

## Deliverable H: Prototype III and Customer Feedback

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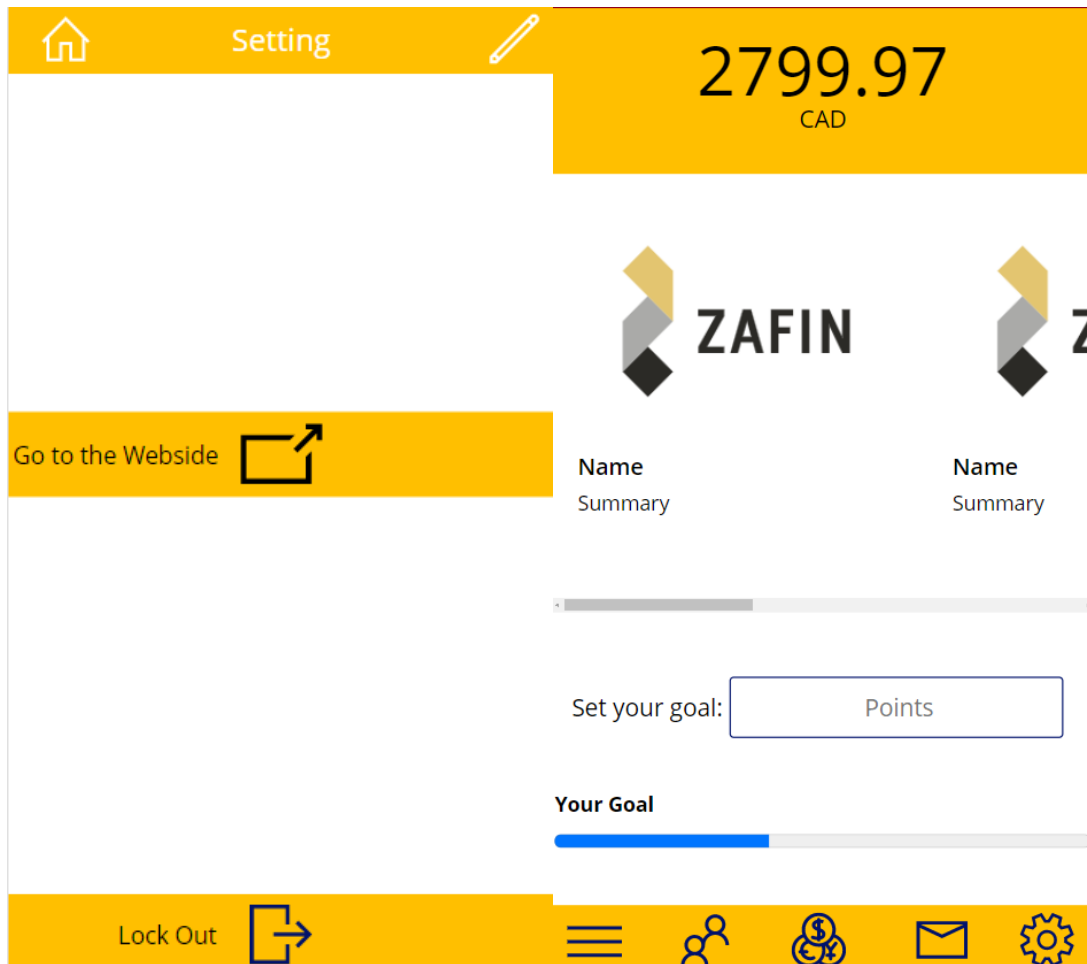
## Introduction

This document demonstrates how much progress we have made throughout the semester in the development of the solution to the problem presented to us by Zafin. Despite the many challenges we have faced, we have finally arrived at a third, high-fidelity prototype which is close to the prototype we will be presenting on Design Day. In addition to documentation and the polishing of the subsystems we have created, we have now integrated many of them to make a high-functioning app using Microsoft Power Apps. Even though we were unable to make a fully functioning website to go along with the app, this app accomplishes the goals that we set out to achieve. Through this app, we have an answer to the problem statement we created many months ago: *We need a novel, horizontal approach to loyalty rewards that is safe, adaptable, and diverse. This program should target financial institutions and allow for a broad range of cross-business and business-to-customer connections.*

## Prototype III

### App

<https://apps.powerapps.com/play/f60200e9-5a49-4dae-b587-544fdaed2ecd?tenantId=d41fdab1-7e15-4cfd-b5fa-7200e54deb6b>



