



National College *of* Ireland

FixMyFit

IEEE Website Requirements Specification Document

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Course Specialisation: *Business Analysis*

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Declaration Cover Sheet for BSHTM4 Project Submission

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SECTION 2 Confirmation of Authorship

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WordPress website	https://fixmyfit1.wordpress.com/
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Contents

1.	Requirements Elicitation & Analysis Planning	5
1.1	Introduction	5
1.2	The Business Need:.....	5
1.3	Stakeholders List & Power/Influence Matrix.....	6
1.4	Requirements Elicitation Techniques	7
1.4.1	Survey.....	7
1.4.2	Interviews:	11
1.4.3	Brainstorming:	17
1.4.4	Prototyping	18
1.4.5	Requirements workshop.....	19
2.1	Results of the Brainstorm:.....	20
	Feedback and conclusion from participants.....	22
2.2	Interviews results and conclusions.....	24
i.	Interview one conclusion and results:	24
ii.	Interview two conclusion and results:	27
iii.	Interview three conclusion and results:.....	29
2.3	Survey results and conclusion.....	32
	Moscow Analysis	45
2.4	Wireframes Version 1:	47
	Login page.....	48
	Sign up page.....	49
	Contact page.....	50
	My Account.....	51
	Homepage	52
	About us page.....	53
	Message friends.....	54
	Try on page	55
2.5	Requirements workshop result and conclusion:	56
	Wireframes version 2:	57
	Prototypes	62
	67
2.6	Interface analysis	69
	Technologies needed to create a virtual try on application	70
	User stories.....	71
	IEEE Application requirements specification	73
3.1	Functional Requirements	74

3.1.1	Class one: User.....	74
	Non-functional requirements:.....	83
3.1.1	User class one: Security requirements	83
3.1.2	User class two: Performance requirements	84
3.1.3	User class two: Localization requirements	86
3.1.4	User class two: Compatibility requirements.....	86
	Acknowledgements	87
	References	88
	Appendix.....	89
	Project Proposal.....	89
1.0	Objectives	91
2.0	Background.....	91
3.0	State of the Art	92
4.0	Technical Approach	93
5.0	Technical Details.....	94
6.0	Project Plan.....	95
7.0	Validation/Verification	97
	Monthly Reflective Journals	98
	October.....	98
	November	100
	December	102
	January.....	103
	February.....	104
	March.....	105
	April	106

1. Requirements Elicitation & Analysis Planning

1.1 Introduction

The FixMyFit application is designed to help users buy clothing online that they will not need to return. The application allows the user to virtually try on any clothing from online stores and see the clothing on themselves. An avatar is created with the measurements of the user along with the correct skin tone, hair colour and height. This will allow the user to visualise the clothing on themselves and decide whether they want to buy it or not. This will hopefully reduce the amount of clothing that goes into landfill or is bought and returned. It will also save the user money as they can decide whether they will actually wear the clothing they are looking at.

Each avatar will be custom made for each user with their exact measurements to ensure the clothing is represented as accurately as possible on the avatar. The application will have different features such as a messaging feature where users can converse and share different outfits they tried on the avatars to get their friends opinions like you would when shopping in person with friends.

The application will also have a review section for each item of clothing where the user can write a review on the item for everyone to read. This will help users even more when shopping online as they will get to hear other people's opinions on the item and the quality of the item.

1.2 The Business Need:

The need for this application stems from the unsustainability of online shopping. Many people order clothing and when it arrives they don't like it, it doesn't fit or it doesn't look the way they thought it would. Many people do not go to the hassle to return the clothing and so the items either go to the bin or are left as waste in their wardrobe. This is very unsustainable shopping as the clothing could have been worn by someone else but it is instead not used at all.

This application will help online shoppers find clothing that they love and reduce the amount of wastage there is with online shopping. This wastage goes to landfill when the items are not returned which makes online shopping very unfriendly to the environment. One of the main issues with online shopping is being unaware of how the item would look on you. The items are shown on the models but if their measurements are not the same as your own it is very difficult to picture the clothing on yourself. With this application, the avatar is custom made for each user with their exact measurements and height. This gives the user an accurate representation of how the clothing will look on them if they decide to order it (bold knight , 2023).

1.3 Stakeholders List & Power/Influence Matrix:

1. Business Analyst
2. Project Owner
3. Developer
4. General public
5. Investors
6. Clothing brands
7. Testers
8. Project manager
9. Media
10. Employees
11. Users
12. Shareholders

1.4 Requirnments Elicitation Techniques

1.4.1 Survey

Survey Participants:

- a) Retail workers
- b) Online shoppers
- c) Warehouse workers
- d) Anyone interested in fashion
- e) Anyone who shops online

Distribution:

There were various different methods of distribution used for the survey:

- 1) The survey was also shared using a link on Instagram
- 2) The survey was also shared to family members who then shared it onto their friends and co-workers to fill out
- 3) The computing project class also filled out the survey along with various other students within NCI

Objectives:

The objective of the survey is to gain an insight in to how the student body of NCI would feel about a new App. The survey will also gather requirements for the NCI App. The survey questions are also designed to evaluate how much of a demand there is for different features. The survey allows the view points from different year groups by identifying them at the beginning of the survey. The survey will allow the business analyst to learn more about the target audience. The survey allows a positive relationship between stakeholders.

Questions:

Q1: What is your name? (Optional)

Q2: What is your gender?

- Female
- Male
- Other

Q3: Have you bought clothing online before?

- Yes
- No

Q4: How likely would you be to use a virtual try on application?

- Highly likely
- Likely
- Unlikely
- Highly unlikely

Q5: Have you ever used a virtual try on application before?

- Yes
- No

Q6: Would you be interested in using a virtual clothing try on application if it were available?

- Yes
- No

Q7: How likely are you to use a virtual clothing try on application to assist with purchasing clothing?

- Highly likely
- Likely
- Unlikely
- Highly unlikely

Q8: What features would you like to see in a virtual clothing try on application?

- Text box

Q9: On a scale of 1 to 10, how important is accuracy of clothing measurements and fit in a virtual clothing try on application?

- Scale from 1-10

Q10: How important is the ability to change the colour of the clothing in the virtual try on?

- Very important
- Important
- Unimportant
- Very unimportant

Q11: Is it important to see the clothing items from different angles on the application?

- Yes
- No
- Irrelevant

Q12: Would you like to be able to share the virtual try on with friends or family members for feedback?

- Yes
- No
- Irrelevant

Q13: Would you be willing to upload an image of yourself to the application for a more personalized virtual try on experience?

- Yes
- No

Q14: Would you be willing to pay a fee for access to a high-quality virtual clothing try on application?

- Yes
- No
- Maybe

Q15: How likely are you to purchase clothing items after using a virtual try on application?

- Highly likely
- Likely
- Unlikely
- Highly unlikely

Q16: How often do you shop for clothing online?

- Never
- Once a week
- Twice a week
- Three times a week
- Four times a week
- Five – nine times a week
- Over 10 times a week

Q17: How important is the speed and responsiveness of the virtual try on application to you?

- Very important
- Important
- Unimportant
- Very unimportant

Q18: Would you be interested in an integration system between FixMyFit and other social Medias where updates can be shared?

- Yes
- No
- Maybe

1.4.2 Interviews:

Interview one: male Student aged 22

Participants:

- Maynooth university student

Interview location:

Maynooth university campus

Date of interview:

The interview took place on Wednesday 7/12/2022.

Time of Interview

The interview was conducted at 1 pm and lasted around 15 minutes.

Objective of this interview:

This interview will gather the requirements and opinions from a male student which is a part of the demographic for this application. Students order clothing online frequently and so the perspective of this student will be valuable in gathering vital information for the application. This interview will enable me to prioritise certain features for students.

Interview Questions:

Q1. Do you think this app would be beneficial when online shopping and why?

Q2. When using this application is there any features you can think of that would be beneficial to you?

Q3. Do you think the favourite's page is a good addition to the application and would you use it?

Q4. Do you think this application would help reduce the amount of returns consumers make and make online shopping more sustainable?

Q5. Do you regularly shop online?

Sub question if they answer yes:

If items do not fit or are not your style, do you return them or is it too much of a hassle?

Q6. What websites do you usually shop from?

Interview two: female aged 28

Participants:

- Female shop assistant and student

Interview location:

Café situated in Palmerstown

Date of interview:

The interview took place on Friday 2/12/2022.

Time of Interview

The interview was conducted at 1 pm and lasted around 15 minutes.

Objective of this interview:

This interview will gather the requirements and opinions from a female student which is a part of the demographic for this application. This will gather different information than the previous interview with a female student as it will elicit the needs of a male online shopper. This interview will help me to choose what brands should be included on the application.

Interview Questions:

Q1. Do you regularly shop online?

Sub question if they answer yes:

If items do not fit or are not your style, do you return them?

Q2. What websites do you usually shop from?

Q3. Are there any features you think are necessary for the application? I.e. wish list

Q4. Are there any features that are missing in your opinion?

Interview three: Developer

Participants:

- Developer

Interview location:

Costa Coffee Liffey Valley shopping centre

Date of interview:

The interview took place on Monday 5/12/2022.

Time of Interview

The interview was conducted at 3 pm and lasted around 20 minutes.

Objective of this interview:

The reason for this interview was to gather information from the developer in relation to creating the application. The requirements that have been gathered from the brainstorm could then be validated or removed from the list of requirements. The developer has the knowledge of what is possible when creating an application and this is important for this project. This interview also validated whether the function of using a tool to measure your foot would be possible or not.

Interview Questions:

Q1. What type of technology will be needed to create avatars to the correct dimensions for each user?

Q2. Is it possible to pull images of the clothing directly from websites or will they have to be pulled from a database?

Q3. How accurate can the representation of the clothing on the avatar be?

Q4. Is it possible to accurately measure your foot against something on camera?

Q5. What sort of security can be used on the application to ensure personal information is secure and private?

Q6. If a database needs to be used, how will the images of the clothing be stored in it?

Q7. Is it possible to have a link to buy the clothing that is tried on the avatar?

1.4.3 Brainstorming:

What is the objective?

The objective of the brainstorm for the FixMyFit application is to gather as many user requirements as possible from different age groups and genders. There will be four participants for this brainstorm that range from 21-56 years old. Males and females will be included in this session to offer a wide perspective on the application.

Participants:

Four different individuals participated in this brainstorm. They were:

- Female aged 24, student
- Male aged 21, software engineer
- Female aged 35, networks engineer
- Male aged 56, guard

Location of brainstorm:

The brainstorm took place in Palmerstown

Date of brainstorm:

This brainstorm took place on Friday 18/11/2022

Time of brainstorm:

This brainstorm took place at 4pm and lasted 20 minutes

Brainstorm guidelines:

- a) Mobile phones must be switched off or on silent mode
- b) Attendees must not discuss their views prior to the brainstorm with other participants.
- c) Participants must defer judgment on other participants.
- d) Participants must not interrupt each other and one conversation at a time.
- e) Accept every idea and opinion as no one is wrong in this situation.
- f) Participants are required to arrive early to ensure the brainstorm commences on the allotted time.

1.4.4 Prototyping

Objective of prototype:

The purpose of creating non-functional prototypes is to gather feedback from different stakeholders to ensure the application is designed the way they require. The designs are to be created in two stages: one set shown to a select group of stakeholders, and a second set to be dissected in requirements workshops with other stakeholders. The stakeholders have the opportunity to share their ideas for the design and give any feedback they have. This feedback can then be used to change or replace specific parts of the application design (Ulanova, 2021).

Participants:

1. Two students
2. Business analyst
3. Male shop assistant
4. Female shop assistant

1.4.5 Requirements workshop

Objective:

The objective of the requirements workshop is to show the prototypes to a select group of users and gather their feedback. The prototypes were designed using the requirements gathered from the interviews, survey and brainstorming sessions. By conducting a workshop the stakeholders of the project have the opportunity to share their ideas of how they would like the application to look (International institute of business analysis , 2005).

When the workshop is concluded, a clear idea of how the application should be laid out will be outlined. The final prototype can then be completed and given to the developer to create.

Participants:

- Business analyst
- Two students – one male, one female
- The developer that was interviewed

Workshop location:

The requirement workshop took place in Palmerstown.

Date of workshop:

The work shop took place on the 10/03/2023

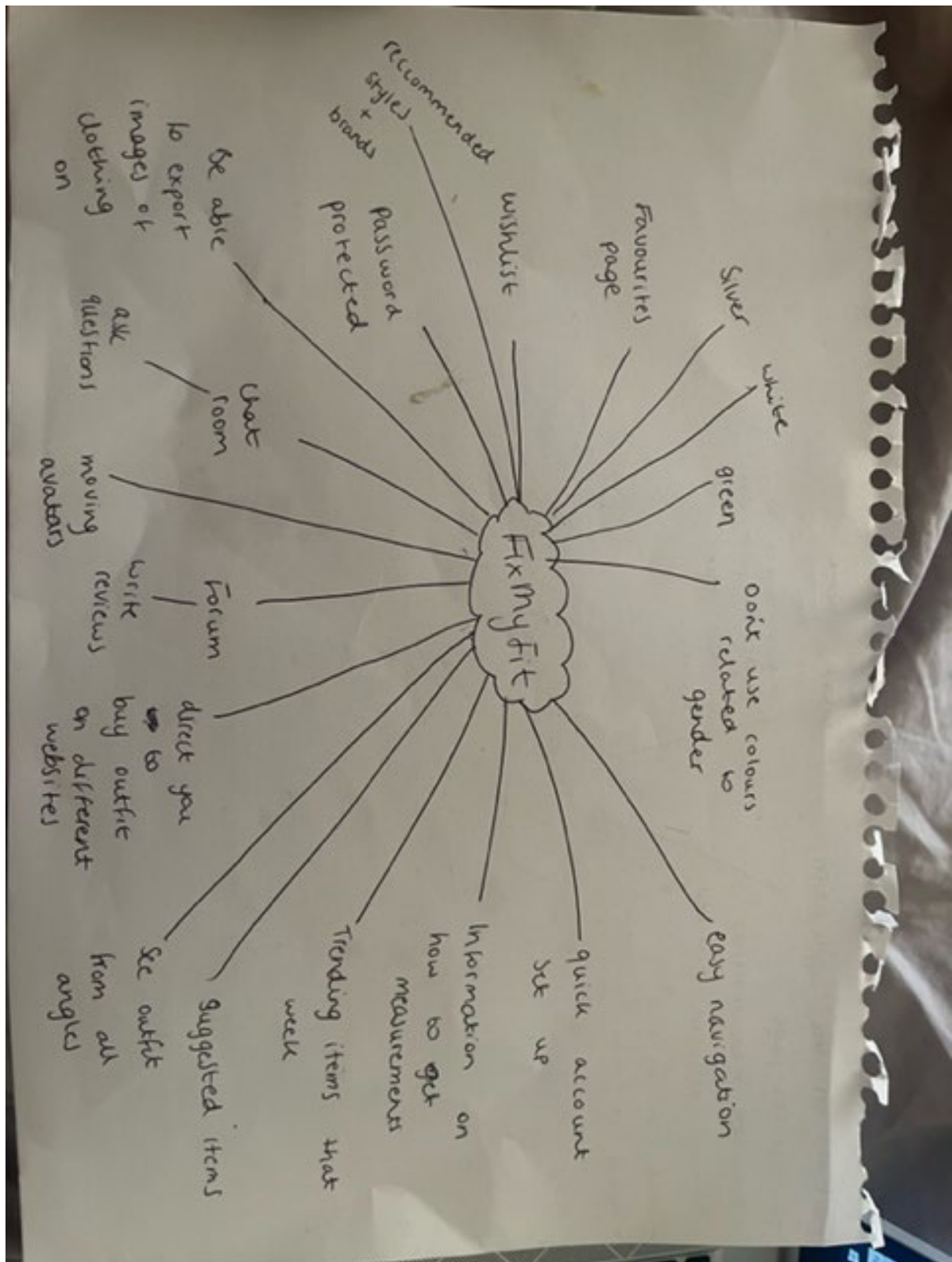
Time of workshop:

The workshop took place at 3 pm and lasted half an hour

2.1 Results of the Brainstorm:

The brainstorm that was conducted was a success as requirements for the application were identified and recorded. These requirements were gathered from people of different ages and different genders. This allowed the results from the brainstorm to show requirements from different perspectives and different levels of technology knowledge. Each person had the opportunity to share their ideas and any requirements they deemed to be important for the application. Since the group was diverse, the ideas that were generated were diverse.

This session was split into two phases. The first phase consisted of an open table discussion where everyone shared their ideas and they were recorded on a brainstorm bubble diagram. The second phase asked the participants to write down any comments they have about the application in relation to the new ideas that were generated. They also stated top three features they believe are 'must haves' for the application.



Feedback and conclusion from participants

Female aged 24:

Comments about the application:

1. Favourites feature is very useful as outfit ideas can be saved and looked back on
2. Reduces the amount of online returns required by shoppers
3. Useful when ordering clothes online that you are unsure would suit your style
4. It would be nice to be able to buy the clothing on the application instead of the brand's website

Must have features:

1. Favourites page feature to save outfits
2. Easy navigation from pages
3. Password protection of measurements

Male aged 21:

Comments about the application:

1. Height feature would be extremely beneficial when buying clothes as they are usually too short for him
2. Saving outfits or items would be helpful as he usually doesn't buy the items straight away when he finds them
3. Wouldn't be willing to pay for the application so it would have to be free

Must haves:

1. Ability to save outfits
2. Clear pages – no clutter on pages

Female aged 35:

Comments about the application:

1. Notifications for when items that were tried on within the application would be very useful when shopping online
2. A separate personalised page where suggested items and styles are shown for you depending on what previous items you 'tried on'

Must haves:

1. Wish list
2. Suggested items

Male aged 56:

Comments about the application:

1. Men's clothing should have the same variety as women
2. The sizes should be as accurate as possible

Must haves:

1. Accurately show large fit and slim fit t-shirts
2. Show where jeans will sit – i.e. on the waist, hips, in the middle

2.2 Interviews results and conclusions

i. Interview one conclusion and results:

Interview with Maynooth university male student:

FixMyFit is designed to help customers buy items that they will like on themselves and not have to return them. The purpose of this interview was to gather requirements for the application and different clothing brands that are popular.

Q1. Do you think this app would be beneficial when online shopping and why?

