UNIVERSITY OF WESTMINSTER

INFORMATICS INSTITUTE OF TECHNOLOGY

5COSC025C.1
Human Computer Interaction and User Experience

Coursework 2 Report – High Fidelity Prototype

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Links to Website-Prototype:
https://www.figma.com/file/vSKUx5SYIVPW0O2sRAwgnu/COURSEWORK-2?type=design&node-id=0%3A1&mode=design&t=doDQOqeaT0jWNSRY-1

URL to Video:
https://drive.google.com/file/d/1YAt6ynS6ZzLRiL2tpunAFyaggktEaPPm/view?usp=drive_link

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1. Discuss the high-fidelity prototype.

1.1 Functionality of the Manual Input Feature.

For the development of the high fidelity prototype I choose the manual input feature. This high-fidelity prototype features a user-friendly manual screen where users can easily enter their current and past meter readings using specified kWh fields. The procedure is guided by clear instructions, which reduces mistakes. The app predicts the current month's energy consumption based on the measured unit readings and shows it prominently alongside a colorful graph comparing usage with prior months using a generated AI model.

This high-fidelity prototype's manual screen prioritizes clarity and ease of use, taking customers through a straightforward data entering procedure to accurately anticipate their energy expenses. It has a pleasant UI with large letters, clean symbols, and simple labelling. Users are guided through each stage of the process, with visual indications and helpful instructions assuring precise meter reading input. To avoid confusion, I separated input areas for whole numbers and provided detailed directions for verifying unit accuracy. After completion, the software provides a forecasted cost for the current month, along with helpful visualizations such as graphs and charts.

1.2 Aspects and Principles used to Develop the High-Fidelity prototype.

Graphics that take advantage of principles of good visual design can drive engagement and increase usability. So, when I designed my high-fidelity prototype, I used some aspects and principles.

There are 5 visual design principles in UX. Scale, Visual Hierarchy, Balance, Contrast and Gestalt Principles are those 5 principles. Here’s a brief explanation of those 5 principles.

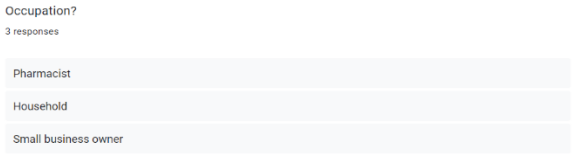
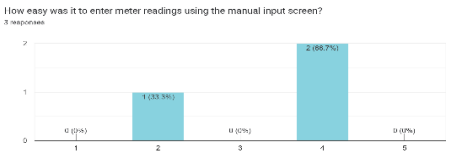
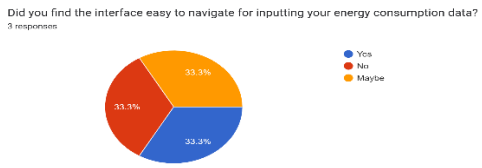
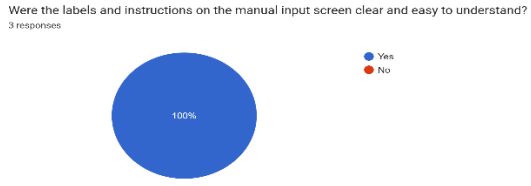
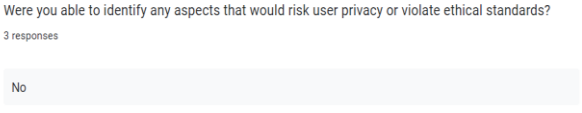
Scale refers to the different sizes of elements within the design. It could influence users' attention and emphasize the importance of information. Balance refers to the signal importance and distribution of visual elements within a design to create equilibrium. Contrast means different visual elements which highlight differences. Visual Hierarchy involves organizing and presenting

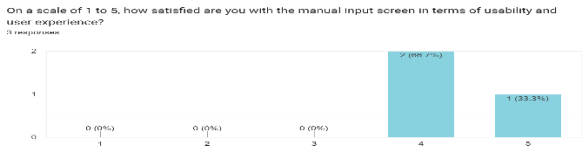
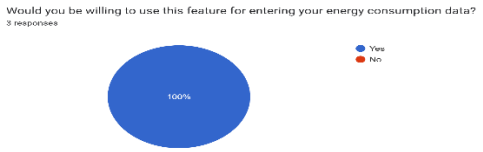
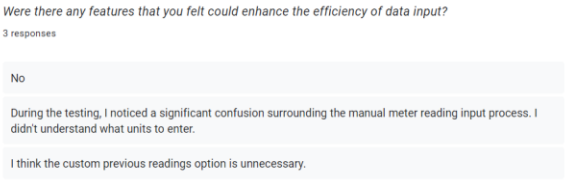
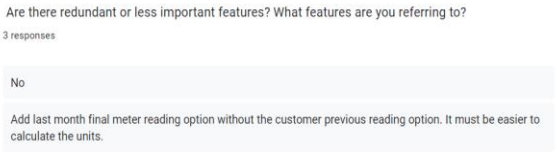
elements to guide users through design. Gestalt principles describe how people perceive and organize visual information. Proximity, Similarity, Continuity, Closure, Figure ground relationships, Uniform Connectedness are the most relevant to interface design.

Using these principles creates a well-structured, engaging design that not only attracts users' attention but also gives a fulfilling and delightful user experience.

2. Evaluation of the proposed solution/system.

Before making the high-fidelity prototype, I made a questionnaire and asked 3 people to respond to that questionnaire by testing the low fidelity prototype and clarifying the issues they faced in the low fidelity prototype. I have added the screenshots of this questionnaire to appendix A.