Username: Admit

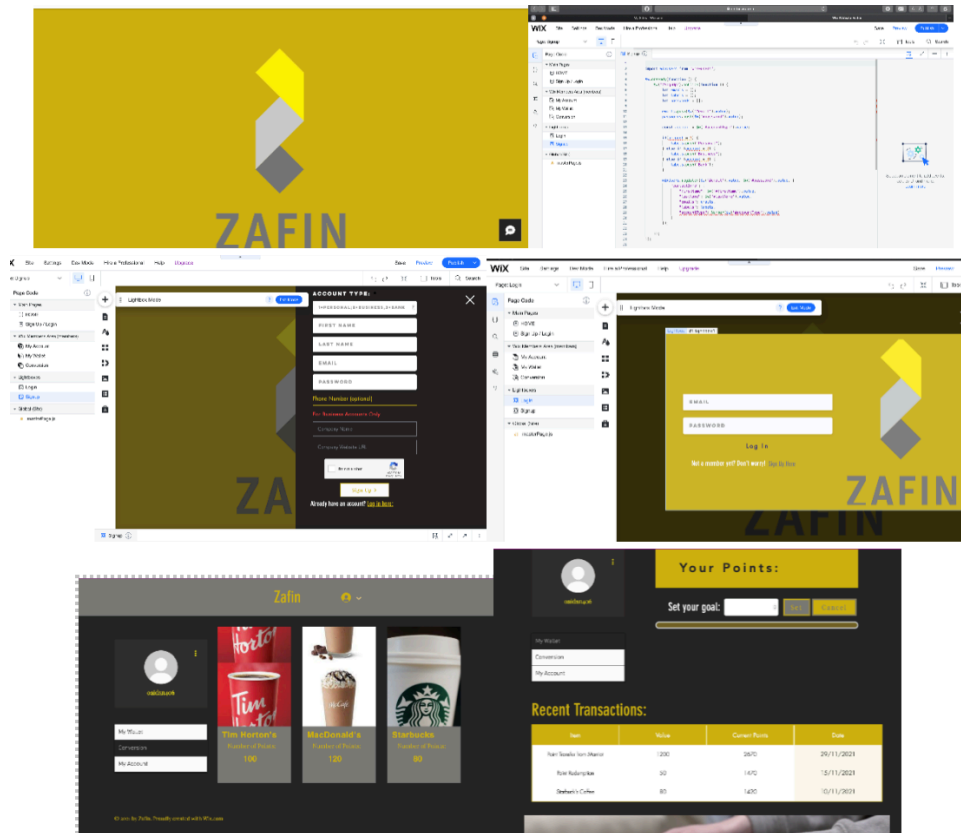
Password: 123

In prototype III, the app is successfully connected to the 'Wallet System,' and this connection does not limit the application of the app and the 'Wallet System,' now the app can use to transfer points to the SharePoint with no delay and errors. However, the progress bar is still unfixed which led to the "set your goal" feature needing to turn down, unfortunately. Since the command "value" cannot put another function into it and can't change the command "max" with changing values. In addition, the lockout function was added to the app in the setting Screen.

```
"<font size=""5""><b>Your Goal</font></b><progress
value=""100"" ,max=""250"" style=""width:100%;height:40px""></progress>"
```

[Website](https://aonei075.wixsite.com/zafinpoints)

<https://aonei075.wixsite.com/zafinpoints>



I was using Wix, but then I was not able to figure out how to integrate it with our Power App. Then, I got a free trial to a personal account for Microsoft Power Platform in order to make a Portal that would easily be able to integrate with the power app, but I was unable to share the SharePoint lists and the app with an account outside of the uOttawa organization. Now, I have decided to make a nice representation of what the website would look like using the same Wix account that I had before. This is the same as prototype I... I will be doing some work to make it more presentable for design day even though it may not look like it by the time that I handed this prototype in.

## Conversion

Transactions History	
Enter Amount of Points to Redeem	
Transactions	Total
	30000
100	29900
200	29700
300	29400
250	29150
50	29100
80	29020
40	28980

There is now a feature in the app where users are able to input the amount of points they want to redeem, which will then show up in their transaction history and be deducted from their total amount of points, then displaying their new total.