Yes

- She stated that she always buys clothing that doesn't suit her body shape but suits the model she sees the clothing on. The companies usually do not cater to different body shaped models, there is normally only a smaller model and a plus size one. This is frustrating when trying to imagine the items on yourself.
- Considering this, she believes she would return less items that she buys as she will have a visualisation of the items on her measurements before buying the item.

Q2. When using this application is there any features you can think of that would be beneficial to you?

1. Have a visualisation of the avatar walking in the clothing to see how it fits when you are moving
2. Favourites page
3. Be able to make an account
4. Links to the websites of the clothing
5. Be able to buy the items within the application

Q3. Do you think the favourite's page is a good addition to the application and would you use it?

- Yes. It would be beneficial to be able to save different items to look back on them at a later stage.
- This would help when trying to find an outfit – you can save different options and compare them

Q4. Do you think this application would help reduce the amount of returns consumers make and make online shopping more sustainable?

- Yes, the main reason she returns items is because they do not look the same on her as they do on the model
- By seeing the items on yourself like you would in a clothing shop, you can get an idea if you would wear the items or not

Q5. Do you regularly shop online?

- Yes

Sub question if they answer yes:

If items do not fit or are not your style, do you return them?

- It is a lengthy process to return items and so she rarely returns them

Q6. What websites do you usually shop from?

- Asos
- Bershka
- Boohoo
- Asos marketplace
- Ohpolly
- Sports direct

Interview one conclusion:

Q1. Validated the fact the application will be useful and will be used by students. This application would help greatly when ordering clothing online as the visualizations of the clothing on the correct measurements would help users decide whether it is their style or not. It would encourage more mindful shopping as users do not have to imagine the clothing on them, they can see it on their avatar.

Q2. This helped gather requirements for the application. The student's answers aided in deciding what requirements are important to users and can be added to the list of functions for the application.

Q3. Isolated the fact that a favourites bar or wishlist would be a good addition to the application and would be used.

Q4 & Q5 The aim of this application is to reduce the amount of returns and wastage there is when ordering clothing online and the answers to this question validated this statement.

Q6. This question highlighted the online stores that are popular to students at the moment

Requirements gathered from this interview:

1. Favourites bar
2. Websites to include
3. Avatars moving (if possible)
4. Have an account on the application
5. Certain websites to include clothing from

ii. Interview two conclusion and results:

Interview two with female aged 28:

FixMyFit is designed for all genders and so the perspective of a female in this interview gathered requirements from their point of view. This female is a student and works in a clothing store and so she has the perspective of a student and knowledge of clothing sizes and designs.

Q1. Do you regularly shop online?

- Yes

Sub question if they answer yes:

If items do not fit or are not your style, do you return them?

- No it is too much of a hassle to do so. You have to print out labels and then bring the items to a designated shop. By having a virtual try on application it would reduce the amount of wastage as he stated that he would not buy items that did not look good on his avatar.
- Too stressful trying to return items

Q2. What websites do you usually shop from?

- PrettyLittleThing
- Asos
- Boohoo
- Zara
- Bershka
- Shein

Q3. Are there any features you think are necessary on the application?

- Wishlist
- Account
- Password protection for measurements and personal information
- Forum with student discounts in different shops
- Reviews on forums for different items, shops
- Reviews on forum about fitting of the clothing

Q4. Are there any features that are missing in your opinion?

- Ability to leave reviews
- Share with friends

- Favourites bar to see items later

Interview two conclusion:

Q1. This is a common answer to this question and validates the fact that not many people return items if they do not like them because it is too much of a hassle. This leads me to believe this application would make online shopping more sustainable and save people money from buying items that they will waste.

Q2. Online stores that are popular were highlighted and added to the list of stores that the users may require.

Q3. Key requirements for the application were gathered from this interview. These were common answers throughout the interviews and brainstorming stage.

Q4. This question highlighted the features that should be included on the application.

Requirements gathered from this interview:

- Wish list
- Account
- Information guarded with password
- Student discount page
- Reviews of other users

iii. Interview three conclusion and results:

Interview with developer:

Q1. What type of technology will be needed to create avatars to the correct dimensions for each user?

Given the task at hand there are a few different ways to go about the task of creating an Avatar. One way is allowing the user to configure their own specifications for an avatar much like character customisation which allows them to input their height and dimensions exactly.

Examples of this can be found in games like the sims and bitmoji to a lesser extent. This would be ideal approach for python and a database such as AWS to house the choices from the user.

Another way is taking images of the user and allowing deep learning algorithms to construct an avatar from those images. This requires technologies such as OpenCV and Python as well as TensorFlow and NumPy. To make the 3d model you could use blendr or unity to make model for the avatar.

Q2. Is it possible to pull images of the clothing directly from websites or will they have to be pulled from a database?

Pulling from a database is an option however many of the key clothing brands have APIs that can offer a 360 view of a clothing object so you can get a full 3d model from them pictures.

Alternatively, you can create a 3d model and store it yourself in a database of your choosing. This would allow us to call the database for the 3d models whenever needed.

Q3. How accurate will the representation of the clothing on the avatar be?

If we were to make a pre-set 3d model from custom parameters of the user than we could get a pretty accurate fitting of the clothes on the model however the opposite is true of if we were to take a 3d model of the user as it would cause problems as the 3d model would just lay upon the body it would not move with the physiology of the body.

As an example of shoes the toes could pop out of the 3d model ruining the user's immersion so we would need to consider this with the implementation.

Q4. Is it possible to accurately measure your foot against something on camera?

Yes it is possible with some observations we can determine scale of objects within an image. Although this can be difficult when users choose random items to measure against and the results can be inaccurate.

Q5. What sort of security can be used on the application to ensure personal information is secure and private?

To make an application secure one can encrypt everything, keep servers up to date, use real time security monitoring and protection and get an application security audit.

Q6. If a database needs to be used, how will the images of the clothing be stored in it?

A way to store these pictures of clothes could be an array of images or you can store 3D models in a no-SQL database.

Q7. Is it possible to have a link to buy the clothing that is tried on the avatar?

Yes it is possible with the data where the 3D model for the object is stored you can also store a parameter for the link to the shop for the item. This link can be a clickable for the object or it can appear as a separate button on the screen.

Interview three conclusion:

Q1. This was an important question to find an answer to as the avatar is a vital feature on the application. The avatar must be the correct measurements and so it had to be verified that it could be created.

Q2. There are different options on how the clothing items will be pulled or stored and so the best solution can be then selected.

Q3. The clothing on the avatar can be shown accurately when implemented correctly and so an experienced developer should be used to implement this project idea.

Q4. This question addresses the idea of implementing accurate representation of shoes on the avatar. It can be difficult to implement this and so this could be researched when the application goes to market and be added as an update when researched and implemented properly.

Q5. This question helped with the kind of security the application should have and showed it is possible to keep the user's information secure.

Q6. The images of clothing can be stored in a database if this is what was chosen to do. This keeps all the images in one place which would make it easier to find them in the future.

Q7. Since it is possible to add links to buy the clothing, this should be added to the application as this would benefit the users.

2.3 Survey results and conclusion

Survey results:

Question 1

What's your name?

51 responses

Sarah

Nikita

Matthew

Amara

Conor

Ray

Chelsea

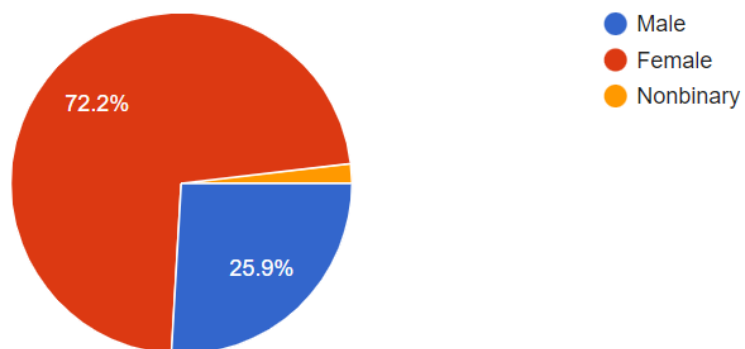
Sophie Brennan

Saoirse

Question 2

What's your gender?

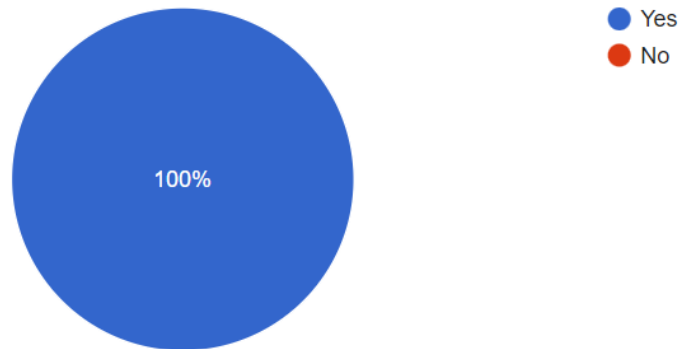
54 responses



Question 3

Have you bought clothing online before?

54 responses

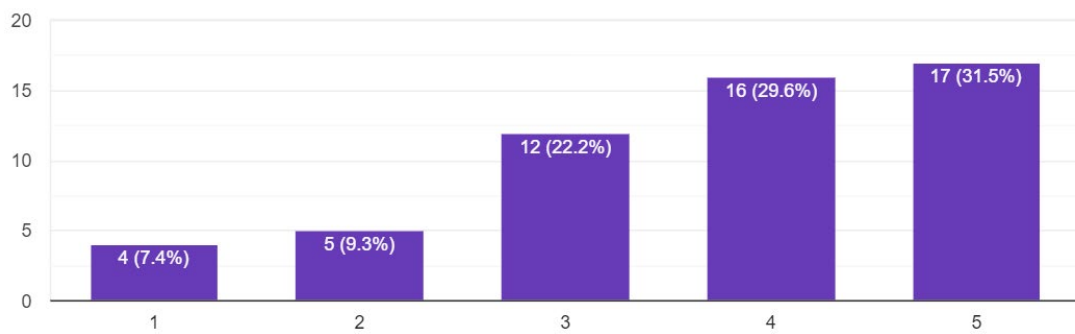


Question 4

How likely would you be to use a virtual try on app?

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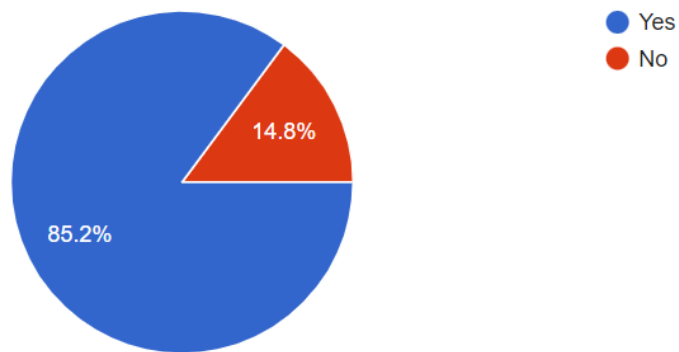
54 responses



Question 5

Do you find returning items a hassle?

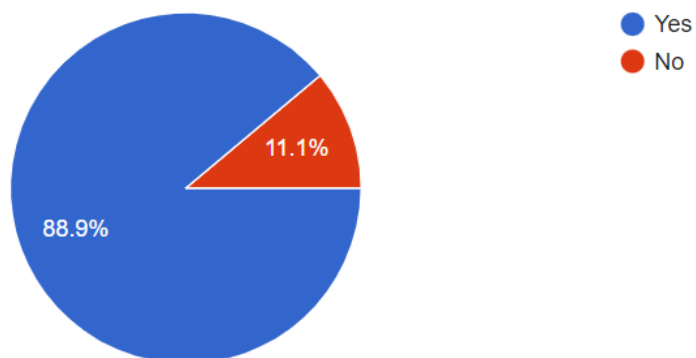
54 responses



Question 6

Have you ever not returned something and kept it out of convenience ?

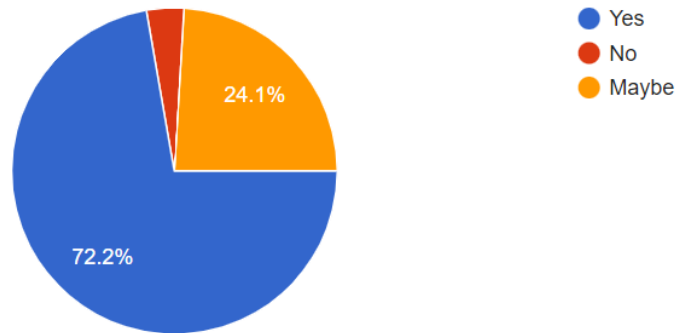
54 responses



Question 7

Would you use a favorites page? (Be able to save different outfits to a separate page)

54 responses

**Question 8**

What features would you like to see in a virtual clothing try on application?

40 responses

N/A

Favourites bar, link to buy the items, share outfits with friends

Definite and maybe section

Exact measurements of model

The ability to select your height weight n features etc to match your body type

Cached collection of outfits I virtually tried on and liked so that I have them for future reference

To easily change the item of clothing you have picked to virtually try on

If it's able to look realistic (show how it'll fit on your body rather than just be a filter on top of you)

Exact measurements in comparison to model

What features would you like to see in a virtual clothing try on application?

40 responses

Textures of materials

Mix and match of different clothes

I would like to see how the clothes look like when walking and moving

How it looks length wise

Saved outfits, recommended pieces

Varied skin colour options

Shaping and styling

Recommendations for sizing in clothes

realistic body type

What features would you like to see in a virtual clothing try on application?

40 responses

Realistic body types

Fit my shape and height

Fit my shape

Size a true fit

Color options and selections of clothing that match the piece you are trying on. Selections of accessories that go with the outfit.

Option to see clothes on different shapes and sizes

Feedback from other shoppers

Accurate representations of different body shapes

360 degree rotation, adjusted for height etc

What features would you like to see in a virtual clothing try on application?

40 responses

Real life images of clothes

Selection of colours

360 degree view

Option to "save" virtual avatars for future reference in a favourites section, a feature that advises you if your virtual "try-on" outfit is the wrong size for your selected avatar

Multiple views ie front back and sides.

Use own picture, easy to zoom and move around

the general fit and style of the item on your body

Previous comments from users below the specific item of clothing telling the customer about how it fits etc

Seamlessly change the size of the clothing on the avatar

Change the hairstyle in my avatar to match the vibe of the outfit

Recommendations from the app for what other pieces of clothing might go with the piece I'm trying on

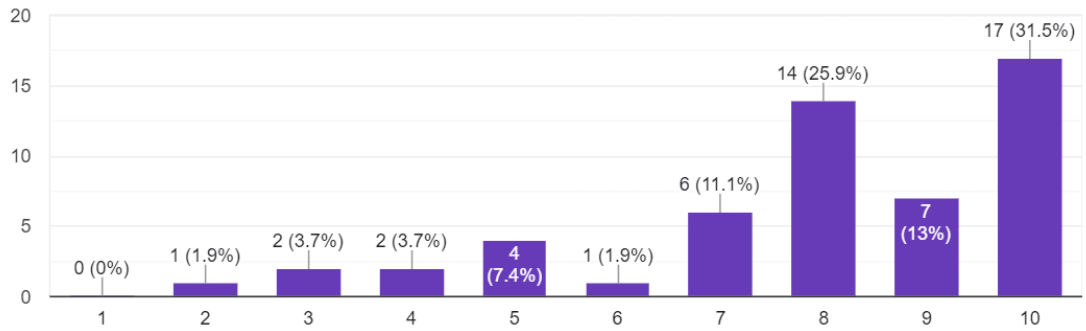
What it looks like in large size or slim fit

Question 9

On a scale of 1 to 10, how important is accuracy of clothing measurements and fit in a virtual clothing try on application?

 Copy

54 responses

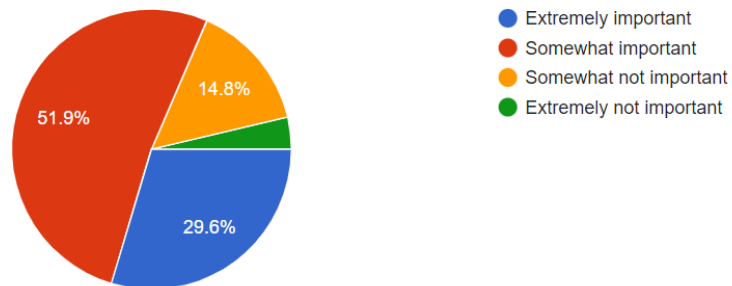


Question 10

How important is the ability to change the colour of the clothing in the virtual try on?

 Copy

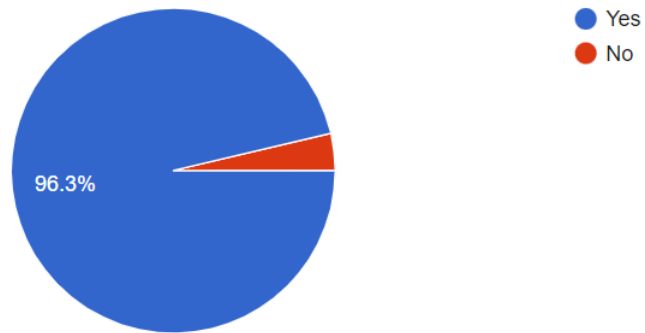
54 responses



Question 11

Is it important to see the clothing items from different angles on the application?

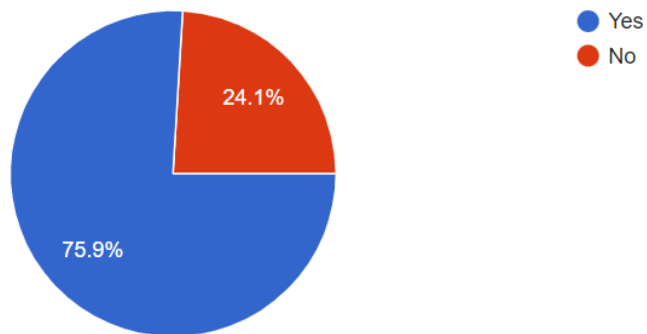
54 responses



Question 12

Would you be willing to upload an image of yourself to the application for a more personalized virtual try on experience?