Question	Analysis
	Got responses from 3 people who have diverse occupations. It's always good to observe how different points of view may affect design and functioning of the apps.
	Results show that respondents gave mixed ideas about the reading enter method. So, I must consider the improvement of the manual reading input method.
	Respondents gave mixed ideas for this too. So, I must consider about this too when designing the high-fidelity prototype.
	All the respondents think that the instructions are easy to understand in the manual input screen. So, no need to change the instructions.
	Results show that the respondents don't think there's any risks like user privacy or violation of ethical standards.

	According to the results respondents must get almost good usability and user experience. But I must consider about this some more.
	Results show that this feature is useful to enter energy consumption data.
	A respondent noticed a confusion surrounding the manual meter reading input process. He didn't understand what units to enter. So, I need to consider this and must put some more instructions to understand this easily. And another respondent thinks the custom previous readings option is unnecessary. So, will have to consider this and remove that option if it is unnecessary.
	A respondent says that add, last month final meter reading option without the customer previous reading option. It must be easier to calculate the units. I also think that way is easier. So, this feature must have to refine.

By evaluating the questionnaire results I changed the previous meter reading entering method by adding an option called last month's final reading date and meter value. So, it is easier for both the user and the developer to understand and calculate the units.

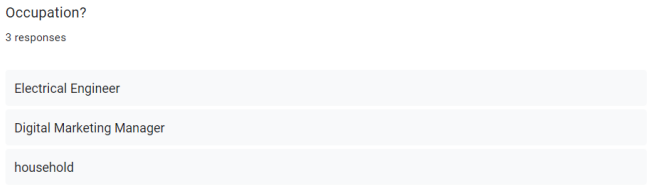
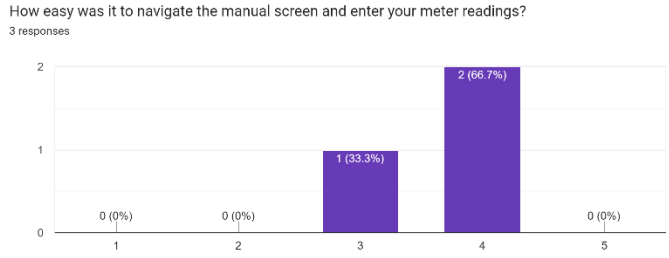
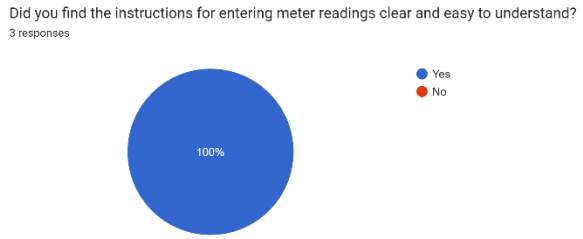
A respondent noticed a confusion surrounding the manual meter reading input process. He didn't understand what units to enter. So, I specifically add the standard unit(kWh) so, users can easily enter the reading by looking at the electrical meter at home.

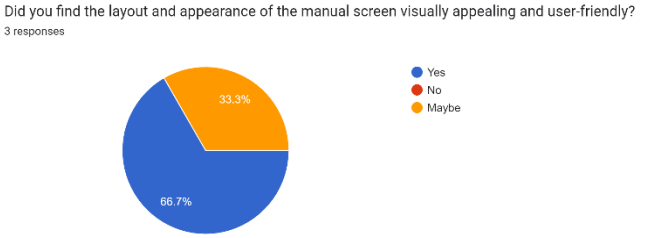
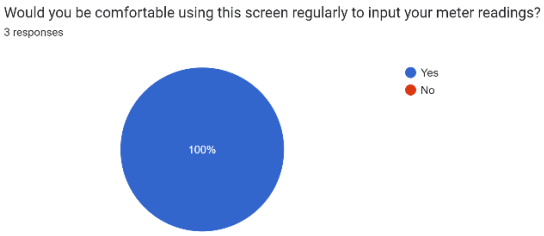
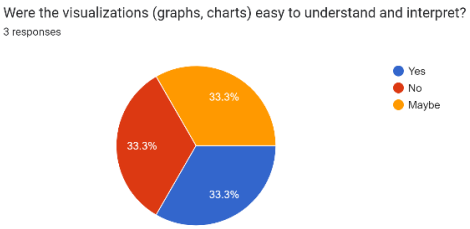
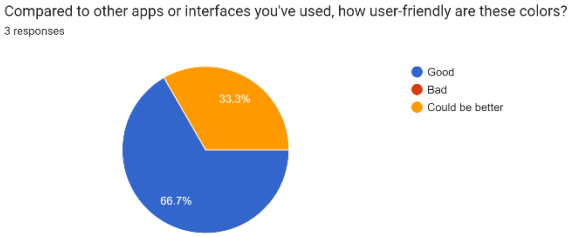
After the evaluation I removed the custom previous reading option. It is unnecessary and makes the app more complex and gives a bad user interface.

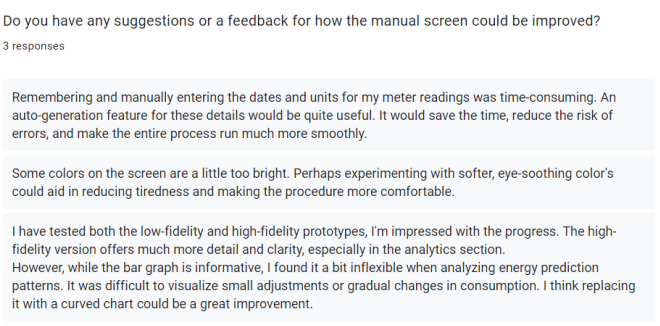
Finally, I think I must consider more about the simplicity of this application to give users a better user experience.

