device won't be free and many people with mobility disabilities may not be in a financial position to purchase and install a device. We are also currently unaware of the maintenance schedule and fees required to keep the device operational. But they could be deciding factors for lower income individuals. On the other hand, creating a product and a company creating this device will create jobs and purchase products from other companies which will all help the economy.

Design for X

1.) Manual function, being able to open the window without the app so that people who come over can also open and close it even if they do not have the app on their device.

2.) It can open automatically; the client wants to be able to open the window hands free which means that the window will have to be able to open with a motor or a device. As well as we can adjust the distance that the window opens.

3.) Use an app to open and close the window, the client also wanted to have a dedicated app for the function of the window so that it is simple and easy to use. This is so they cannot have a remote in their room where they could lose and that all their smart devices are central on their phone.

4.) Durable and reliable, we must make sure that the product does not break quickly and that the elements cannot affect the function of the product. This is so that it can last as long as possible so that the client does not need to get a new one after a few months or a year.

5.) Works with blinds, the client has blinds in their room that go over the top of the window in a vertical motion so the mechanism would have to not be in the way of the blinds closing all the way. This is so that the client has a nice dark room at night and does not have to worry about sunlight coming in when they do not want it.

Business Model Canvas

Key Partners

We will need to partner with suppliers, this is how we can acquire the raw material that will be needed to assemble the window opener.

We need to partner with advertising companies to market the product to the public. This can be done through social media influencers, or advertising companies.

It would be ideal to partner with a window manufacturer, this would also be the best advertising if they sold it with windows or had it in their stores.

Key Activities

Quality control testing on the products before selling them. This will help ensure the best product for our customers.

Constantly researching and having an R&D sector to be constantly updating and producing new and better window openers for our customers.

Key Resources

We need to have a factory this would allow the assembly of the window openers and the storage of the materials.

A truck that would allow us to deliver the window openers either to retail shops or right to our customers' doors.

We need workers that can build the window openers as well as take customer calls/ return emails. They will also operate our social media page this will help with advertising/marketing.

Value Proposition

This business offers an alternative to manually open and close a window.

It will help disabled people that can physically open a window.

It will allow our customers to have more interaction with the environment by allowing fresh air into the room and to hear the animals outside.

People will love this product for the fact it will make the act of manually opening and closing a window a thing of the past. The customer can also set the ideal temperature that they want the room to stay at, if it is getting too cold the window will close. The window can be set on a timer that will close it at 10pm if you forget to close it.

Customer Relationships Channels

Customers will hear about this product through our advertising and/or word of mouth from other customers who love the product. We want our customers to enjoy the product and for them to want all their windows to be automated.

We want to be available for questions the customers may have. We will have a social media page and phone numbers they can call to ask questions.

Customer Segments

The company is creating value for people that have limited movement or can't open a window. It allows them the freedom and independence to open their own window. Our customers won't need to call someone or struggle to open the window to allow that fresh breeze in. With just a click of a button it is done for them.

Our window opener and closer is targeted towards people with disabilities however it can be used by anyone, even a child, if necessary.

Channels

The product will be delivered by truck from our factory. This will deliver the window openers right to our customers' doors or to a retail store. As well as the product can be shipped for longer distances.

Triple Bottom

Cost Structure

	Variable	Fixed	Direct	Indirect
Material Costs				
Overhead costs				
Electricity				
Salaries				
Rent				

Revenue Streams

This business will make most of its money through direct customer sales. It will also make money by selling to retail stores. It will also be discussed about licensing the window opener design to other manufacturers for a set price.

The business will set its prices-based research. We will find the optimum value to maximize our profit for each sale. We will see what the going price of the average window opener is and then match it.

As well as that we will have investors that will contribute money.

Social & Environmental Cost

The biggest environmental cost would be producing the raw materials used to assemble the window openers.

It can cause the customer to be dependent on technology, this will reduce their desire to manually open the window.

If it is not installed correctly, it could cause harm to the user. It will need to be maintained correctly as well.

The window opener will require energy, which will impact the environment and the electrical grid.

The disposal of the window opener when it is done being used will end up in the landfill, contributing to the pollution.

Social and Environmental Benefit

The window opener will allow our customers to interact with the environment by letting them have the window open, allowing the breeze and to hear the outside animals.

This will allow our customers to feel independent and not rely on someone to open or close a window for them. They will feel more self-sufficient, increasing their self-esteem.

It provides convince for the customer, just click a button and the window is open or closed.

Having the window open will help reduce the amount of energy from an air conditioner, by allowing cold air from outside into the room.