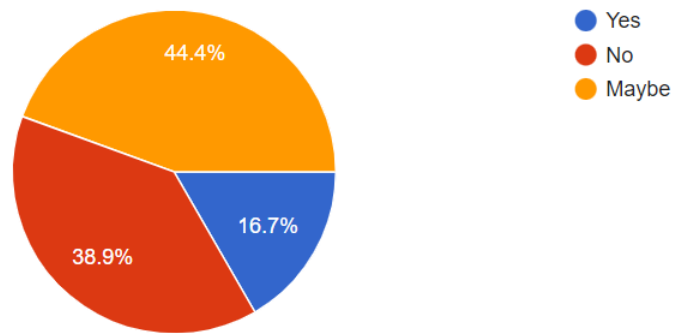
54 responses



Question 13

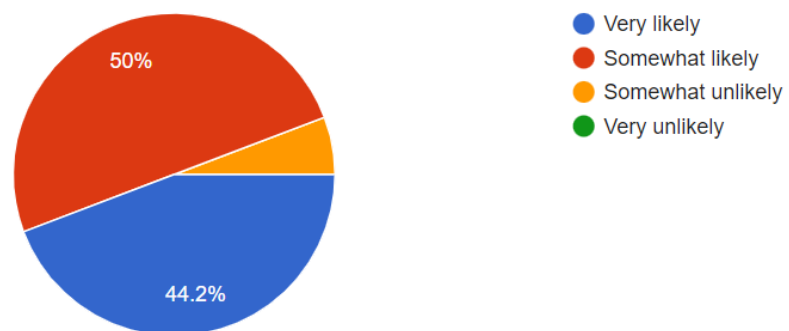
Would you be willing to pay a fee for access to a high-quality virtual clothing try on application?

54 responses

**Question 14**

How likely are you to purchase clothing items after using a virtual try on application?

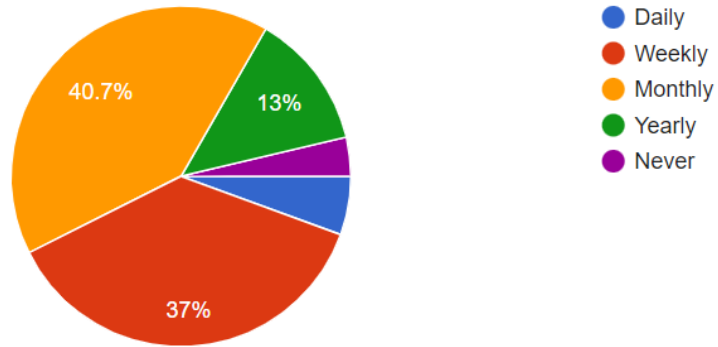
52 responses



Question 15

How often do you shop for clothing online?

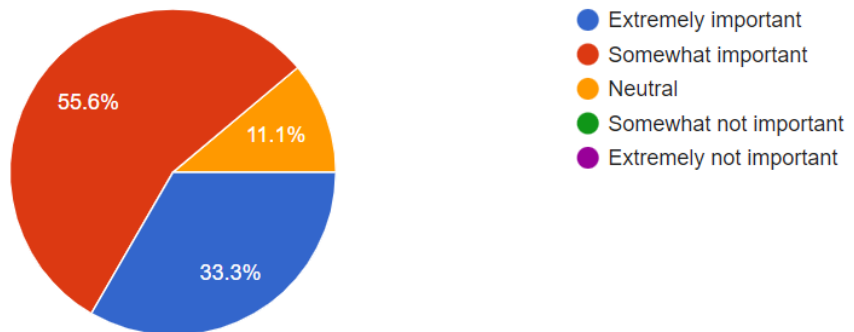
54 responses



Question 16

How important is the speed and responsiveness of the virtual try on application to you?

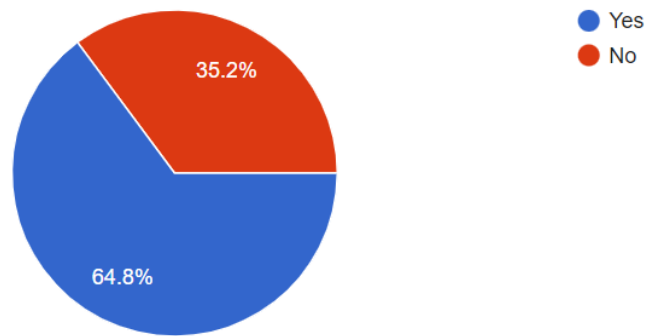
54 responses



Question 17

Would you be interested in an integration system between FixMyFit and other social Medias where updates can be shared?

54 responses



Conclusion of the survey:

The survey was conducted over the course of three weeks that involved a varied group of stakeholders. There were fifty four responses to the survey which aided in gathering insights from potential users of the application. There was a mix of male and female responders which was helpful to gather insights from both genders. The results are recorded graphically within google forms. 100% of the participants had shopped online before and 85% find it a hassle to return items. In addition to this 89% have not returned something because it is a hassle to them. This information was insightful as there would be no need to return items if users could virtually try on the clothing they wanted to buy. This would reduce wastage and aim to make shoppers more sustainable as this is one of the main aims of creating this application. There was a positive response to the idea of having a favorites page on the application as 72% of participants responded yes to this. Seeing the clothing from different angles had a 96% percent yes rate and so this feature should be implemented into the application. The results also showed that users would like to integrate their social media and have the ability to share their virtual try on with their family and friends. From these responses, the forum and chat features should be added to the application in order for users to communicate with one another and share their experiences.

Question number 8 was important as the participants had the opportunity to respond with any features they would like on the application. The requirements gathered from this question were:

1. The general fit and style of the item on your body
2. Realistic body type
3. Accurate representation of the clothing when virtually tried on
4. Use own picture
5. Easy to zoom and move around
6. Saved outfits
7. Recommended pieces
8. How the clothes look when walking and moving
9. Easily change the item of clothing you have picked to try on
10. Favourites bar
11. Link to buy the items
12. Share outfits with friends
13. Textures of materials
14. How it looks length wise
15. Multiple views i.e. front back and sides.
16. If it's able to look realistic (show how it'll fit on your body rather than just be a filter on top of you)

17. Selection of colors
18. Size a true fit
19. Seamlessly change the size of the clothing on the avatar
20. Change the hairstyle in my avatar to match the vibe of the outfit
21. Recommendations from the app for what other pieces of clothing might go with the piece I'm trying on
22. Fit my shape
23. Varied skin color options
24. Exact measurements of model
25. Shaping and styling
26. Definite and maybe section
27. Fit my shape and height
28. Option to "save" virtual avatars for future reference in a favorites section, a feature that advises you if your virtual "try-on" outfit is the wrong size for your selected avatar
29. What it looks like in large size or slim fit
30. Feedback from other shoppers
31. Realistic body types
32. Cached collection of outfits I virtually tried on and liked so that I have them for future reference
33. Color options and selections of clothing that match the piece you are trying on
34. Selections of accessories that go with the outfit
35. Real life images of clothes
36. Exact measurements in comparison to model
37. Option to see clothes on different shapes and sizes
38. The ability to select your height weight n features etc. to match your body type
39. Mix and match of different clothes
40. 360 degree rotation, adjusted for height etc.
41. 360 degree view
42. Previous comments from users below the specific item of clothing telling the customer about how it fits etc.
43. Recommendations for sizing in clothes
44. Accurate representations of different body shapes

This questions was extremely helpful in gathering requirements from the application as the users had the opportunity to share their thoughts and wishes for the application.

Moscow Analysis

Must have
FR1: Image uploading
FR2: Clothing selection
FR3: Adjusting size of avatar
FR4: Virtual try on
FR6: About us
FR7: Contact us
FR8: Adjusting features on avatar
FR9: Saved outfits/favorites page
FR20: The clothing should be broken up into categories
FR22: Mix different brands of clothing

Should have
FR5: Showing avatar in different angles
FR10: Recommended pieces
FR11: Share with friends and family
FR14: Feedback from other shoppers
FR16: 60 degree view
FR18: Link between FixMyFit and social media platforms
FR24: User analytics

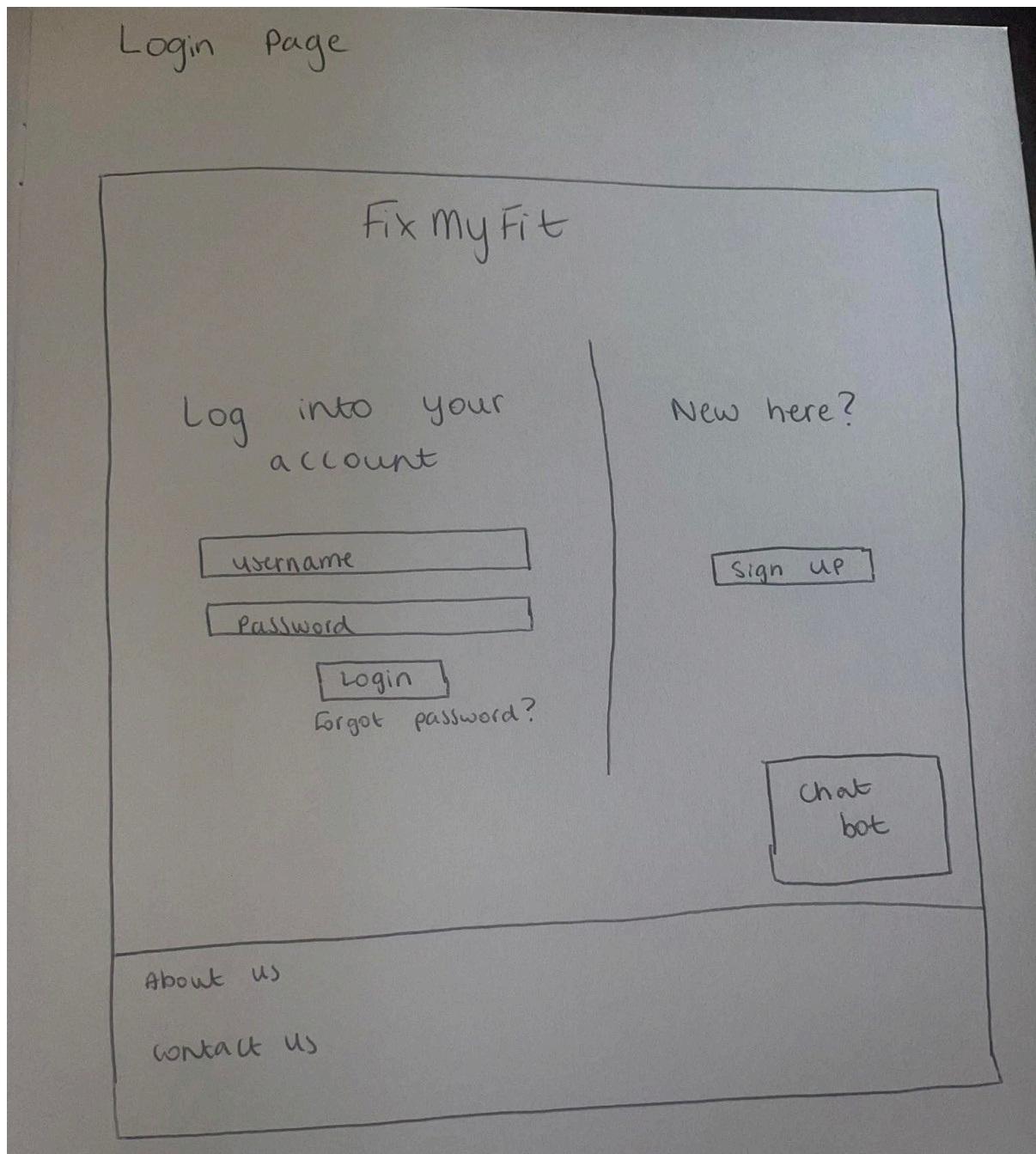
Could have
FR12: Description of clothing
FR15: Accessories that would go with the chosen outfit
FR17: Purchase items
FR19: User support chat bot
FR21: Recent trends section
FR23: E-commerce integration

Won't have
FR13: Color change
FR25: Color customization

2.4 Wireframes Version 1:

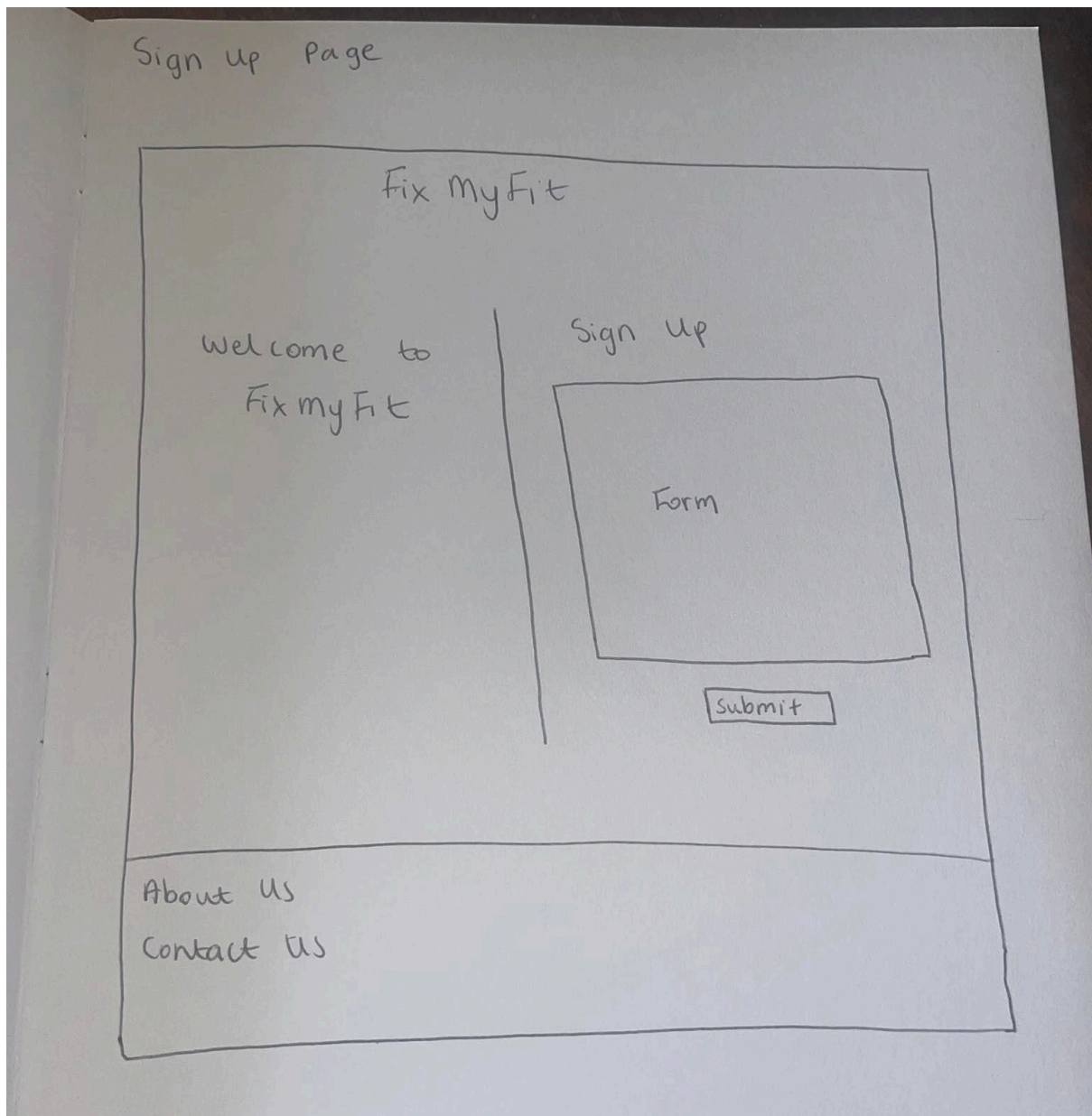
Version 1 of the wireframes were hand drawn. These were used to show to stakeholders and gather feedback in the requirements workshop. The aim of creating two versions of the wireframes was to make any changes to the design that the stakeholders required. This way the first version is the rough draft of the application and the next set are a more formal put together wireframe of the application. It is important for stakeholders to have a visual representation of how the application is planned to look as they can then critique it and share any ideas they may have. It is important that the users enjoy the layout and look of the application as they are the people who will be using it. The layout is very important to users as it must be easy to navigate through the application and easily find what they are looking for (International institute of business analysis , 2005).

Login page



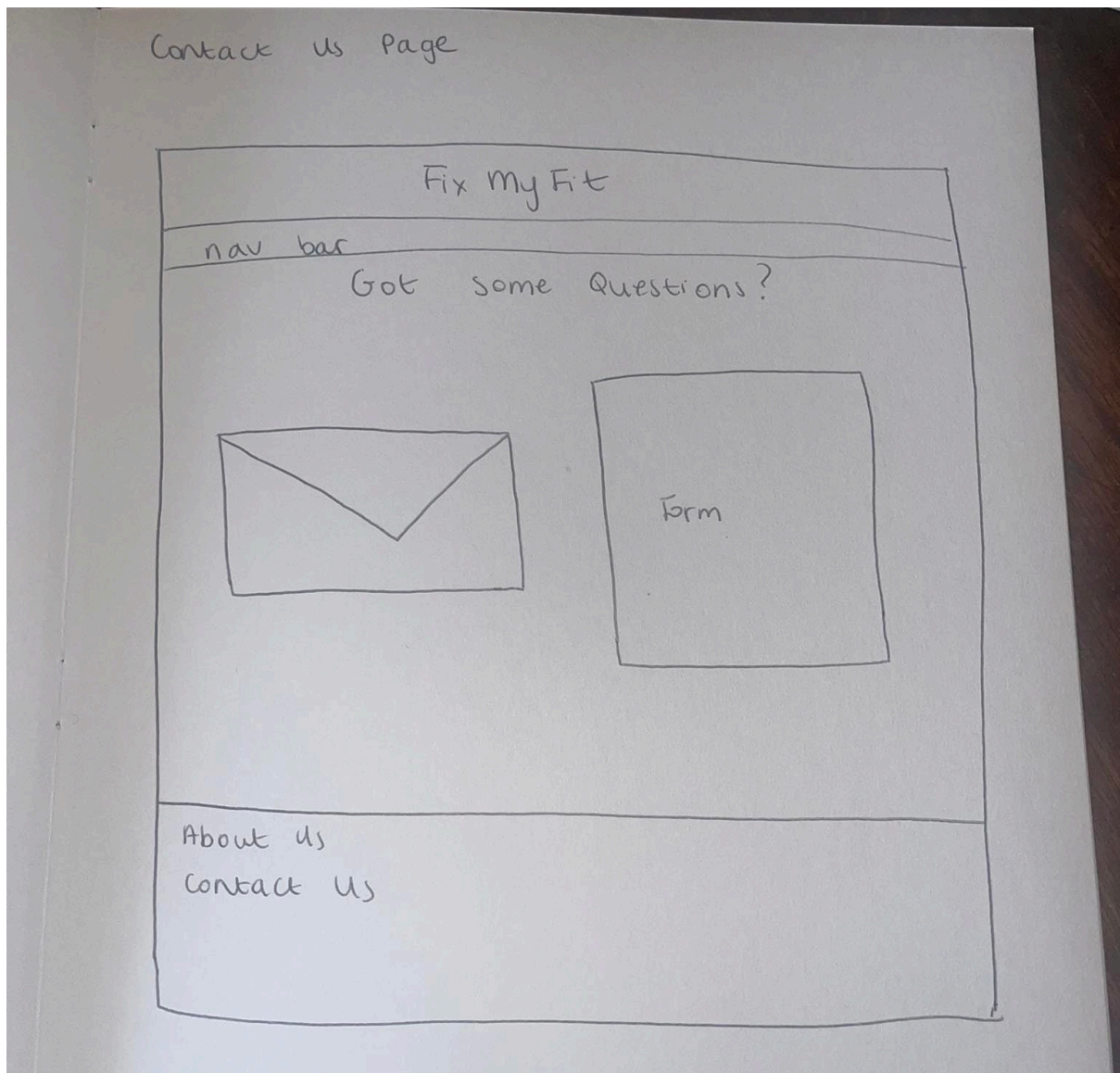
This is the login page that users will be shown when trying to access their account. There is an option to login with existing credentials or fill out a form to sign up to the application. In the case a user forgets their password, there is a forget password feature where a code will be sent to the users email to access their account and change the password. The login page is simple and easy to navigate for the user. The FixMyFit logo is on the center of the header of all the pages of the website. There will also be a chat bot on this screen where users can ask any questions they have before having to email the company and wait for a response.