3. Analysis of the user feedback

After making the high fidelity also, I made a questionnaire and sent it to 3 people including one who participated in the low fidelity prototype questionnaire too. Here's the analyzation and the evaluation of the user feedback and discussion of how the prototype should be refined in the future. I have added the screenshots of this questionnaire to appendix B.

Question	Analysis
	The 3 respondents who participated in this survey were in different fields by their occupation. It is a good point where we can see the different viewpoints of people who work in different fields.
	The overall results show it is somewhat easy to navigate the manual screen and enter the manual readings. But we must consider about this more because I got neutral feedback on this.
	Respondents think the instructions given for meter readings are clear and understandable. So, no need to refine this feature.

	According to the results 2 of the respondents think the layout and the appearance of the manual screen visually appealing and user friendly and one respondent responds as maybe. So, we need to consider more about this and make this screen more user friendly in the future.
	Results show that all 3 of the respondents think that this feature is comfortable to use regularly.
	The 3 respondents gave 3 responses to this question. According to the results, it must be better to consider about the prediction graph and remake it.
	Seems like this interface is user friendly and someone says it could be better. So, I must consider this in the future to give a better product.

	Respondents gave me some suggestions to improve the manual screen. I will discuss about these ideas below.

According to the feedback given by the respondents I choose they have given me some suggestions to improve the manual input feature in the future.

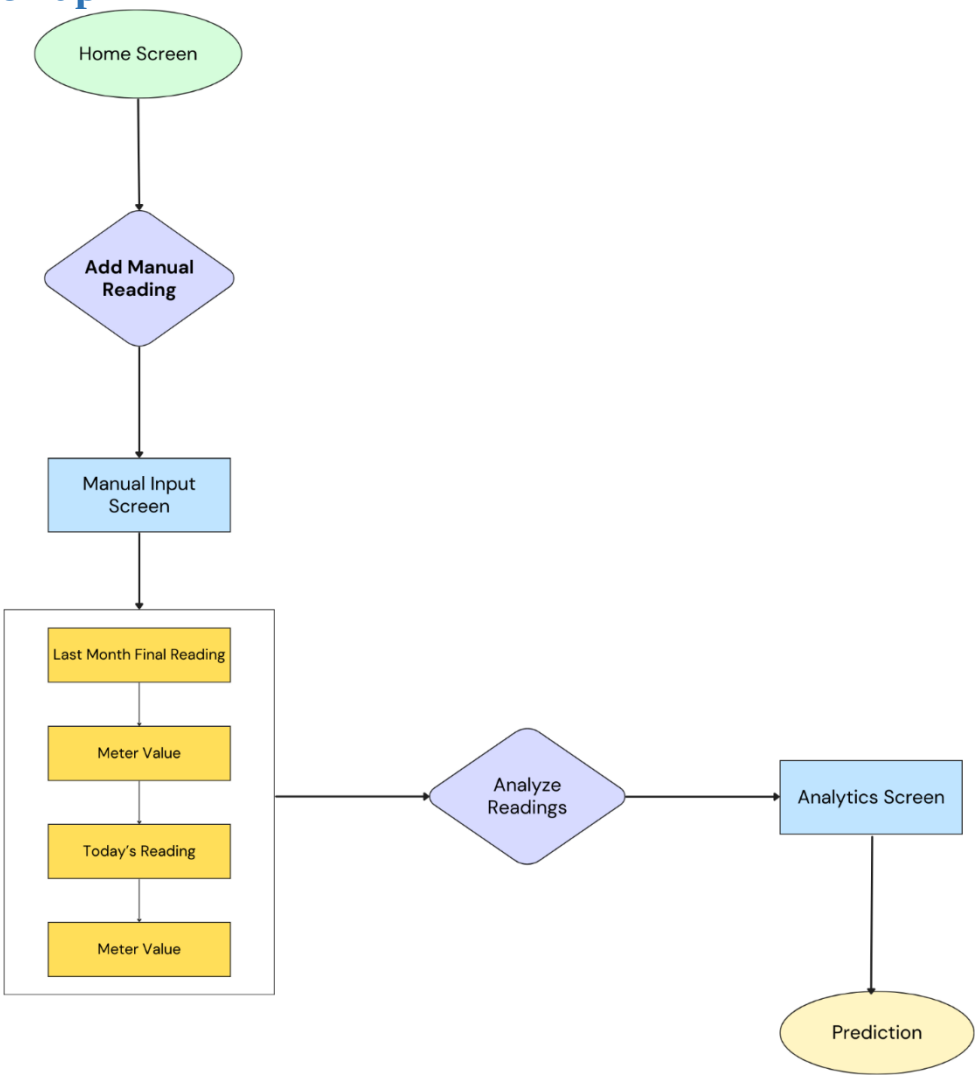
The first respondent thinks entering the dates and units is time consuming and difficult to remember the readings and he suggests me to refine an auto generation feature in the future. But we have already added the auto generation smart meter feature in the low fidelity prototype where we implement a smart dummy meter and track real time energy consumption and auto generate users' energy consumption to the app and predict and analyze future bills. In here I only selected the manual input feature to develop my high-fidelity prototype in this coursework. As we already added that feature to our app, we must develop that feature in the future to give users a better user experience.

The second respondent thinks the colors used are little too bright and suggests using softer and eye soothing colors in the future. By doing research about the user-friendly colors, I must redesign this prototype in the future.