Air Miles Conversion ☆		Investment Value ☆	
Points ▾	Air Miles Point Value ▾	Points ▾	Investment Value ▾
7000	95.89	6000	55.55555555555556

CAD Value ☆	
Points ▾	CAD Value ▾
3000	\$30.00
4000	\$40.00
5000	\$50.00
2000	\$20.00

The total points are able to be converted to CAD, investments, transfers, and changed from company A to company B. These functions are now integrated within the Power App. Users are now able to input a value into their desired conversion feature and that value will be calculated and displayed instantly on the app screen. This feature currently works for CAD value, investments, and Air Miles point conversion.

## Wallet

Points are registered in a SharePoint file named “wallet.” Any point transaction into and out of our system occurs here. The prototype is now fully functional, so there not much analysis is needed.

## Point Transfer

Point transfer occurs from one wallet (SharePoint file) to another. This is an important feature, as it gives the service the service more options for features that can be provided. The transfer feature has not been successfully implemented into the prototype yet. This is because of the limitations of Power Automate, specifically the triggers available and how Power Automate calls items, although some triggers still need to be tested. A more in-depth understanding of the coding options is being looked in to so this feature can be implemented. Using excel as an intermediate is another potential solution.

## Prototyping Test Plan, Analysis and Results

### Prototype III Test Plan

<b>Test Objective (Why)</b>	<b>Description of Prototype used and of Basic Test Method (What)</b>	<b>Description of Results to be Recorded and how these results will be used (How)</b>	<b>Estimated Test duration and planned start date (When)</b>
<b>Interface</b>			
Functional Website using Microsoft Power Apps Portal	The testing method will be creating an account, redeeming, and adding points to the wallet, making 3 separate conversions, setting a goal, and transferring points to another account	The measurements will be if adjustments made on the site remain even upon leaving, how long it takes for updates in data, making sure all the buttons work, etc.	<b>Thursday, November 18.</b>  Test Duration: 2 days
Combined website and app	The test method will be to follow a process similar to that of the above criterion in either the app or the website, and making sure that it updates on the other	The measurements will be accuracy of data transfer, time it takes for “the other” to update	<b>Sunday, November 21.</b>  Test Duration: 2 days
<b>Conversion</b>			

Adding and Deleting Rows	Using PowerApps to create a flow between the SharePoint list and the wallet. When a value is added into the SharePoint list, that same value will be deleted from the wallet.	Observe that after inputting a value in the SharePoint list, the same value is deleted from the wallet. Test this 3 times with different values to make sure that the flow from PowerApps is consistent.	<b>Saturday, November 13.</b>  Test Duration: 5 days
Multiple Tabs for Different Conversion Options for Points	On the Home page of the app, create three different tabs; Redeem, Transfers and Invest.  This will help better organize the different conversion options instead of grouping them together under one tab	Observe the conversion of the same points into the 3 different tabs. Check if the transaction is saved onto the wallet.  Redeemed points should be removed from the user's total points	<b>Monday, November 15.</b>  Test Duration: 2 days
<b>Wallet</b>			
Bug Testing	Using prototype II, editing SharePoint data in Power Apps requires more testing	Add, remove, and edit existing data in Power Apps and check if it updates in SharePoint	<b>Saturday, November 13</b>  Test Duration: 1 Day
Transfer Testing	Using the app, input the values on the conversion pages and see if it will change the SharePoint. (wallet)	Observe the result and data it. If anything comes out that was not expected, will refresh the page again.	<b>Tuesday November 16.</b>  Test Duration: 1 Day

### Prototype III Results

Subsystems	Results
App	The app is functional, the point can transfer through the wallet system, and now the app has added a lockout button for the sake of the users who want to use multiple accounts. In addition, we also added the shortcut for



	the user that wants to go to the website in the setting Screen, lowering the risk of the user getting fraud in the wrong website. More, the conversion was to connect the app.
Website	I ran into issues once again with the integration of the app and the SharePoint lists into the website. This was because I was unable to share the app and SharePoint lists with an account outside of the uOttawa organization. I will now be polishing the Wix site to give a good presentation on Design Day.
Conversion	<p>The total points are able to be converted to CAD, investments, transfers, and changed from company A to company B. These functions are now integrated within the Power App. Users are now able to input a value into their desired conversion feature and that value will be calculated and displayed instantly on the app screen. This feature currently works for CAD value, investments, and Air Miles point conversion.</p> <p>There is now a feature in the app where users are able to input the amount of points they want to redeem, which will then show up in their transaction history and be deducted from their total amount of points, then displaying their new total.</p>
Wallet - Transfer System	<p>The SharePoint list can now be fully edited within Power Apps. New rows can now be created, and Power Apps correctly navigates to the new row tab. Existing rows can also now be edited.</p> <p>- Transfer System</p> <p>The transfer system is still not functional. The flows through Power Automate were failing, so I spent some time bug fixing. These flows cannot freely transfer points yet, even now that they work, so they still require some work.</p>