Sign up page



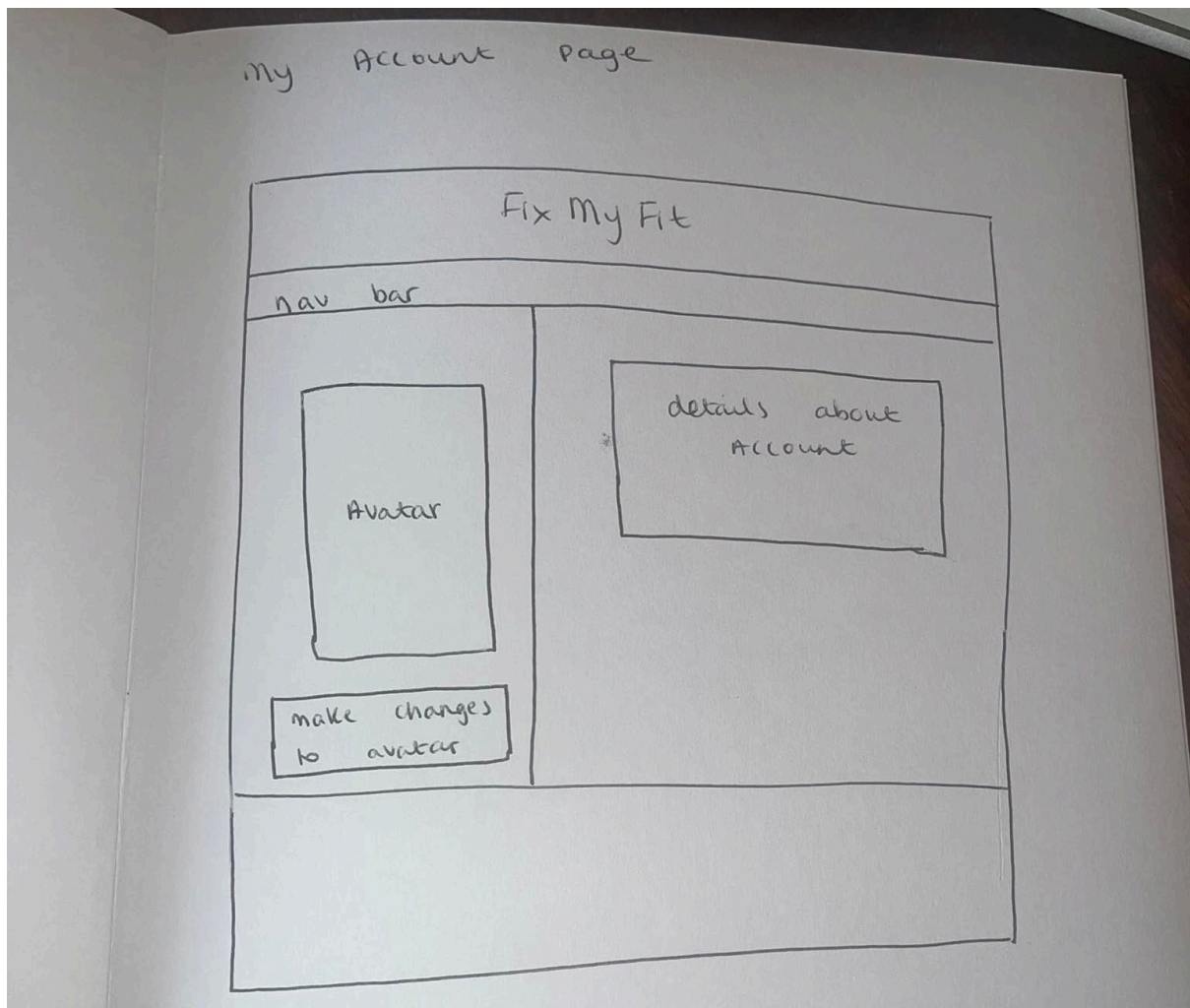
This page is linked from the login page where users can sign up to use the application. There is a form that asks for all the users' details including their email address, name, height, measurements, hair color and skin tone. Their account is then made and they can begin designing their avatar and using the application. The logo for FixMyFit is in the center of the header as it is on every page.

Contact page



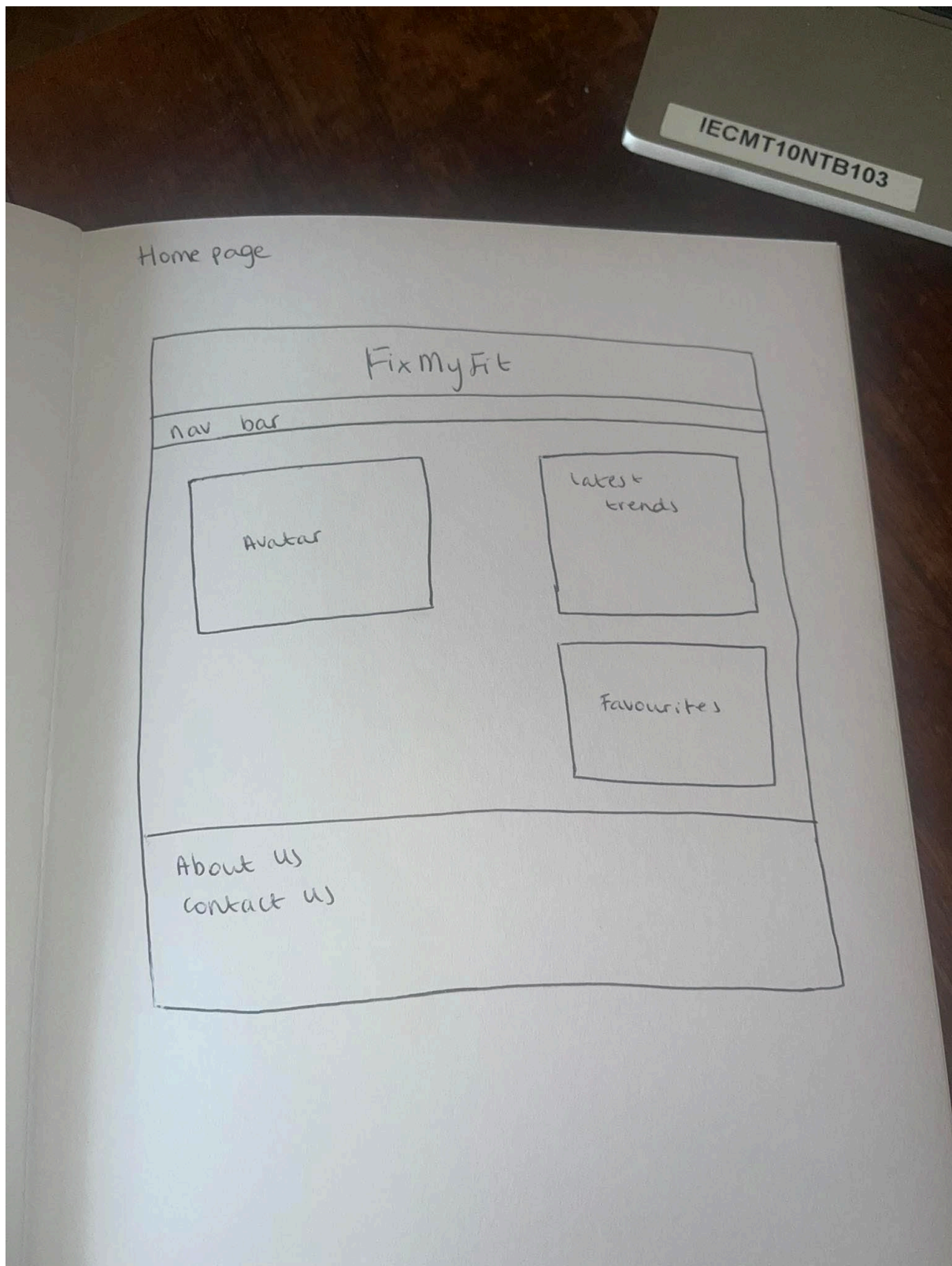
This page is designed for users to contact the company if they have any issues. On this page there will be a form that users fill out including their name, email address and the issue they have. They are then emailed back with solutions to their problem. This is a simple way of users communicating their problems as the form is easy to fill out and simple to submit.

My Account



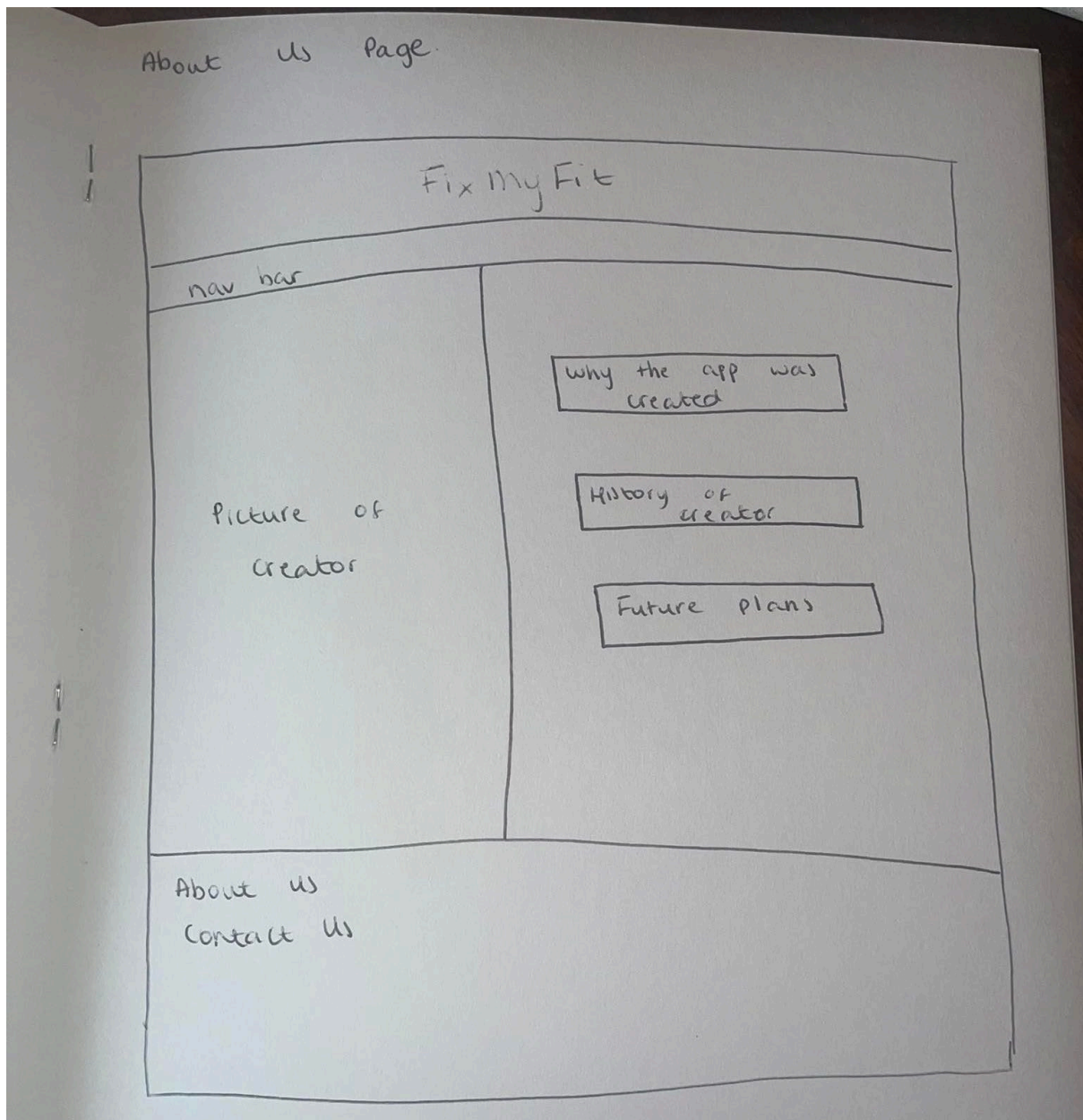
This page is personalized to each user with their own avatar and details. The avatar will be on the left hand side of the screen with a button underneath it which allows the user to make changes to the avatar. Each avatar is specific to the user with the correct hair color skin tone and measurements. On the right hand side, the user's details for the account are displayed including their email address and details about their measurements. The user can change their measurements or look of their avatar at any time.

Homepage



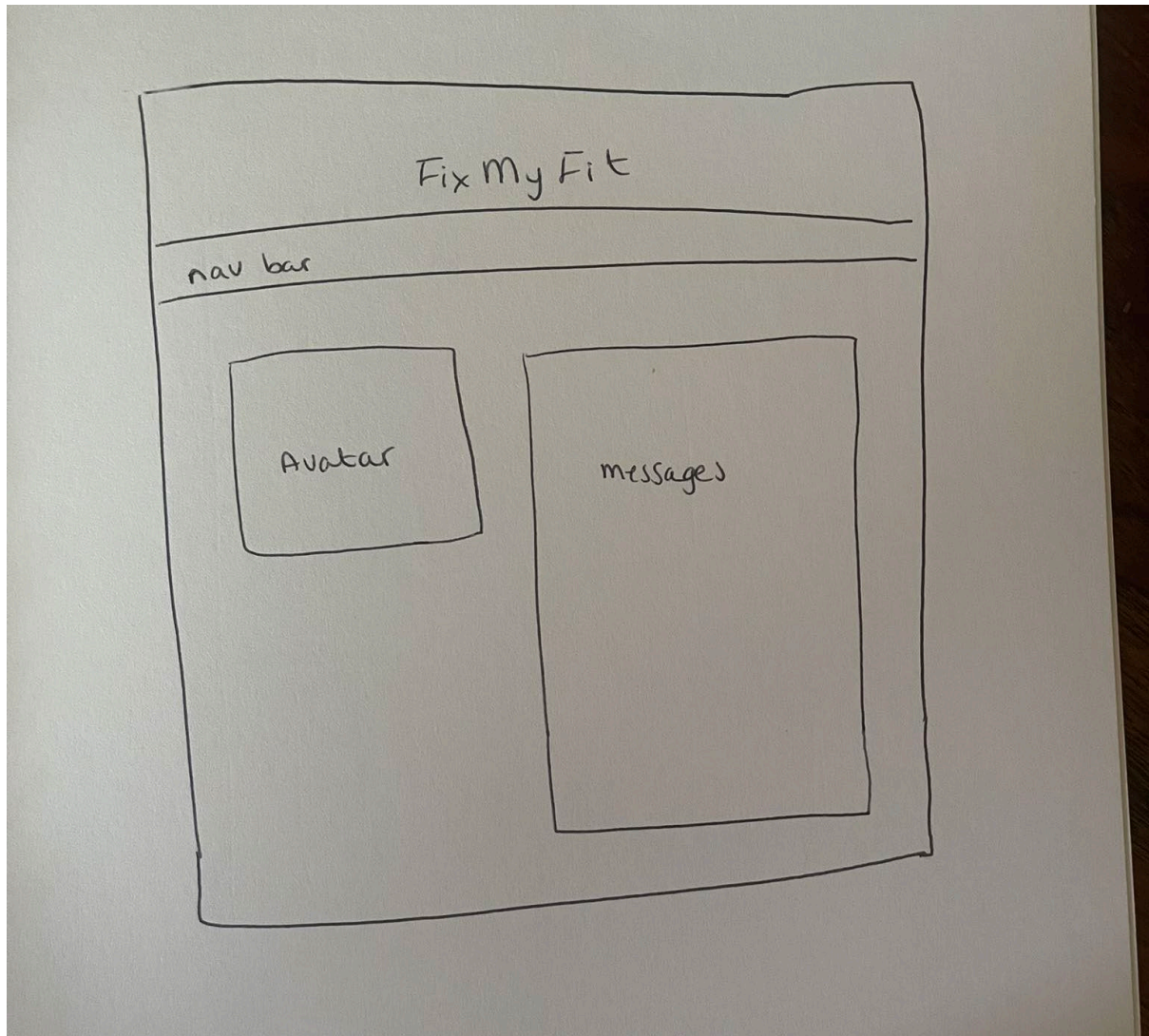
When a user logs into their account, they are directed to this page. Their avatar is presented on the screen along with the latest trends on the application and a link to their favorite's page. This page is specific to the user as their avatar and favorites are different for each person using the application.