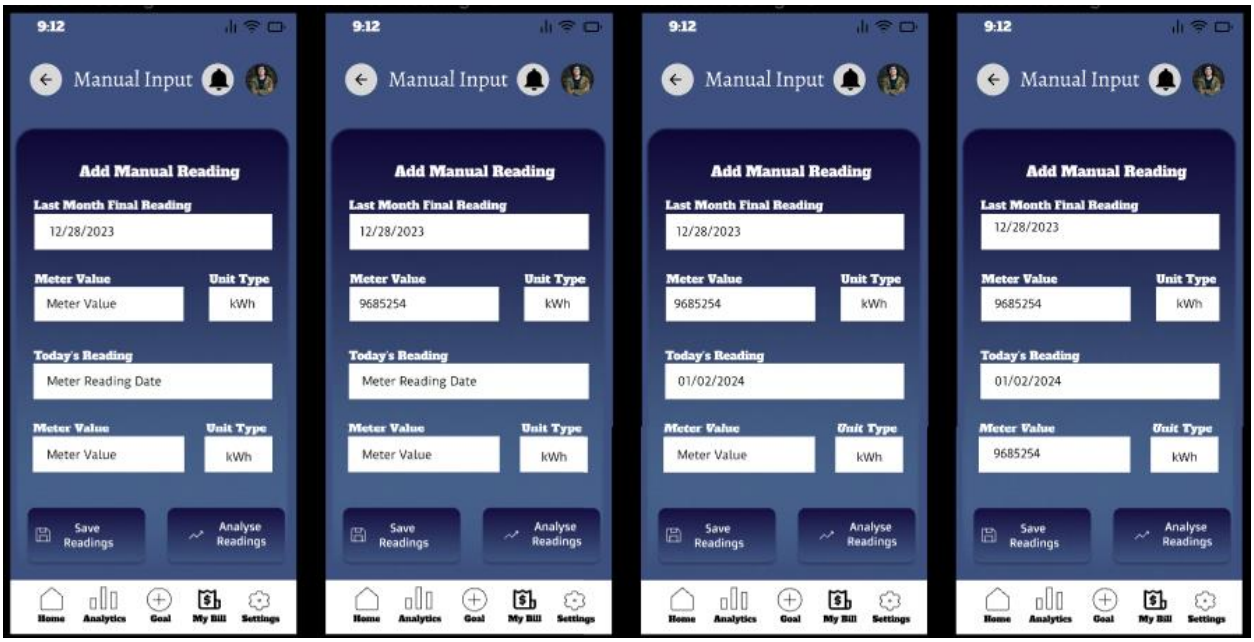
The third respondent has participated in the before high-fidelity questionnaire too so one must have a prior idea about this project. She mentioned that the high-fidelity version offered better detailed and clarity information compared to the low fidelity prototype. She mentioned that it is difficult to visualize the small changes in the graph I used here to show the predicted electricity consumption rates. Replacing that bar graph with a curved graph would be a better idea. In the future it would be better if we used a more organized curved graph.

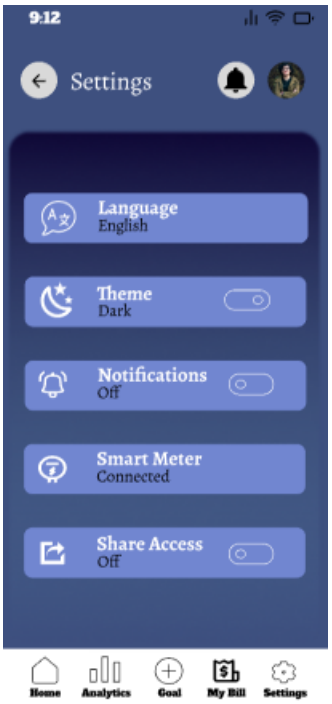
Designers may address problems, increase user satisfaction, and ensure the final product corresponds more closely with customer expectations and needs by incorporating feedback from users. This iterative technique allows constant advancement by identifying and correcting design faults early in the development cycle. Finally, integrating user feedback into the prototype refining process results in a more user-centric and effective final product, boosting the chance of market success.

4. Sitemap


Home Screen
Add Manual Reading
Manual Input Screen
Last Month Final Reading
Meter Value
Today's Reading
Meter Value
Analyze Readings
Analytics Screen
Prediction