### Prototype III Analysis

Subsystems	Analysis
App	The app is connected to the website in the setting screen. Also, create a lockout button for the user experience. However, the progress bar is the biggest challenge building this app, and I am still trying to find a way to solve it. But with the interface it will look good on design Day.
Website Layout and Coding	I was unable to advance my prototype further up to this point as a result of technical difficulties, so I will instead discuss the analysis of the issues that I had and solutions to them. The most significant problem I've had is my lack of knowledge and experience in the field of software/coding. Despite the plethora of resources that exist to learn coding, I was faced with a lot of time constraints (due to other classes), and many of the videos necessary to learn the coding were quite long.

	<p>This was an issue while using Wix because you need to be able to use JavaScript to create personalized forms as well as to create the functions that are necessary for our project (convert, redeem, transfer, etc.) and to be able to integrate the power app. This was an issue with Power Portals because I am unknowledgeable about the Dataverse.</p> <p>The biggest thing that would help with this issue would be to have more time. Given that that can't happen, I will be working to polish the Wix site, and if possible, I will at least create a window in which you can see an embedded app. It may be possible to do this through Power BI, but I'm not entirely sure if this will work.</p>
Conversion Coding	<p>There is now a feature in the app where users are able to input the amount of points they want to redeem, which will then show up in their transaction history and be deducted from their total amount of points, then displaying their new total. The value that is added gets transferred to a SharePoint list where it will keep track of the transactions, then the value gets added onto a new row in an excel sheet by the use of Flows. Within the excel, the value gets deducted from the total amount of points and a new points total is displayed. This updated table from the excel sheet is then displayed onto the app, where users are able to see their transactions history, along with their new total amount of points.</p> <p>With the new conversions feature, when users add in their desired value and choose how they would like it to be converted, that value gets added onto a SharePoint list. That value then gets transferred onto an excel sheet, replacing the old value to the new one. The formula implemented for the specific conversion would that be applied to it, the new value then gets displayed onto the app screen through the excel table. This feature is currently able to work for CAD value, investment, and Air Miles point conversion.</p> <p>From the previous prototypes, the next step was to integrate the working parts of the conversions into the functional app. Now with the final prototype, all the working conversions are fully integrated within the app, which users are able to now use. The SharePoint list issue with no being able to interact with other columns now has a solution around it. Excel sheets are used, by taking the values from the SharePoint list and then doing the calculations within the excel sheet, and then displaying the new calculated value onto the app screen.</p>
Wallet Coding	<p>Minor bug fixes have made the wallet system smoother.</p> <p>The ability to transfer points between wallets is functional but not in a presentable way, yet. The trigger for the transfer to occur needs to be</p>

	more refined, and the flow needs to be able to copy existing point amounts, not only create new ones.
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## Prototype III Feedback and Comments

Subsystems	Feedback
App	N/A
Website	I have not gotten much feedback on the Wix site since the first prototype, with the exception that I showed it to my siblings and some of my friends and they said that it looked nice.
Conversion	Now that the conversions are integrated within the functional app, users are able to actually see their conversions function instantaneously without having to only see the values in the SharePoint list or excel sheet. For further development, there should be more options for how users can convert their points. (ex. Adding more businesses)
Wallet	Since the integration of the wallet with the app, most feedback has been positive. It is much easier to use now due to properly labelled buttons.