About us page



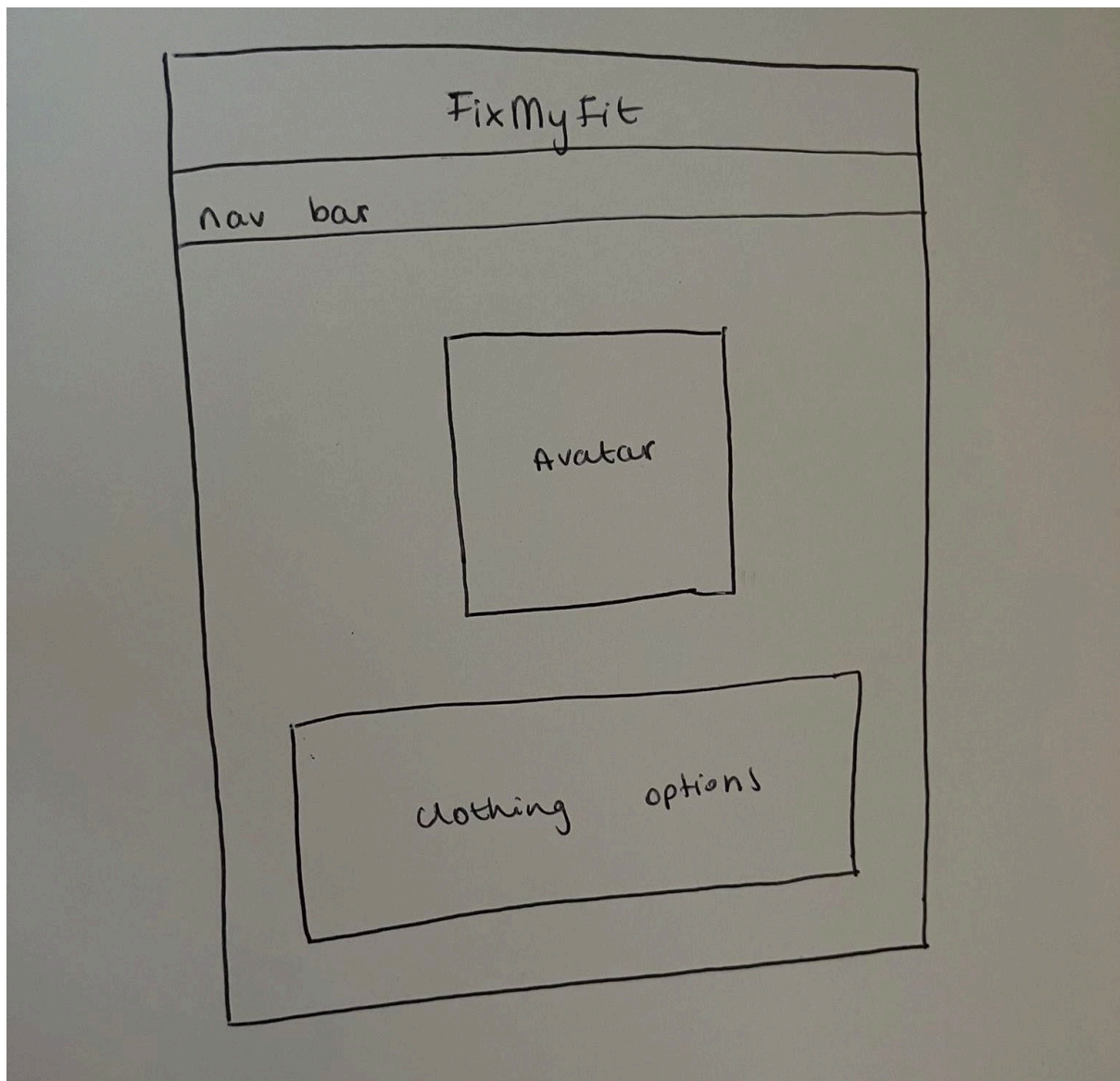
This page gives information about the creator, reasons behind creating the application and future plans for the application. The user has the opportunity to learn about the application and the creator which is valuable information to some users. Each section on the right hand side will be drop down boxes so that the information can be opened and closed with a click.

Message friends



This page is the social aspect of the application where users can send one another their clothing try on images on their avatar and get their friends opinions on their outfits. This page will be very basic and show the avatar on the screen and then the different message threads between the users.

Try on page



This is the page where users can try the clothing on their avatar to see how it will look on them. This is the most important page on the application as it is the main reason for having the application. This will also be the most high tech page as the avatar must be the correct measurements and the clothing must fit the avatar in the way it would on them exact measurements.

2.5 Requirements workshop result and conclusion:

The workshop was conducted after the first set of wireframes were completed. The aim of the workshop was to gather requirements from potential users and change any features on the wireframes that were needed. The feedback gathered on the layout of the application was then used to create the final prototype designs. The wireframes were created using the requirements that were gathered through the survey, interviews and brainstorming session. When creating the wireframes the most common features users demanded were high on the priority list of which features to include on the application. The Moscow analysis that was conducted helped in choosing what features must be included in the application. The most prevalent features on the wireframes were the ones from the 'must' and 'should' categories as these are what the stakeholders demanded the most.

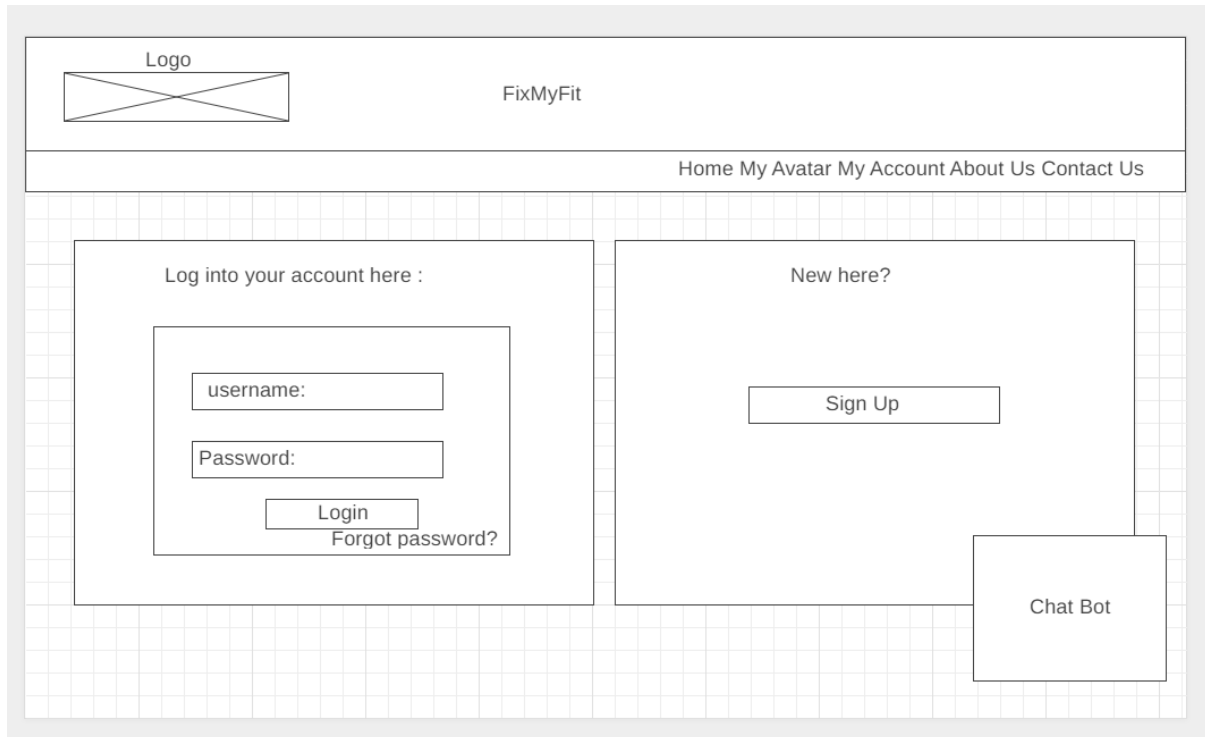
The stakeholders were pleased with the wireframes but had some critiques to make the application even better. In addition to critiquing the wireframes, they were also asked what they think the color theme should be for the application and their ideas were taken into consideration.

The criticisms provided by the stakeholders involved in the requirements workshop were:

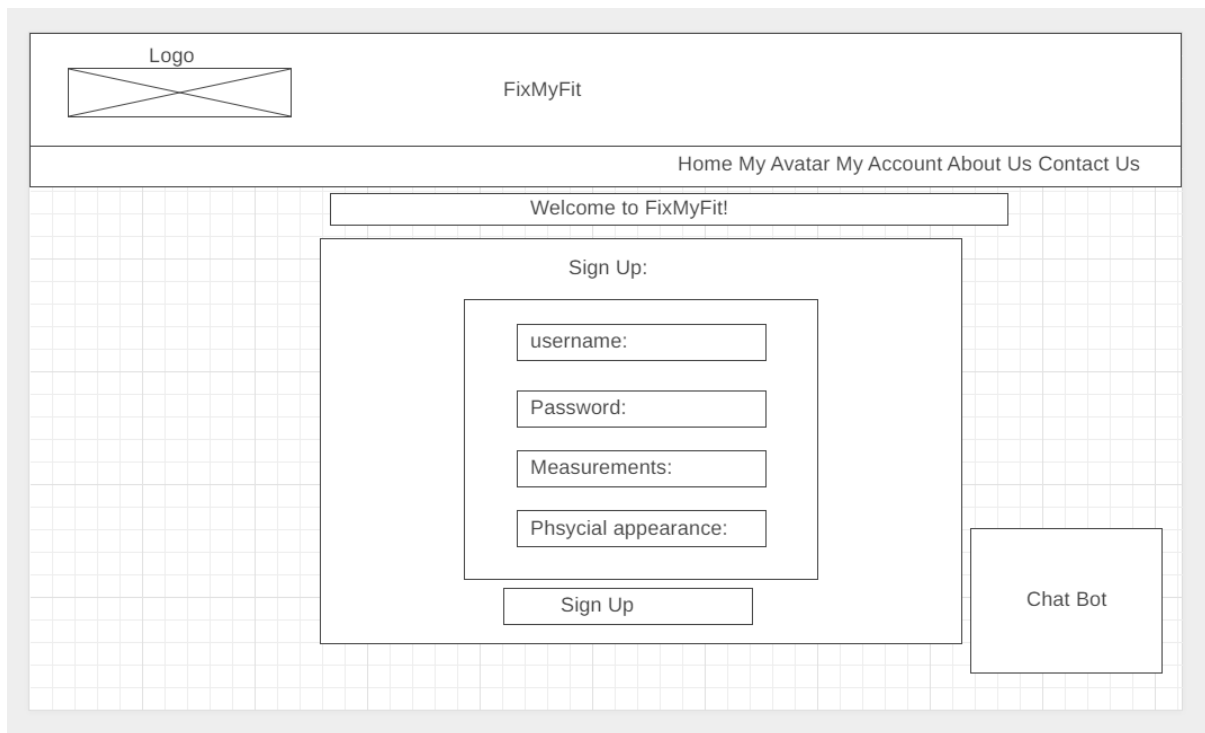
- The login page should have social media links
- There should be a link to a video or a video on the login page to show the user how to use the application and explain why it is useful
- There should be a navigation bar on the login page with the about us and contact us links
- The 'welcome to FixMyFit' on the sign up page should be moved above the form to sign up
- The navigation bar should be on the sign up page
- The measurements for the avatar should be included in the sign up form
- The link for the chat bot should be located on each page of the application – it should also have the ability to be minimized off the page
- On the about us page, there should be a video introduction instead of a picture
- Make the favorites section a page on its own as well as the small section on the homepage
- The avatar on the try on page should be beside the clothing categories not above them
- On the messages page, the avatar should be the same length as the chat section to make it more symmetrical

Wireframes version 2:

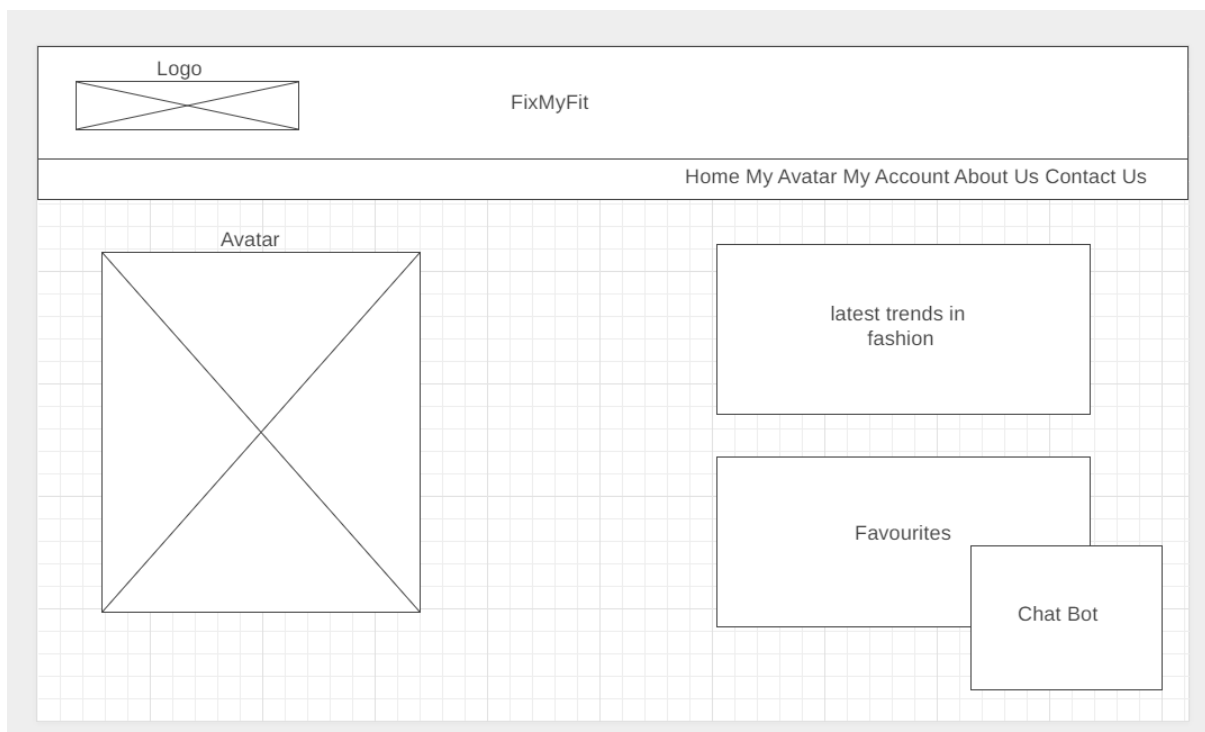
Login page



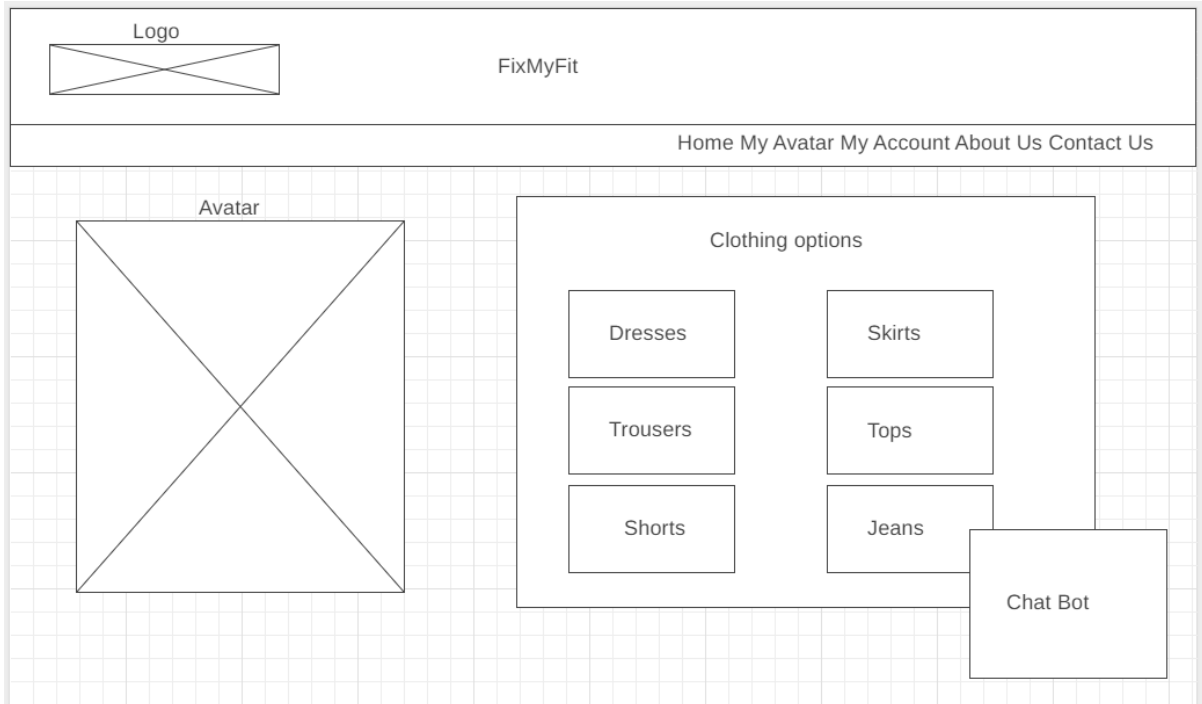
Signup page



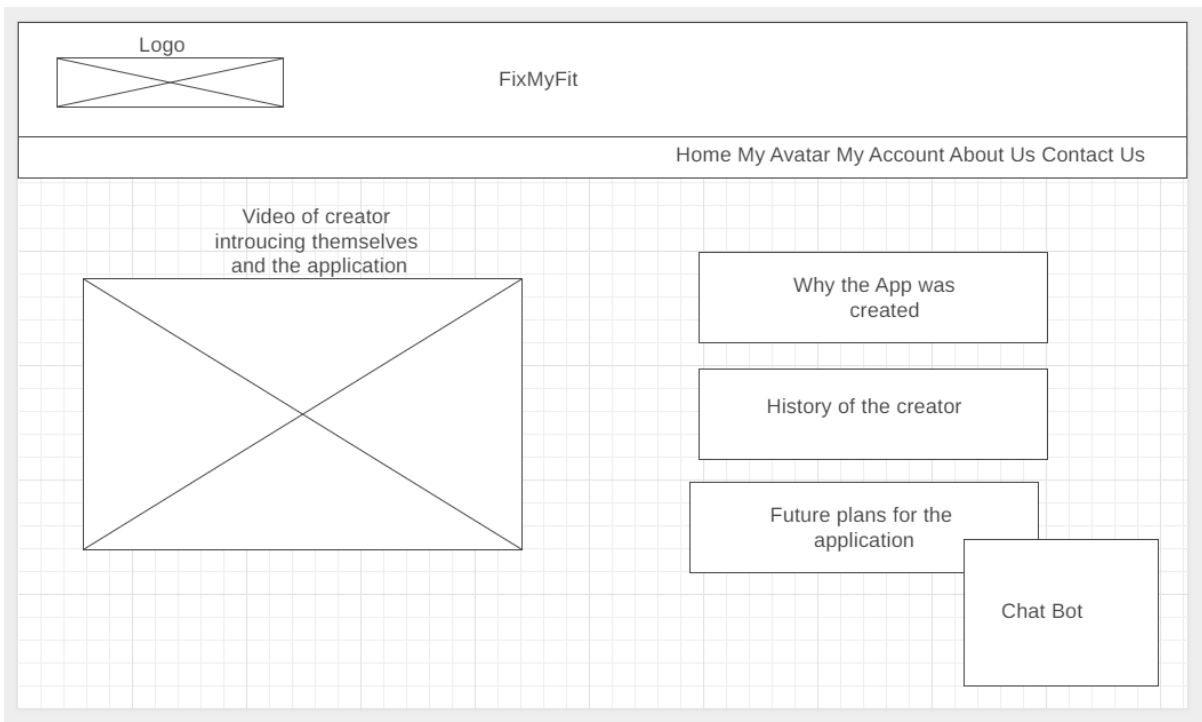
Homepage



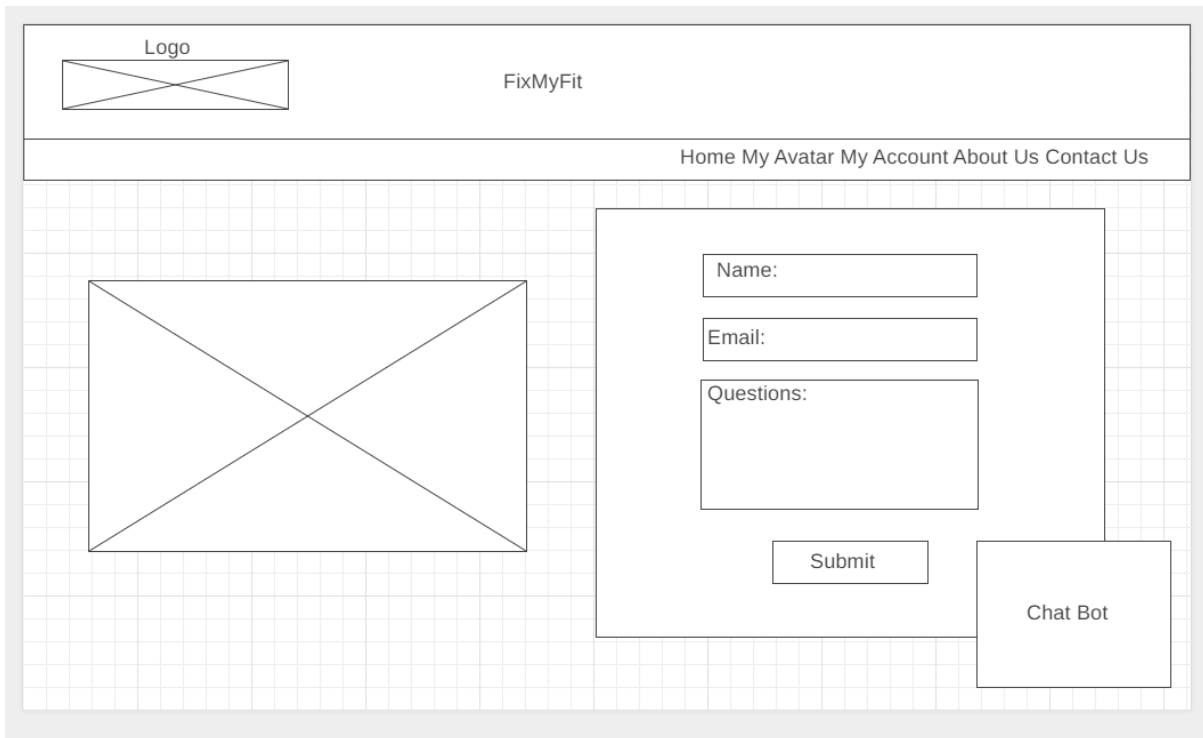
Try on page



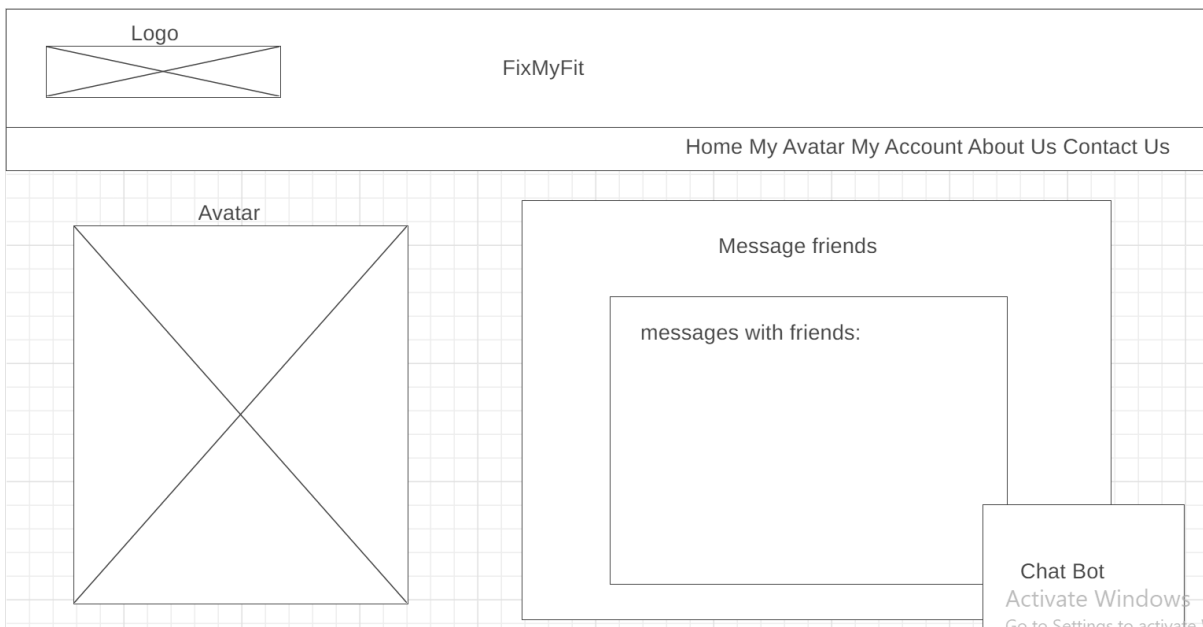
About us page



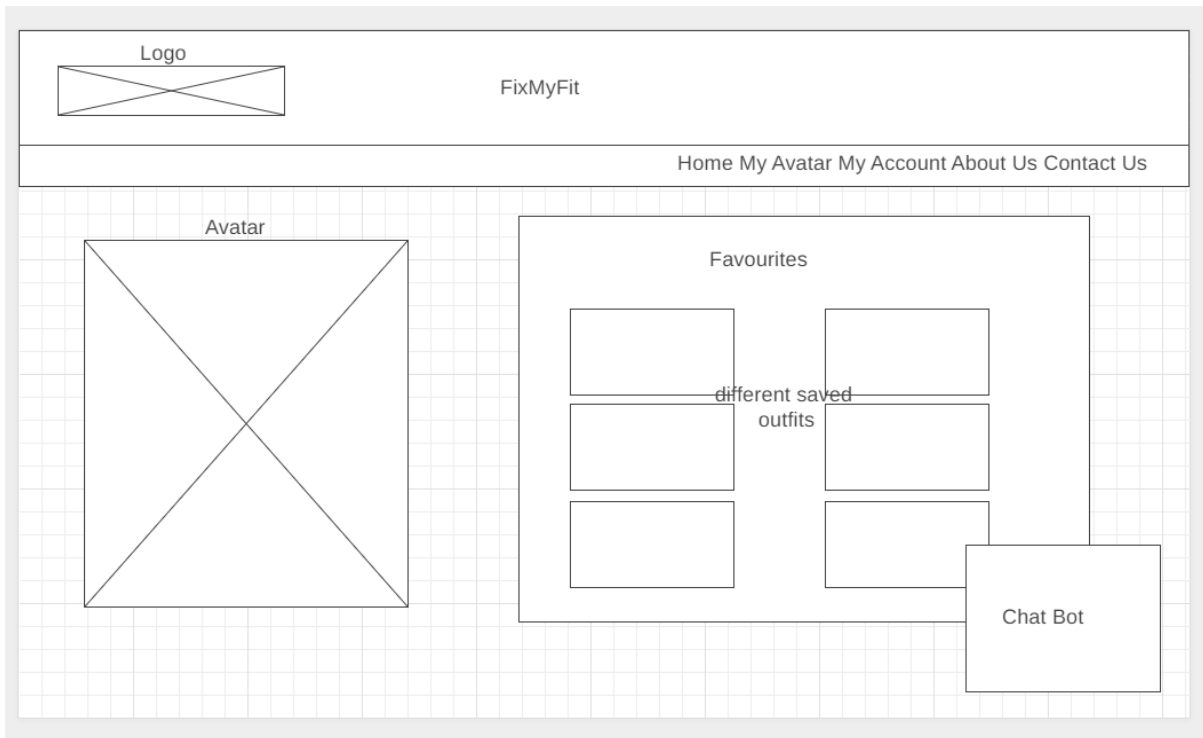
Contact us page



Message friends

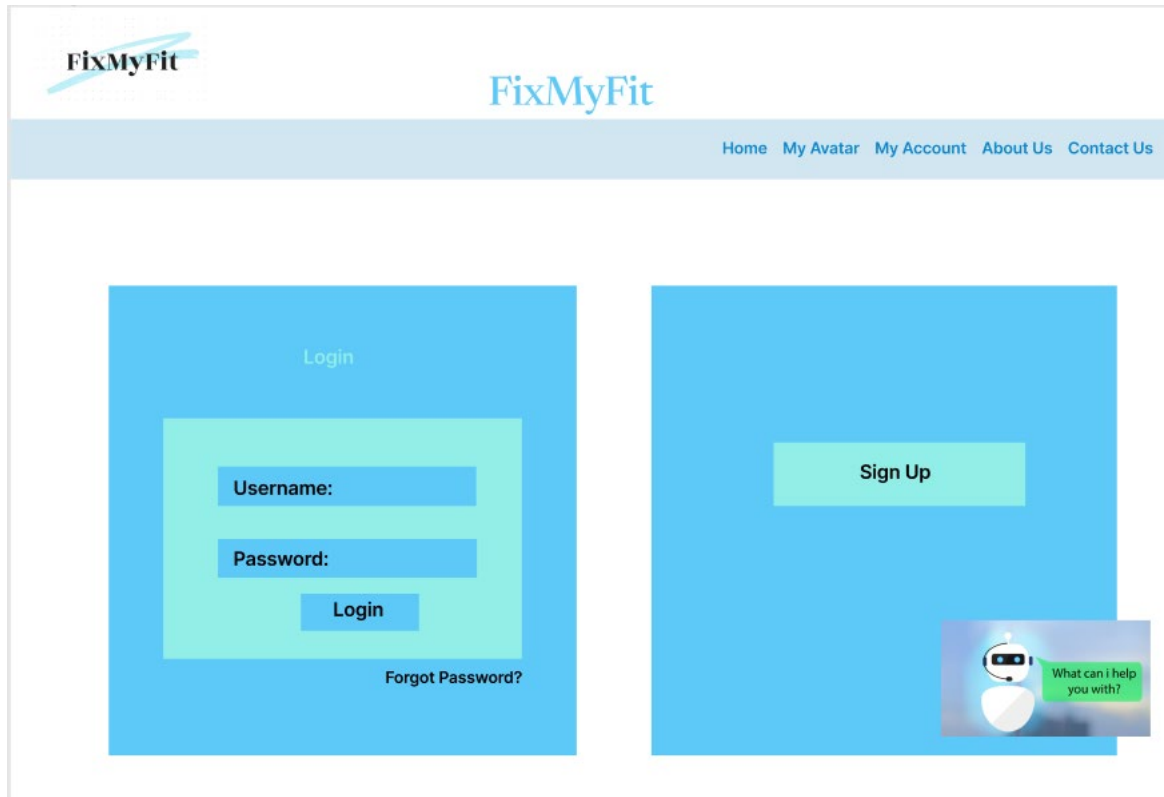


Favorite's page

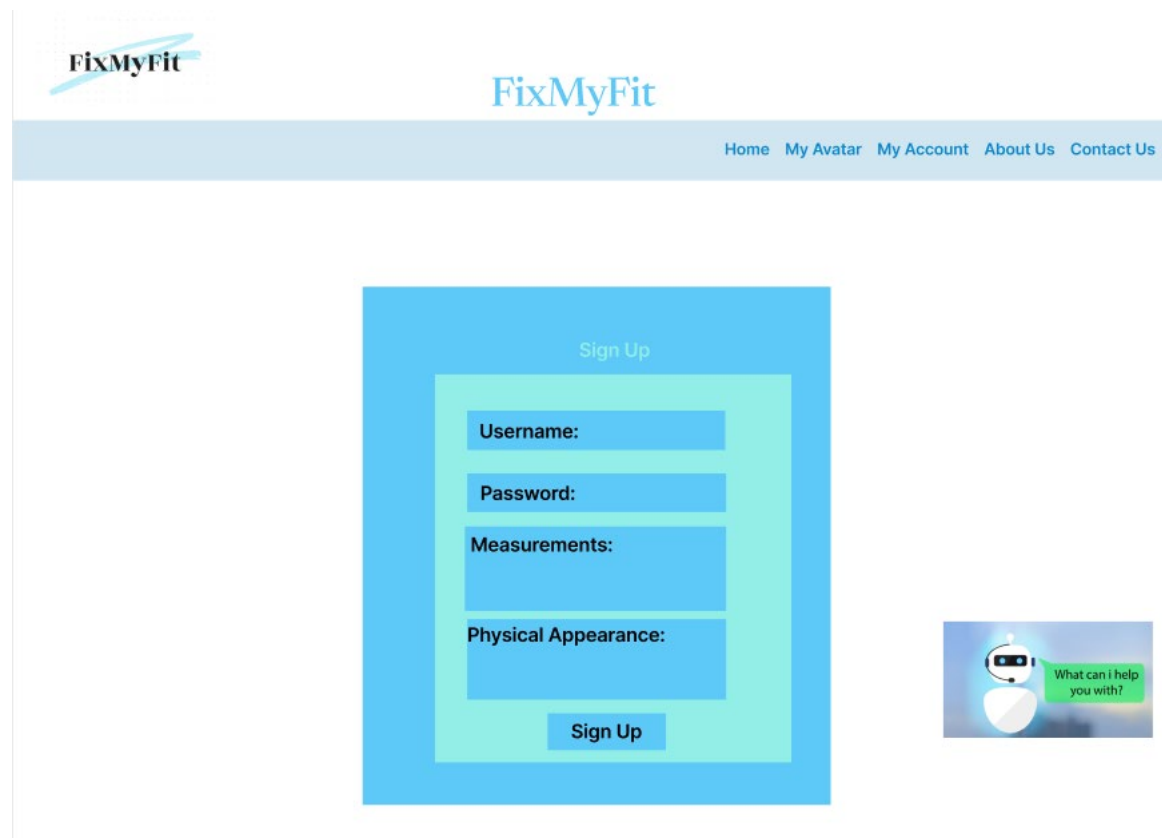


Prototypes

Login Page



Sign up page



Homepage



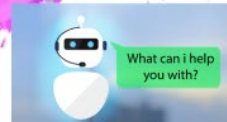
[Home](#) [My Avatar](#) [My Account](#) [About Us](#) [Contact Us](#)