5. High fidelity prototype

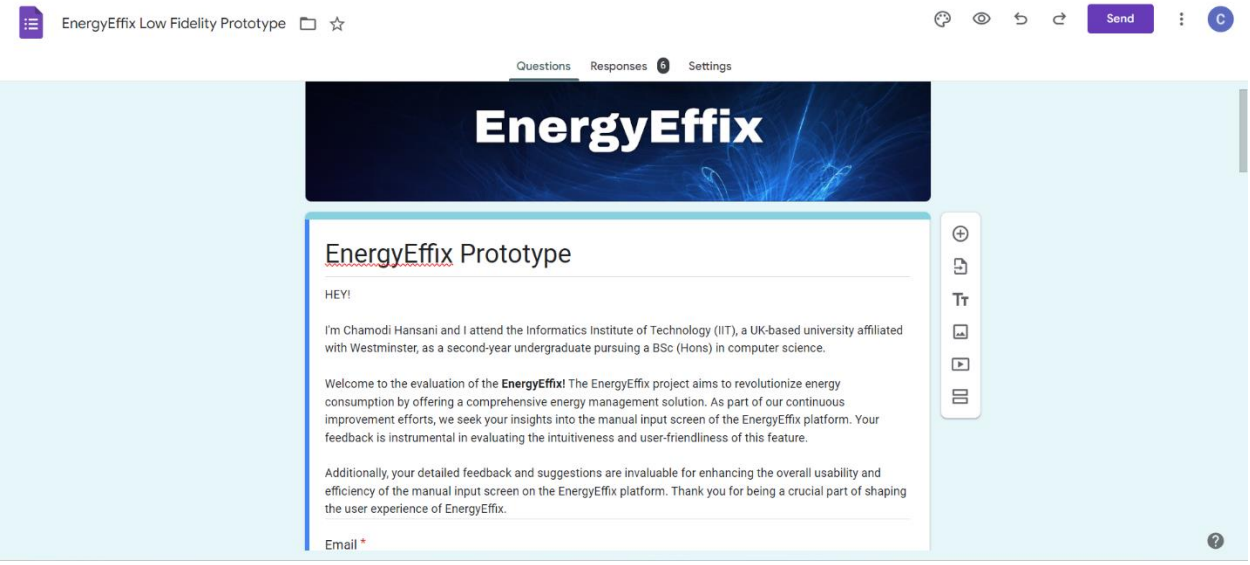


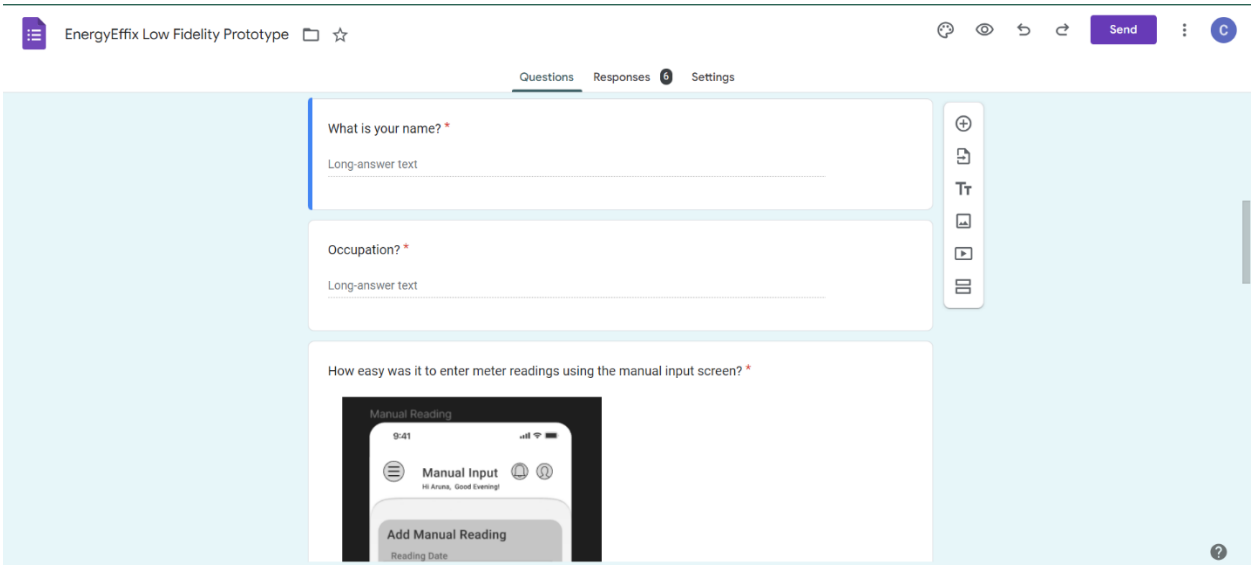


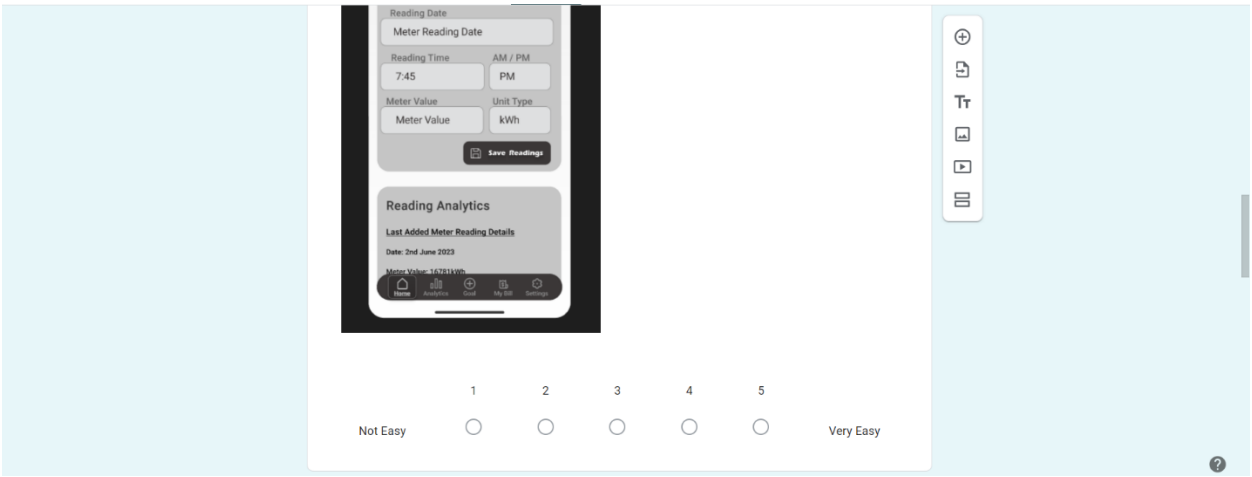
Add the URL of your prototype here.
https://www.figma.com/file/vSKUx5SYIVPW0O2sRAwgnu/COURSEWORK-2?type=design&node-id=0-1&mode=design&t=doDQOqeaT0jWNSRY-0