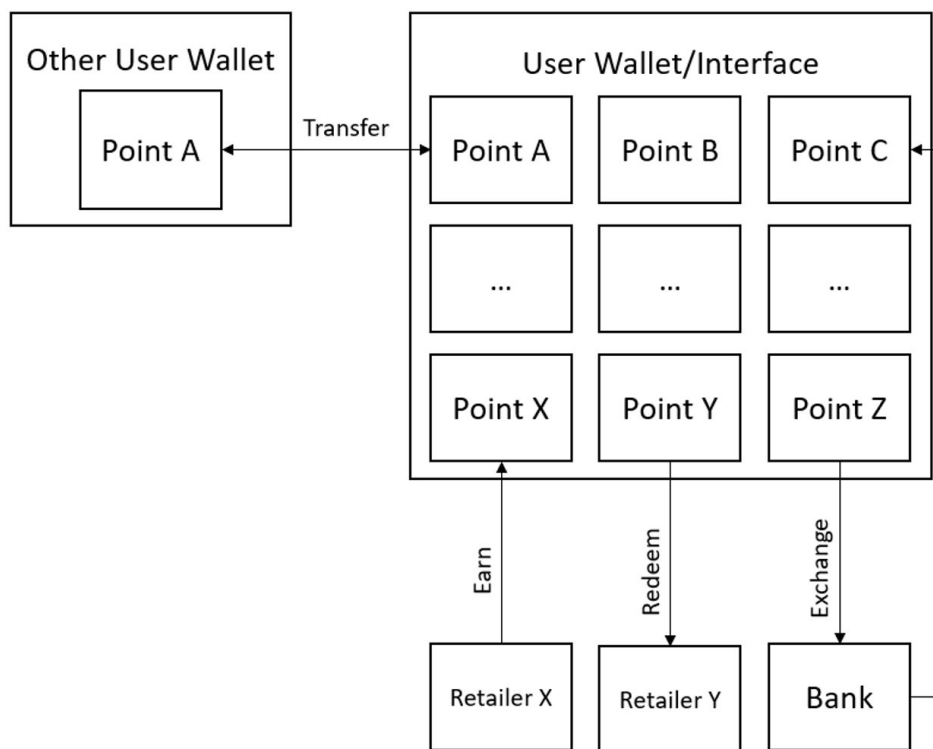
## Target Specifications, Detailed Design, and BOM

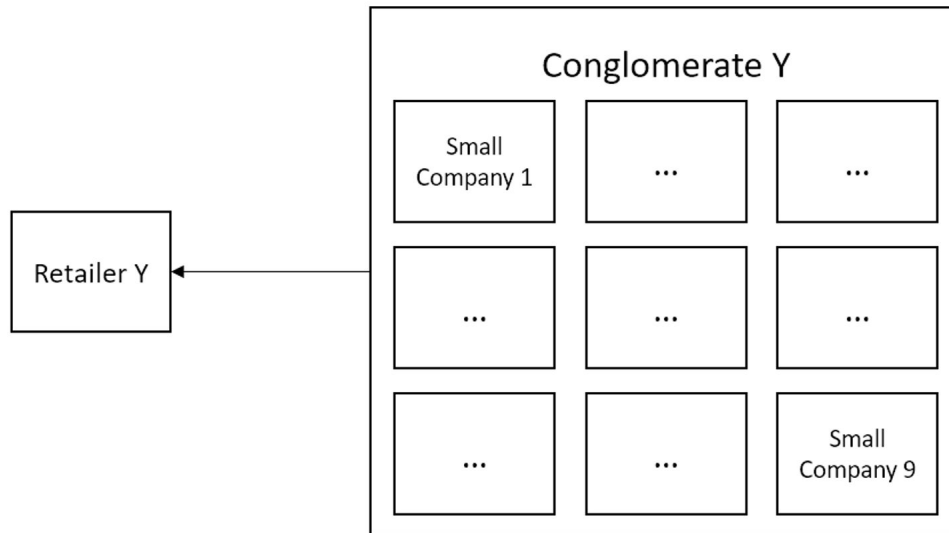
### Prototype III Target Specifications

Speci ficati on No.	Specification	Priority	Specifics	Implementation
1	<b>Horizontal transfer of points</b>	Point transferability	Allowing points to move and be used easily.	Centralized interface which supports many kinds of users (banks, businesses, consumers). Provides a place where points can be transferred, redeemed, used, and converted all in one platform.
2	<b>Democratization of the point system</b>	Inclusion of smaller businesses	The inclusion of smaller businesses and more freedom to bank clients	The app and website level the playing field by allowing smaller businesses to make accounts and offers, advertise, etc. By making this centralized platform, users will also have greater

				diversity in using their points.
3	<b>A general and adaptable product</b>	Allow data to be moved in and out of the wallet from multiple locations; locations that can be specified in Power Apps rather than in SharePoint lists and Power Automate	The product is meant to be sold to different banks and must be adaptable to their needs.	Create flows that are nonspecific to wallets, and allows outside wallets to be added within the app (make the data transfer location specifiable in app, rather than coding a new flow). Transfer of points allows services such as credit card payments, investment payments and trading to occur.