Latest Trends



Wish list



Try on page

FixMyFit

FixMyFit

Home My Avatar My Account About Us Contact Us

Clothing options

dresses

Trousers

Skirts

Shorts

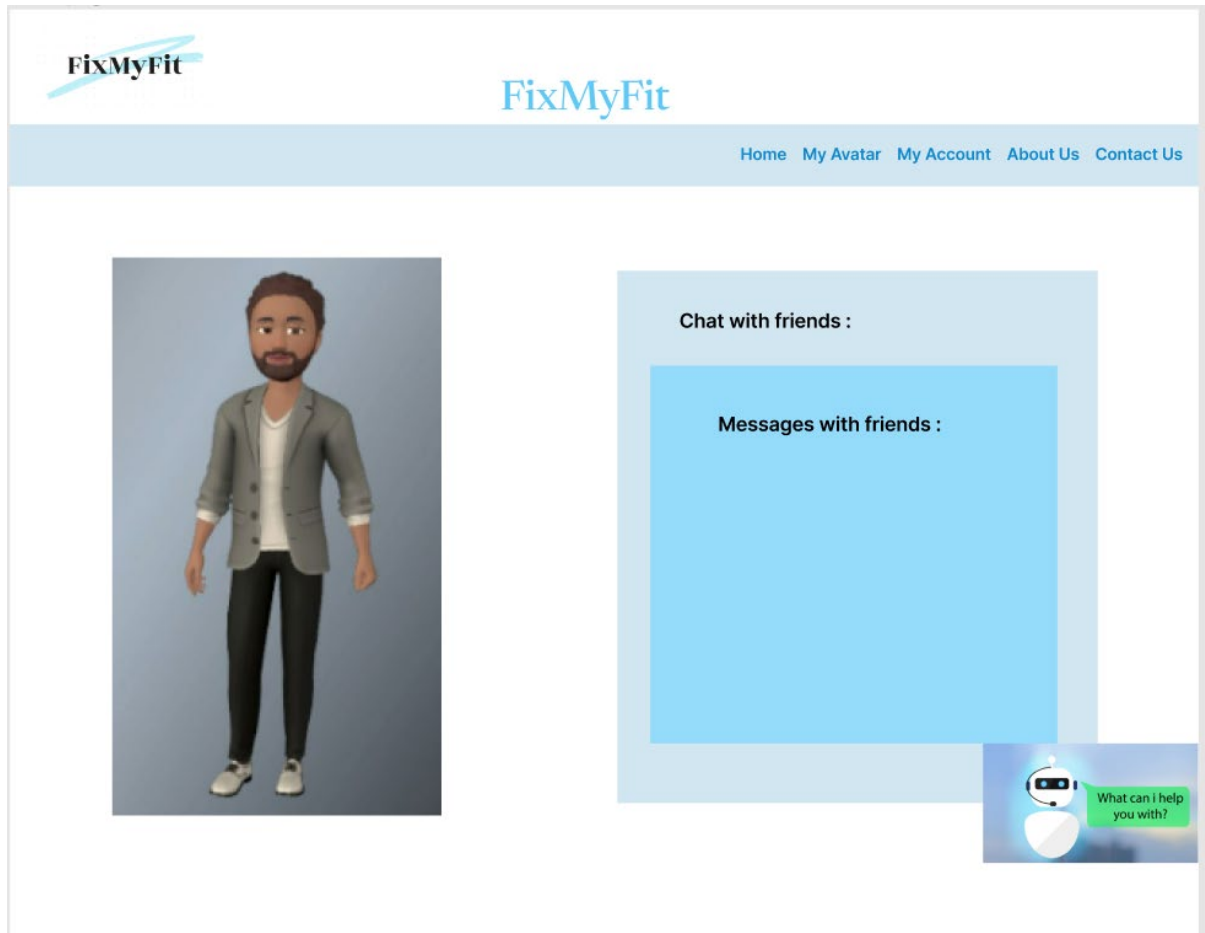
tops

Jeans

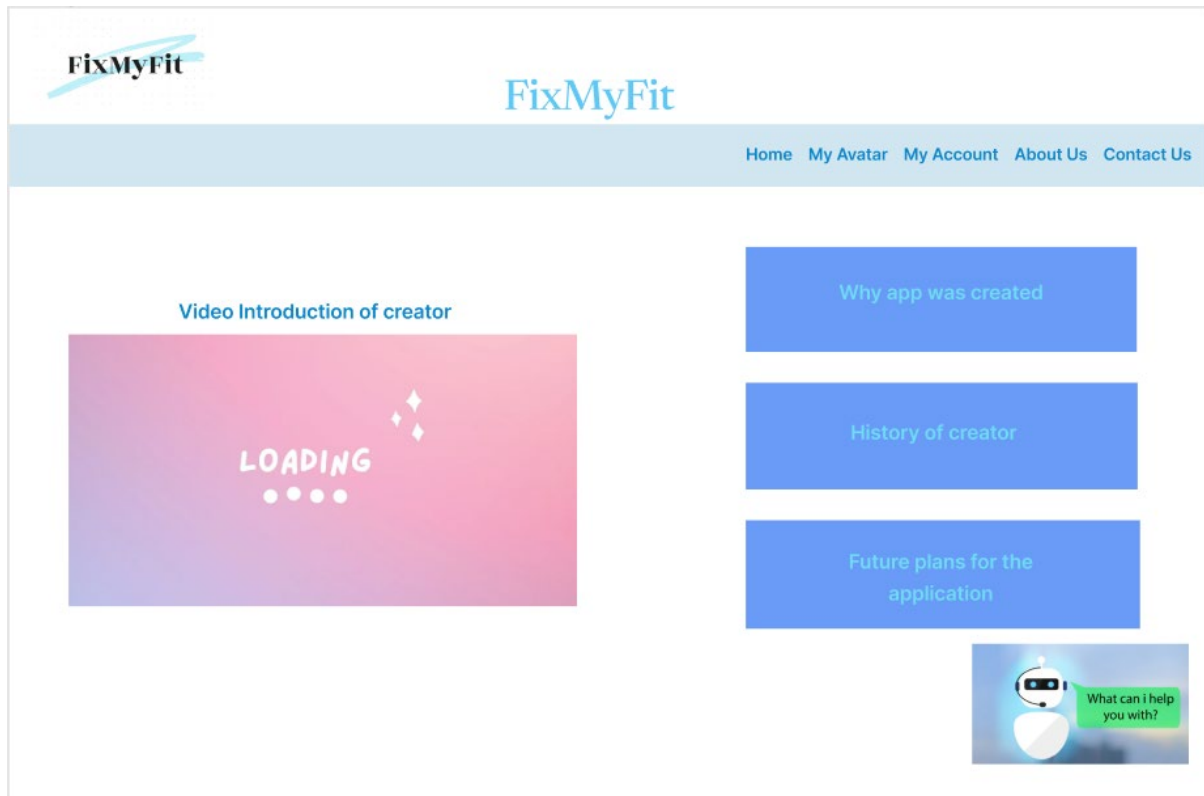
What can i help you with?

Reviews section for each clothing piece

Message friends



About us page



The About us page features a header with the FixMyFit logo on the left and a navigation menu on the right containing links for Home, My Avatar, My Account, About Us, and Contact Us. The main content area is divided into two columns. The left column contains a video introduction placeholder with a pink-to-purple gradient background, the text "Video Introduction of creator", and a "LOADING" indicator with three dots and three small diamonds. The right column contains three blue rectangular buttons stacked vertically, labeled "Why app was created", "History of creator", and "Future plans for the application". In the bottom right corner, there is a small chatbot icon with a speech bubble that says "What can i help you with?"

Contact us page



The Contact us page features a header with the FixMyFit logo on the left and a navigation menu on the right containing links for Home, My Avatar, My Account, About Us, and Contact Us. The main content area is divided into two columns. The left column contains a large blue envelope icon. The right column contains a blue contact form with three input fields labeled "Name:", "Email:", and "Questions:". Below the "Questions:" field is a "Submit" button. In the bottom right corner, there is a small chatbot icon with a speech bubble that says "What can i help you with?"

Favorite's page

FixMyFit

FixMyFit

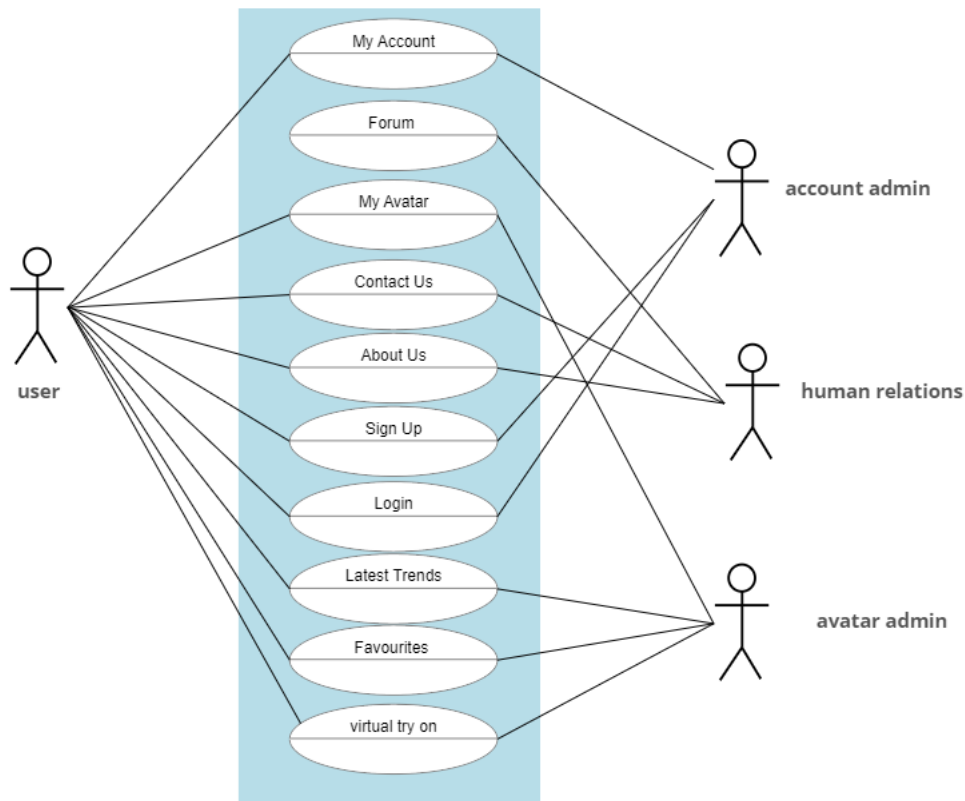
Home My Avatar My Account About Us Contact Us

Favorites

What can I help you with?

2.6 Interface analysis

UML diagram



The use case diagram shows the interaction between the stakeholders and the FixMyFit application. The center in blue represents the different pages within the application, there are three administrators for this application: human relations, account and avatar admins. The administrators have access to different features and can also edit the sections they are assigned to. The user can view the different pages but only make changes to their account details and their own avatar. Each normal user has the same permissions while the admins have extra abilities on the application.

Technologies needed to create a virtual try on application

The FixMyFit application would utilize cutting edge technologies that would provide a seamless and realistic experience for the user.

- Augmented reality

This can be used to create the virtual try on application as it can create the virtual try on environment for the avatar. This will give a realistic sense of how the clothing would look and fit on the avatar. The augmented reality allows the avatar to be moved and the clothing can be seen at every angle. This is important for the FixMyFit application as from the requirements gathered, the users would like to see a 360 degree view of the items they are trying on. (London, 2021)

- 3D modelling

Since the FixMyFit application uses an avatar, 3D modelling can be used to make the avatar the exact measurements needed for each user. The clothing can then be realistically placed on the avatar's body using augmented reality and computer vision (London, 2021).

- Machine learning

This is an important part of using artificial intelligence and computer vision as the computer can learn from mistakes and improve the application. The application can learn to detect a better way of simulating the clothing onto the avatar. This would result in the clothing looking more realistic on the avatar and ensuring the fit is portrayed correctly to the user (London, 2021).

User stories

As a:	I want to be able to:	Acceptance criteria:
User	Register to the application and have access to the features.	<ol style="list-style-type: none"> 1. The user must enter all of their details on the sign up page 2. The account is then created
User	Have an avatar that has my exact measurements to ensure the clothing looks how it will in person.	<ol style="list-style-type: none"> 1. The user must enter their correct measurements for their avatar 2. The avatar created must be true to these measurements
User	Have access to different brands of clothing.	<ol style="list-style-type: none"> 1. The application must have a variety of brands for the user to choose from 2.
User	Have a wide selection of clothing to choose from to try on.	<ol style="list-style-type: none"> 1. The user should be able to look through a selection of clothing and try on different combinations 2. The items that are chosen should be portrayed accurately on the avatar
User	View the clothing from different angles.	<ol style="list-style-type: none"> 1. The avatar should be able to be rotated 360 degrees 2. The clothing should be reflected properly at every angle and show a

		true representation of the clothing
User	Save different try ons I have made for future reference.	<ol style="list-style-type: none"> 1. There should be a favorites page for the user to save different outfit combinations 2. The user should be able to save these combinations in an organized manner and have the ability to search for them at a later date
User	Share different outfits I try on my avatar with my friends/family.	<ol style="list-style-type: none"> 1. The application will have a link to social media where outfits can be shared 2. The outfits can be saved to share via message
Admin	Edit different pages to add or remove information.	<ol style="list-style-type: none"> 1. Admins have special access to pages to make changes where necessary 2. The admins have a different type of account to regular users as they have permission to make changes

IEEE Application requirements specification

➤ Purpose

The purpose of this requirements specification is to capture the suitable requirements for the FixMyFit application. The list of functional and non-functional requirements are outlined clearly. These requirements will ensure the application is developed correctly and meets the expectations and requirements of the stakeholders. The completed IEEE requirements specification document will be reviewed by all stakeholders to ensure all requirements are addressed.

➤ Scope

The rise of fast fashion and wastage of clothing has been very prevalent in recent years and the FixMyFit application could help combat this issue. Many people will order clothing online and not return the items if they do not like them. This is due to the hassle and time it takes to return items and so this clothing is either thrown away to be put into landfill or gathering dust around the house. This is a big issue and the application could aid users in buying clothing that they will like when they try it on as they will have seen it on their measurements. The avatar the users create will be their true measurements, height, skin color and they also have the option to add a picture of their face to add to the avatar (Irish Examiner, 2019).

Along with the benefit of reducing wastage in the clothing industry, the application will help users buy clothing that will make them feel good. The user can add accessories to the outfit they are virtually trying on to see what would go with it. The amount of returns can also be reduced with the use of this application as the users will have seen how the clothing will look on them prior to buying (UN environment programme, 2022).

The FixMyFit application will be available online, on the apple store and the play store for android. This application will have navigation that is simple for anyone to use, along with a personalized experience for each user. The favorite's page will be different for each user along with who they share their virtual try on with. The users can share their try on to their social media as well as on the application to their friends and family. This is a great feature as it is similar to shopping with someone – you can get their opinion before buying.

The user can change the measurements at any time through the 'my account' section on the application to ensure their avatar is an accurate representation of them.

3.1 Functional Requirements

3.1.1 Class one: User

Functional requirement 1	
Identification Code:	FR1
Title:	Image uploading
Description:	The FixMyFit application should allow the user to upload an image of themselves to make their avatar more realistic.
Location:	This is located in the 'my account' section of the application,
Priority:	Must have.

Functional requirement 2	
Identification Code:	FR2
Title:	Clothing selection
Description:	The FixMyFit application should have access to a wide range of clothing brands and styles in order for there to be items for all users to virtually try on.
Location:	This is located in the 'try on' section of the application as well as the 'latest trends' and 'favourites' sections.
Priority:	Must have.

Functional requirement 3	
Identification Code:	FR3
Title:	Adjusting size of avatar
Description:	The measurements of the avatar must be easily adjusted to reflect an accurate representation of the user. This will ensure the clothing virtually tried on is the most accurate it can be.
Location:	The measurements of the avatar are located in the 'my account' section of the application.
Priority:	Must have.

Functional requirement 4	
Identification Code:	FR4
Title:	Virtual try on
Description:	The user must be able to virtually try on items of clothing on their avatar and see how the clothing would fit their measurements and height.
Location:	This is located in the 'try on' section of the application.
Priority:	Must have.

Functional requirement 5	
Identification Code:	FR5
Title:	Showing avatar in different angles
Description:	The avatar should rotate in order for the user to view the clothing from different angles.
Location:	Virtual try on section.
Priority:	Should have.

Functional requirement 6	
Identification Code:	FR6
Title:	About us
Description:	This page describes the application, the reason behind it, and the benefits it will bring.
Location:	About us page
Priority:	Must have

Functional requirement 7	
Identification Code:	FR7
Title:	Contact us
Description:	This page will have a forum users can submit with questions and we will get back to them with answers.
Location:	Contact us page.
Priority:	Must have.

Functional requirement 8	
Identification Code:	FR8
Title:	Adjusting features on avatar
Description:	The user must be able to change the hair colour, skin colour, eye colour, facial features of their avatar.
Location:	My account page.
Priority:	Must have.

Functional requirement 9	
Identification Code:	FR9
Title:	Saved outfits/favourites page
Description:	The user is able to save different items of clothing they have tried on their avatar to their favourite's page.
Location:	Favourite's page.
Priority:	Must have.

Functional requirement 10	
Identification Code:	FR10
Title:	Recommended pieces.
Description:	The user should have a section on the application where they can see items that are recommended specifically for them based on the items they have previously tried on.
Location:	Recommended items section.
Priority:	Should have.

Functional requirement 11	
Identification Code:	FR11
Title:	Share with friends and family.
Description:	The user should be able to share the pieces they try on their avatars to their family and friends in order to gather their opinions.
Location:	Messaging section.
Priority:	Should have.

Functional requirement 12	
Identification Code:	FR12
Title:	Description of clothing.
Description:	The material and textures should be written in a description box for each piece of clothing for the users to read.
Location:	Try on section of the application.
Priority:	Could have.

Functional requirement 13	
Identification Code:	FR13
Title:	Colour change.
Description:	The colour of the clothing on the avatar can be changed to whatever colour the user desires.
Location:	Try on section.
Priority:	Won't have.

Functional requirement 14	
Identification Code:	FR14
Title:	Feedback from other shoppers.
Description:	The users on the application can leave reviews of the items for everyone to read when trying on the items.
Location:	Review section under the avatar when trying on clothing.
Priority:	Should have.

Functional requirement 15	
Identification Code:	FR15
Title:	Accessories that would go with the chosen outfit.
Description:	The users would receive a selection of accessories that would go with the chosen outfit that they can try on their avatar.
Location:	Try on section.
Priority:	Could have.

Functional requirement 16	
Identification Code:	FR16
Title:	360 degree view.
Description:	The user should be able to see the full 360 degrees of the clothing on the avatar to decide if they like the clothing.
Location:	Try on section.
Priority:	Should have.

Functional requirement 17	
Identification Code:	FR17
Title:	Purchase items.
Description:	The user can click a link that will bring them to the website of the clothing shop they are trying to buy from.
Location:	Link on try on page and favourite's page.
Priority:	Could have.

Functional requirement 18	
Identification Code:	FR18
Title:	Link between FixMyFit and social media platforms.
Description:	FixMyFit should be able to share try on images on social media platforms such as snapchat, Instagram and facebook.
Location:	Share button on try on section.
Priority:	Should have.

Functional requirement 19	
Identification Code:	FR19
Title:	User support chat bot.
Description:	The chat bot will have a database of answers to common questions that they will answer to users. If the answer is not in the database, they will be forwarded to the contact us form.
Location:	This is located throughout the FixMyFit application.
Priority:	Could have.

Functional requirement 20	
Identification Code:	FR20
Title:	The clothing should be broken up into categories.
Description:	The clothing available to try on should be broken up into clothing categories like on fashion websites i.e. dresses, skirts, tops etc.
Location:	Clothing section.
Priority:	Must have.

Functional requirement 21	
Identification Code:	FR21
Title:	Recent trends section.
Description:	Recent trends in the fashion industry should be shared with users with options of clothing items to try on their avatar,
Location:	Recent trends page.
Priority:	Could have.

Functional requirement 22	
Identification Code:	FR22
Title:	Mix different brands of clothing.
Description:	The application should allow users to try on clothing from different brands at the one time.
Location:	Try on section.
Priority:	Must have.

Functional requirement 23	
Identification Code:	FR23
Title:	e-commerce integration
Description:	The application could have a link for the user to buy the item if they like it when they try it on.
Location:	Link to website to buy the item.
Priority:	Could have.

Functional requirement 24	
Identification Code:	FR24
Title:	User analytics
Description:	The application should be able to track each user's behaviour and in turn provide suggestions and insights to the user based on this information.
Location:	
Priority:	Should have.

Functional requirement 25	
Identification Code:	FR25
Title:	Color customization
Description:	The application will not allow users to change the colour of items as they are solely showing clothing that is available to purchase online.
Location:	
Priority:	Won't have.