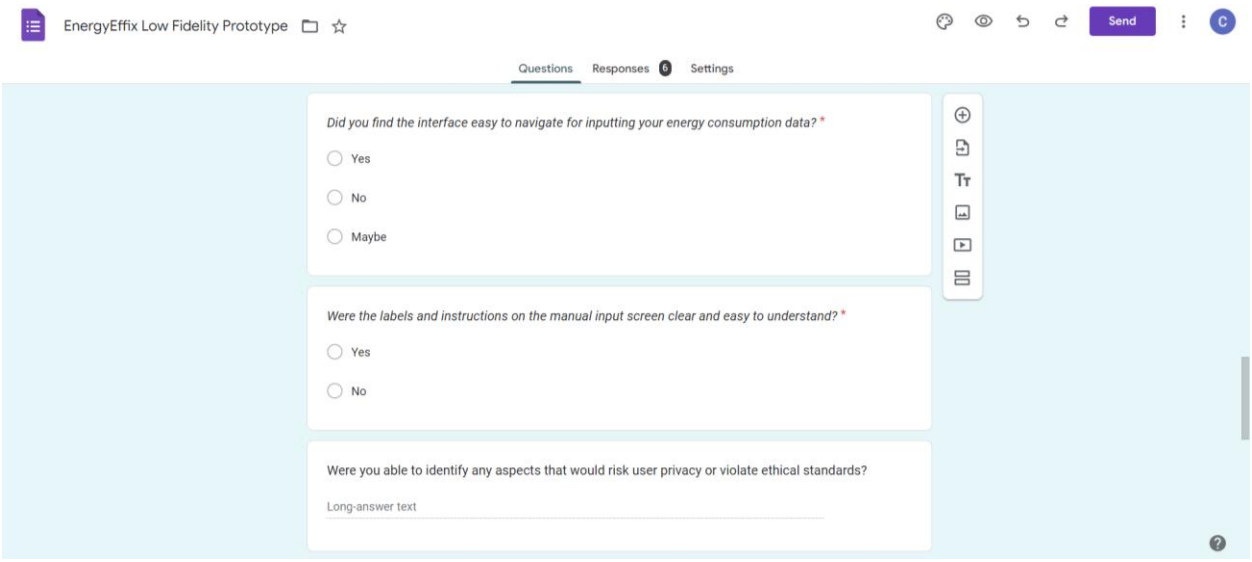
6. Apendices

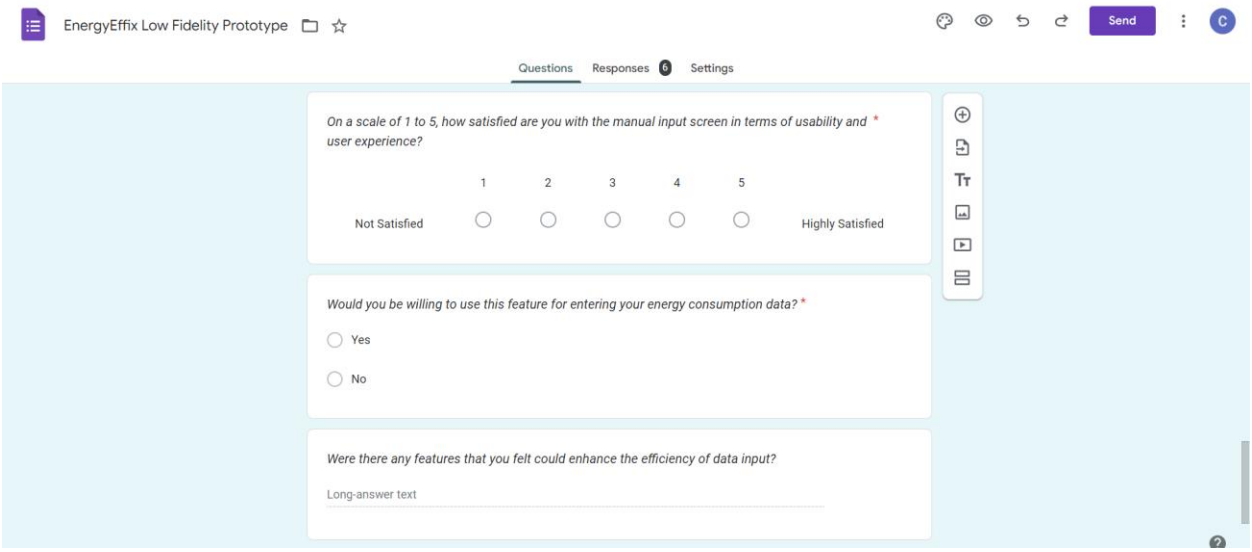
6.1 Appendix A - Questionnaire Before the High-Fidelity Prototype.