### Prototype III Detailed Design





### Prototype III Bill of Materials

Project	Inventory Name	Priority	Vulnerabilities	Task	Cost/ month (CAD)with tax
Prototype 3	Power Apps	Secondary	Can only be edited by one person at a time	Building app & Building website	\$0.00
Prototype 3	Share Point	Primary	Cannot make any function and handle large database	Auto Database Act as a wallet	\$0.00
Prototype 3	Microsoft	Primary	Will have to be linked to a personal account	Portal (website)	\$20.00 (per month) \$0.00 Free Trial for one month

### Conclusion

All in all, we have had quite a bit of success in the implementation of the subsystems and concepts that we came up with in the earlier stages of the development of this project. We were able to add a lot of functionality to the app that we created, we enforced our strengths and improved upon our weaknesses, and we ultimately had very little conflict throughout the semester. Although this is not a perfect product (mostly due to time constraints), we have developed something well worth presenting, and we have learned a lot in the process that will be useful in our future careers. The product documented here in Deliverable H will likely not be the final product presented during Design Day. We have each given a few points concerning the progress of our individual subsystems, as well as what we will be doing to make sure that they are ready for Design Day:

The wallet is now fully integrated with the app, with the app functioning as UI to the SharePoint list database. The bugs from prototype II have been fixed, and data can be fully accessed from within Power Apps.

The point transfer system is presentable, but not functional in the way we envision it yet. There are still options for fixing the system that haven't been explored fully yet, and we aim to investigate and implement them before design day.

The website has been particularly challenging not only due to the lack of knowledge and experience on my part but also because of things that were out of my hands such: as not having authorization to make a Power Apps portal, having to wait for uOttawa IT to get back to me, not being able to share access to documents and apps in the uOttawa environment outside of the organization, and being unable to fully integrate Wix with SharePoint due to licensing issues. Although this is frustrating and a little discouraging, it has taught an important lesson about the process of engineering design. Moving forward, I will be polishing my Wix site in order to give the best presentation possible, and if I can, I will try to add at least a little bit of functionality to it.

The app is functional, meeting the problem statement requirement, the Wallet system is successfully connected with the app and now the wallet system can work in the app which means it can transfer points to SharePoint which is the wallet system.

Users are now able to input amounts of their points to be converted to CAD value, investments, and converted from company A to company B. These functions are now integrated within the Power App. This feature currently works for CAD value, investments, and Air Miles point conversion. There is now a feature in the app where users are able to input the amount of points they want to redeem, which will then show up in their transaction history and be deducted from their total amount of points, then displaying their new total. From the previous prototypes, the next step was to integrate the working parts of the conversions into the functional app. Now with the final prototype, all the working conversions are fully integrated within the app, which users are able to now use. The SharePoint list issue with no being able to interact with other columns now has a solution around it. Excel sheets are used, by taking the values from the SharePoint list and then doing the calculations within the excel sheet, and then displaying the new calculated value onto the app screen.

# Wrike Update

## ! Deliverable H – Prototype 3 & Customer Feedback

☆ 👤 📡 🔗 ⋮ ✕

Project 4 +

☐ In Progress ▾

AC

EL

JA

AO

YB

+

#772026231 by Ethan L. on 12 Oct

📅 Milestone 25 Nov

🕒 Approvals

▶ 0:00

🔗 7 subtasks

📎 Attach files

🔗 Add dependency

👤 8

>

☒

YB

Prototype 3

18 Nov

Completed

☒

AL

Gather Client Feedback

24 Dec

Completed

☒

YB

Update target specifications, detailed design, and BOM

25 Dec

Completed

>

☒

AL

Careful Documentation

25 Nov

Completed

☒

AL

Testing (with stopping criteria)

23 Nov

Completed

☒

AL

Introduction

Completed

☒

AL

Conclusion

Completed

+

Add task ▾

## Deliverable I – Design Showcase Presentation

☆ 👤 📡 🔗 ⋮ ✕

Project 4 +

☐ In Progress ▾

AC

YB

AO

EL

JA

+

#772026234 by Ethan L. on 12 Oct

📅 Milestone 1 Dec

🕒 Approvals

▶ 0:00

🔗 5 subtasks

📎 Attach files

🔗 Add dependency

👤 8

☐

YO

So what?

New

☐

YB

Who cares?

New

☐

AL

Why you?

New

☐

AL

Why now?

New

☐

EL

Product demo

New

+

Add task ▾