Non-functional requirements:

3.1.1 User class one: Security requirements

Non-Functional requirement 1	
Identification Code:	NF1
Title:	Login
Description:	The application should only be accessible by users that have an account. Each user account has sensitive personal data and so the security must be of a high standard. The user's password must have requirements such as capital letter, number and symbol included in order to make their account more secure.

Non-Functional requirement 2	
Identification Code:	NF2
Title:	Encryption of sensitive data
Description:	The application holds personal data of the user that is sensitive and so it should be encrypted to ensure it is securely stored.

Non-Functional requirement 3	
Identification Code:	NF3
Title:	Administrator access
Description:	The access abilities of the administrators will be linked to their email and so only that email account has the extra permissions. The permissions will be strict and these users will only have permissions to pages they require.

3.1.2 User class two: Performance requirements

Non-Functional requirement 4	
Identification Code:	NF4
Title:	Easy to navigate
Description:	The FixMyFit application must be easily navigated for the user. The prototypes show the application is labelled well and easily readable for users.

Non-Functional requirement 5	
Identification Code:	NF5
Title:	Changing measurements of avatar
Description:	The application must be quick to change the measurements of the avatar when saved. The application should take no more than 30 seconds to update the avatar with the new measurements and specifications from the user.

Non-Functional requirement 6	
Identification Code:	NF6
Title:	Posting reviews
Description:	When a user posts a review of an item, it should be available to view for all users within 30 seconds. The users must update their web page in order to see the new reviews. The post is checked against a dictionary of prohibited vocabulary before posted to the application.

Non-Functional requirement 7	
Identification Code:	NF7
Title:	Return to homepage or previous pages
Description:	When the user selects the return to home or a previous page they should be redirected within 5 seconds.

Non-Functional requirement 8	
Identification Code:	NF8
Title:	Log out
Description:	When a user clicks the log out button, the application should close and return them to the log in page within 7 seconds.

Non-Functional requirement 9	
Identification Code:	NF9
Title:	Page loading times
Description:	Each page on the FixMyFit application should load for users within 8 seconds. This should be the maximum amount of time it takes as users are impatient with applications that do not load quickly.

3.1.3 User class two: Localization requirements

Non-Functional requirement 10	
Identification Code:	NF10
Title:	Languages
Description:	The application will have an option to change the language to ensure it is accessible to everyone.

Non-Functional requirement 11	
Identification Code:	NF11
Title:	Measurements
Description:	The application will allow the user to choose what metric of measurement they would like to use – pounds, kilograms, inches, centimetres.

3.1.4 User class two: Compatibility requirements

Non-Functional requirement 12	
Identification Code:	NF12
Title:	Different devices
Description:	The application will be compatible on apple technology, android and also online on a laptop/desktop/google.

Acknowledgements

I would like to thank Francis Sheridan for all of the help given throughout this project and NCI for supporting me in completing my final year. I would also like to thank John Kelly for being my supervisor for this project and also all of my classmates for supporting me throughout the duration of this project.

References

The following were accessed throughout the project. A record was kept of them to be documented at a later date. The dates below are accessed when the references list was being completed.

bold knight (2023) 'The Benefits of Virtual Try-On for Fashion Brands and Retailers', *www.linkedin.com*, 4 May. Available at: <https://www.linkedin.com/pulse/benefits-virtual-try-on-fashion-brands-retailers-bold-knight> (Accessed: 12 May 2023).

International institute of business analysis (2005) *The Guide to the Business Analysis Body of Knowledge® Vol 1.0*. toronto, canada: International Institute of Business Analysis.

Irish Examiner (2019) 'Returning goods purchased online is "too much hassle" for Irish adults - An Post survey', *www.irishexaminer.com*, 10 January. Available at: <https://www.irishexaminer.com/business/arid-30896779.html> (Accessed: 10 May 2023).

London, L. (2021) 'Virtual Try-On Is More Than A Pandemic Trend And These Brands Are Reaping The Rewards', *www.forbes.com*, 20 May. Available at: <https://www.forbes.com/sites/lalalondon/2021/05/20/virtual-try-on-is-more-than-a-pandemic-trendand-these-brands-are-reaping-the-rewards/> (Accessed: 12 May 2023).

Ulanova, O. (2021) '5 Goals New Product Prototype Development Will Help You Achieve', *www.entrepreneur.com*, 1 April. Available at: <https://www.entrepreneur.com/leadership/5-goals-new-product-prototype-development-will-help-you/366305> (Accessed: 12 May 2023).

UN environment programme (2022) 'The environmental costs of fast fashion', *www.unep.org*, 24 November. Available at: <https://www.unep.org/news-and-stories/story/environmental-costs-fast-fashion> (Accessed: 10 May 2023).

Appendix

Project Proposal



National College of Ireland

Project Proposal

Title: Fix my fit

30/10/2022

Technology Management

Business Analysis

Academic Year 2022 - 2023

Sarah Brennan

X19356081

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Contents

1.0 Objectives	91
2.0 Background	91
3.0 State of the Art.....	92
4.0 Technical Approach.....	93
5.0 Technical Details	94
6.0 Project Plan.....	95
7.0 Validation/Verification.....	97

1.0 Objectives

This project will be very beneficial to any parties that are deciding to purchase clothing or shoes online. The main objective of this project is to help people make decisions on if they like the clothing they are buying and if it would suit their personal style.

This application will allow the user to virtually try on clothing on their devices at home. The application will ask the user for their measurements and an avatar will be created that will try on the clothes for the user. This will help the user decide if they like the clothing on themselves without having to order the items.

2.0 Background

I decided to undertake this project as it is a difficult task shopping online. It is challenging to visual the clothing on you that you are deciding to buy. This application will help users save their time and money by seeing the items on their body shape before ordering them.

The objectives in section 1.0 will be achieved by researching how the avatar will be created for each user and ensuring the clothing will be projected onto the different sizes of avatars correctly.

3.0 State of the Art

Two applications similar to my idea are:

- Zylar
- 3DLook

These two applications are virtual clothes try on applications.

Zylar does not use exact measurements of the user. They use a scale where you can make the avatar bigger or smaller in different areas i.e., broader/slimmer shoulders, larger/smaller legs, taller/smaller.

It will differ from these other applications as it will be simpler to navigate through and make an account. There will be a feature to save images of the clothing that is tried on by the avatar.

4.0 Technical Approach

In order to identify stakeholders I will take time to think about who will use the app, who will be interested in the app and who will be effected by the app. This will set out my stakeholders for this project.

In order to elicit requirements from the users I plan to conduct a brainstorming session with different age groups in order to gain the best outcome from the session. This will bring different insights from different groups of people. By using different age groups, it will give me an insight into the needs of younger users and older users.

I also plan to use google surveys to send surveys out to gain requirements for this project. For this I plan to use multiple choice, yes/no, and rating questions. These types of questions have been proven to yield the best results from participants. I plan to create prototypes of the application to get feedback from users and gather any more requirements they may need.

User observation will be useful in this project to see where the user has difficulty on the application and parts that can be made simpler to use. This will be done using the prototype designs. I am also planning to hold requirements workshops, interviews and focus groups to gather user requirements. In order to gain quality insights I must plan this workshop well and make it interactive in order to maintain everyone's attention. I plan to use visualisation tools to give the users an idea of how the application will look.

Interface analysis will be very useful for this project to ensure the application is the best quality. This will point out any flaws early on in the project. Document analysis will also be undertaken in this project. This is a vital requirement elicitation technique as it refines the manual for the user to get the best possible use of the application.

I plan to conduct week long sprints in order to complete this project. I will give myself a task each week to complete for the following week. This will ensure I get my tasks completed efficiently without leaving key components to the last minute.

5.0 Technical Details

In order to create the prototype designs I plan to use Balsamiq or wireframe.cc. These are great websites that will help make professional designs for each page of my application.

Google surveys will be used when I am conducting my requirements elicitation. In my opinion this is the best option as it is free, gathers the results in one section and will allow a large number of questions to be asked. There is also many different options for the types of questions you want to ask which will be useful.

WordPress will be used to create my website. The website will contain all information about my application and provide insights into why the application was made. It will also hold information about the elicitation techniques I used and what ones I plan to use. In addition to this I plan to have a section that holds the results of my requirements gathering.

In order to observe how the user will interact with the application I plan to use a PowerPoint with the prototype designs. I will get the users to look through the designs and point out any issues they have. This will be part of my prototyping technique I will use to gather requirements. I feel as though PowerPoint slides are easier to look through than a word document. These wireframes will be reviewed within the requirements workshop and altered in relation to the feedback provided.

6.0 Project Plan

November – 20th December

- ✓ Surveys created, completed and documented –

This is the first task I plan on doing as it is a vital step in gathering main requirements. I plan to create the survey the first week of November and distribute it by the second week of November. By gathering this feedback, I will be able to prepare for conducting the interviews with more in depth questions that I need answered or confirmed.

- ✓ Brainstorm completed

This is an important requirements elicitation technique as a group of participants have the opportunity to share all their ideas and opinions in one session.

- ✓ Interviews completed

I plan to complete these after the surveys are all done. I plan to take a week to review the results from the surveys and draft questions I would like to ask in the interviews. I will then take two weeks to conduct the interviews and document the answers I am given.

- ✓ Prepare for midpoint presentation throughout the month of December

January – 14th May

- ✓ First prototype completed and feedback gathered

After the requirements are gathered from the surveys and interviews I will have enough information to create the first prototype which I plan to make in Balsamiq.

- ✓ Document analysis started

Throughout the course of the project, a user manual for the project will be created to help the user use the application. This manual will be simple in order for it to be understood by all users.

- ✓ Interface analysis completed

- ✓ Requirements workshop completed

This will be completed by having a PowerPoint presentation of all of the prototype pages on the application and receiving any feedback from users on issues or difficulties they may have with the design.

- ✓ All prototypes created and feedback gathered

- ✓ Technologies needed are researched

This will take some time to research and document different options of technologies that can be used for the application. In order to choose the best possible technologies, a lot of research will have to be done.

- ✓ Final prototype created

This will be a combination of all the previous prototypes with any changes the customers have suggested.

- ✓ Website created

Throughout the entire project life cycle

This will be created using WordPress.

- ✓ Prepare for final presentation

- ✓ Create poster for showcase

7.0 Validation/Verification

Throughout the course of the project I intend to keep in contact with the stakeholders and ensure that they are content with any changes to the application. I will also be creating prototypes that contain their new ideas and gather their new feedback.

By keeping the stakeholders involved throughout the project means the end product will be as close to what they want as possible. Since I will be using an agile framework, it will be easy to stay in contact with the stakeholders as I will have work to show them every couple of weeks. I can then gather their feedback on this work and confirm whether this is what they want done.

To verify the requirements I will be conducting constant research for the project. Since this project will require advanced technology, there will need to be research done on the different technologies that can be used. This can be verified through research and comparing other applications with my prototypes.

All requirements will be documented along with any stakeholder involvement. This will ensure that any requirements stated by the user will be documented and will be added into the project requirements.

Monthly Reflective Journals

October

Supervision & Reflection Template

Student Name	Sarah brennan
Student Number	X19356081
Course	Bsc Technology Management
Supervisor	John Kelly

Month:**What?**

Reflect on what has happened in your project this month?

This month I created my project pitch video and it got approved. I then started working on my project proposal and ethics forms. These are now all submitted to Moodle. I have begun research on my project idea. I have researched applications that are similar to mine and I have documented the differences between my idea and their applications.

I have also been assigned my supervisor this month.

So What?

Consider what that meant for your project progress. What were your successes? What challenges still remain?

Submitting the proposal and ethics forms was the beginning of the project as it could not be started until these forms were completed. This means I can begin my research as my project pitch has been approved.

Now What?

I have created a timeline for my research in my project proposal and I plan to follow this. I will begin my research of questions to put in the survey I am making. I also need to research the best platform to create the survey on and how I will distribute it to participants.

What can you do to address outstanding challenges?

I can start working on the remaining tasks every week in order to keep progressing through the project. I also have been assigned my supervisor so I can run ideas past John.

Student Signature

Sarah Brennan

November

Supervision & Reflection Template

Student Name	Sarah Brennan
Student Number	X19356081
Course	BSc Technology Management
Supervisor	John Kelly

Month:**What?**

Reflect on what has happened in your project this month?

During this month I began working on the report for my project. I planned what elicitation techniques I am planning to use to gather requirements for the project. Since the mid-point presentation is upcoming soon, I have been working towards completing as much of the selected techniques as I can. I worked on the brainstorming technique and held a session with various people to gather their requirements and any ideas they had. I am currently documenting all of this information.

I also worked on my survey and coming up questions for it. This is not completed yet and it still has to be submitted for approval.

So What?

Consider what that meant for your project progress. What were your successes? What challenges still remain?

The brainstorm was a success and helped me with gathering user requirements for this project. This must be documented and interpreted in time for the midpoint presentation.

The survey is a challenge that remains as it must be approved before it is sent out and this may not be completed in time for the mid-point presentation.

Now What?

What can you do to address outstanding challenges?

I plan to complete my survey questions and submit them for approval. I also plan to complete the documentation on the brainstorming session that was held. I need to create a list of people I want to interview and create questions for the interviews. This is the next technique I will be tackling. I also plan to work on the report and write my introduction for the project.

Student Signature

Sarah Brennan

December

Supervision & Reflection Template

Student Name	Sarah brennan
Student Number	X19356081
Course	Bsc Technology Management
Supervisor	John Kelly

Month:**What?**

Reflect on what has happened in your project this month?

This month I worked on the interviews for the project. I conducted three interviews that helped to gather requirements for the project. These interviews were very insightful as I received answers the questions I had for potential users and I also spoke to a developer about how the project could be implemented.

So What?

By completing these interviews, I could document my findings and gather conclusions from this. It helped me to see what requirements are important for users and what requirements are less important.

Now What?

Since this section of my research is completed, I can now move on to working onto creating the prototypes for the project and use these to conduct a requirements workshop to gather more feedback. I plan to create two sets of prototypes – the first set will be reviewed in the requirements workshop and then a final set of prototypes will be produced.

What can you do to address outstanding challenges?

The prototypes will be created using the information gathered from the interviews. When these are completed, the requirements workshop can then be conducted to review the prototypes and create a finalized version.

Student Signature

Sarah Brennan

January

Supervision & Reflection Template

Student Name	Sarah brennan
Student Number	X19356081
Course	Bsc Technology management
Supervisor	John Kelly

Month:**What?**

Reflect on what has happened in your project this month?

During this month I worked on creating prototypes for my application. I used the requirements I gathered from the interviews and brainstorming I conducted in order to create the prototypes. By the end of the month I finished the prototypes to use for a requirements workshop. I worked on my report and documenting all my progress.

So What?

Consider what that meant for your project progress. What were your successes? What challenges still remain?

By completing the prototypes, I can now move on to the requirements workshop where they can be evaluated and adjusted according to the feedback received.

The workshop can now be completed and the prototypes can be finalised. After this the use case diagrams can be created and documented.

Now What?

What can you do to address outstanding challenges?

Since the prototypes are completed, I can now work on organising a requirements workshop to gather feedback from the stakeholders. This workshop will be vital in order to finalise the design of the application and ensure all user requirements are met.

Student Signature

Sarah brennan

February

Supervision & Reflection Template

Student Name	Sarah brennan
Student Number	X19356081
Course	Bsc Technology Management
Supervisor	John Kelly

Month:**What?**

Reflect on what has happened in your project this month?

This month I conducted a requirements workshop to review the prototypes I created. This was a success and many requirements and changes were collected to make the finalized version of the prototypes. This was a useful activity as potential users had the opportunity to review how the application will look and function and share their opinions.

So What?

Consider what that meant for your project progress. What were your successes? What challenges still remain?

This was a big milestone for the project as the prototypes for the application are very important. The look and functionality of the application will determine if people want to use it or not. Since the users gave their opinions on what they want on the application and what is unnecessary, the final prototypes can be created.

Now What?

The survey must be conducted to collect more requirements from the users and this can be used along with the other requirements previously gathered to make the finalized prototypes.

The final prototypes can now be created with the use of the requirements gathered from the workshop. This is a vital part of the project as the users can visualise the application in order to see if they would want to use it.

What can you do to address outstanding challenges?

The survey must be sent out to as many people as possible and the results must be analysed. These requirements and the previously gathered requirements can then be used to create the final prototypes for the application.

Student Signature

Sarah Brennan

Student Name	Sarah brennan
Student Number	X19356081
Course	Bsc Technology Management
Supervisor	John Kelly

Month:**What?**

Reflect on what has happened in your project this month?

This month I worked on creating the questions for the survey and then sending it out to various people. The survey got a total of fifty four responses. This was a difficult activity to find enough people to fill out the survey. Social media was a very useful tool when trying to find people to fill out the survey as many people on Instagram filled it out.

So What?

Consider what that meant for your project progress. What were your successes? What challenges still remain?

The survey was a vital part of gathering requirements for the project as the information can be used to make changes to the prototypes and ensure the application is something the users would want to use. The questions used were also helpful for the research of the project and the reason behind the application being created.

Now What?

The conclusion of the application must now be documented and analysed. The survey was created using google forms and so the conclusions are in the same place which is useful when trying to gather the results. When this is documented, the final prototypes can be created and the interface analysis can be documented.

What can you do to address outstanding challenges?

The documentation of the survey will use the results on google forms and the prototypes will use all of the requirements gathered throughout the entire project. The final prototypes will be created using an online tool to make them look professional and seamless.

Student Signature

Sarah Brennan

April

Supervision & Reflection Template

Student Name	Sarah brennan
Student Number	X19356081
Course	Bsc Technology Management
Supervisor	John Kelly

Month:**What?**

Reflect on what has happened in your project this month?

The survey results were documented and conclusions were gathered from this. When this was finished, I began creating the final prototypes which are created online instead of by hand to ensure they look professional and seamless. They are not completed yet but will be finished on time for the final presentation.

So What?

Consider what that meant for your project progress. What were your successes? What challenges still remain?

There are a small amount of prototypes yet to create and so a large amount of the project is finished. By completing the documentation for the survey results and starting to create the prototypes, a large amount of work in the project was completed this month.

Now What?

The rest of the prototypes must be created and the interface analysis is yet to be started. Since the project is due in two weeks, the documentation for the project must be reviewed to ensure all the information that was gathered throughout the course of the project is documented and analysed properly. The poster for the showcase and the final presentation video are also components that must be finished before the submission date.

What can you do to address outstanding challenges?

The interface analysis is yet to be completed and I plan to start it once the final prototypes are completed. The poster must be created along with the video presentation. These are the final tasks to complete this project.

Student Signature

Sarah Brennan