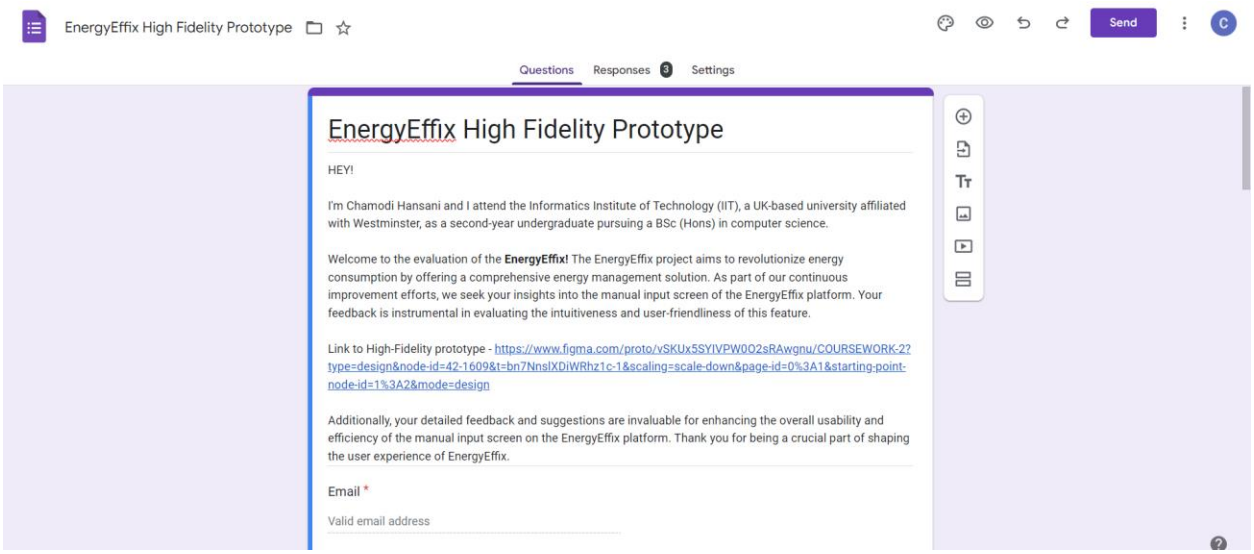


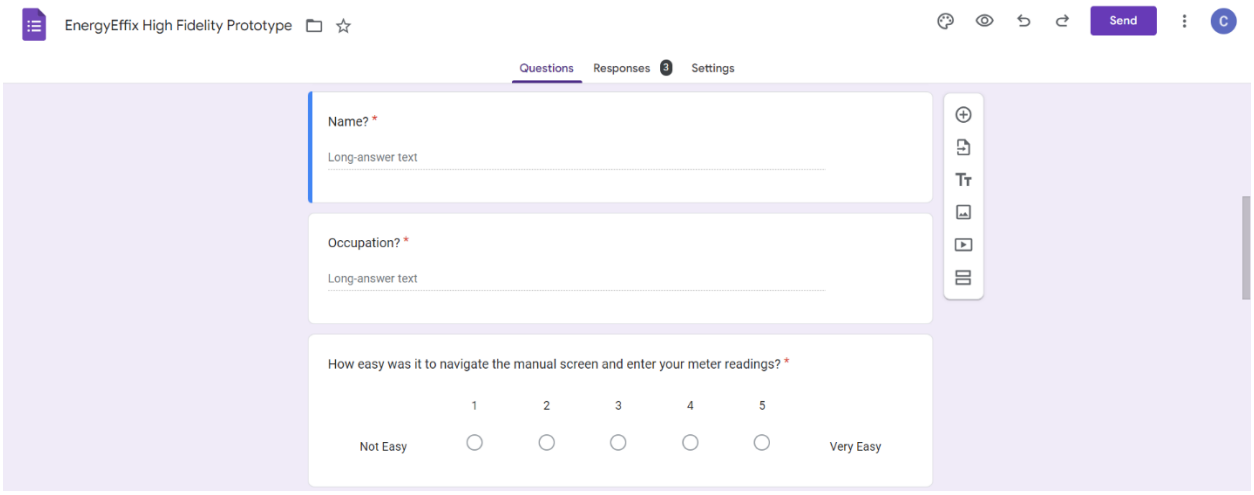

Reading Date
Meter Reading Date
Reading Time
AM / PM
7:45
PM
Meter Value
Unit Type
Meter Value
kWh
Save Readings
Reading Analytics
Last Added Meter Reading Details
Date: 2nd June 2023
1 2 3 4 5
Not Easy
Very Easy

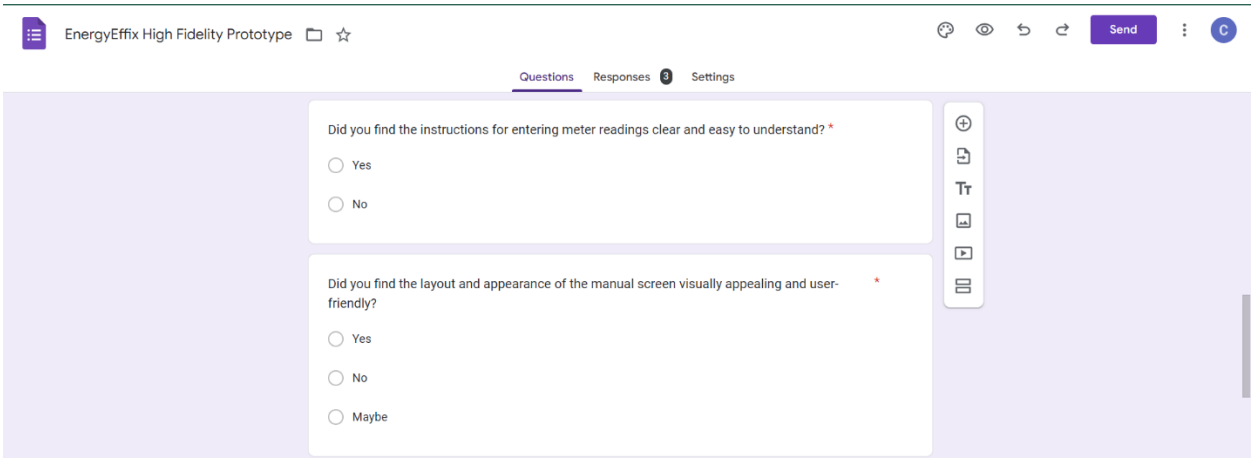

EnergyEffix Low Fidelity Prototype
Send
Questions
Responses 6
Settings
Did you find the interface easy to navigate for inputting your energy consumption data? *
Yes
No
Maybe
Were the labels and instructions on the manual input screen clear and easy to understand? *
Yes
No
Were you able to identify any aspects that would risk user privacy or violate ethical standards?
Long-answer text

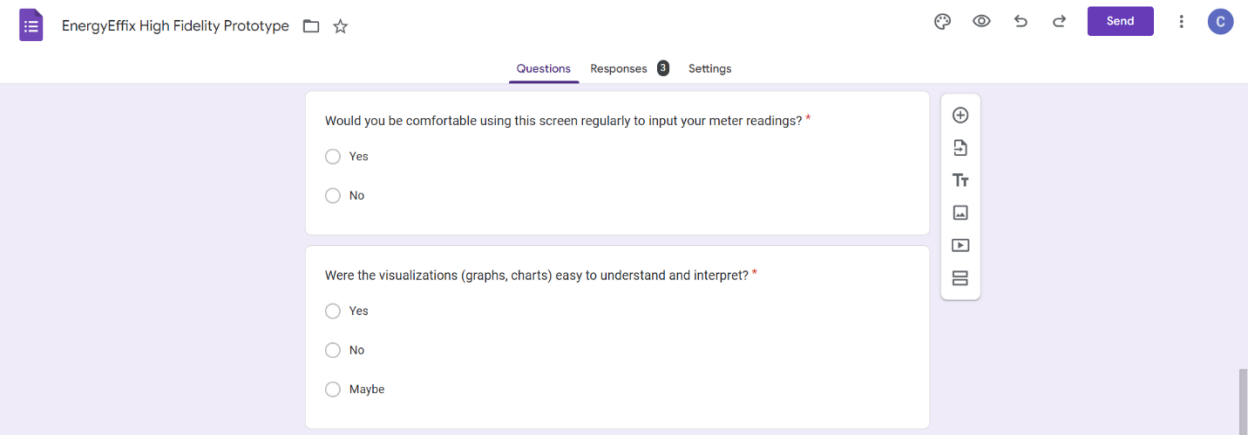

EnergyEffix Low Fidelity Prototype
Send
Questions
Responses 6
Settings
On a scale of 1 to 5, how satisfied are you with the manual input screen in terms of usability and user experience? *
1 2 3 4 5
Not Satisfied
Highly Satisfied
Would you be willing to use this feature for entering your energy consumption data? *
Yes
No
Were there any features that you felt could enhance the efficiency of data input?
Long-answer text

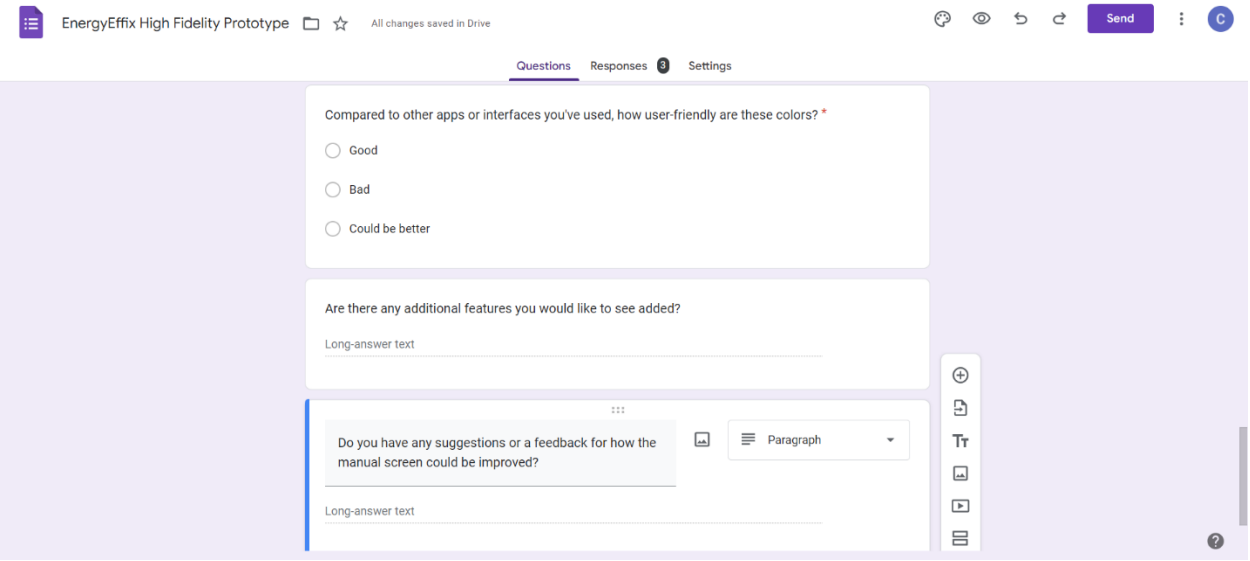
6.2 Appendix B - Questionnaire After the High-Fidelity Prototype.











REFERENCES

learning.westminster.ac.uk. (n.d.). *Blackboard Learn*. [online] Available at: https://learning.westminster.ac.uk/ultra/courses/_94128_1/outline/edit/document/_4443258_1?courseId=_94128_1&view=content [Accessed 5 Jan. 2024].

learning.westminster.ac.uk. (n.d.). *Blackboard Learn*. [online] Available at: https://learning.westminster.ac.uk/ultra/courses/_94128_1/outline/file/_4767137_1 [Accessed 5 Jan. 2024].