LEAF DETECTION APP- GROUP 7

Our Task

The primary objective is to create a user-centric mobile application featuring an intuitive interface. The AI can distinguish between diseased and healthy leaves. The disease which is identified is the leaf curl disease. The application is aimed to be deployed in Pakistan where leaf curl disease is common.

Diseased Leaf

Healthy Leaf

Work Tracking and Communication Channels

Trello

Helps of us keep track of what work needs to be done.
Who is responsible for each part of work.

GitHub

GitHub was essential for group work towards our project. It allows all group members to work on the application simultaneously. Additionally, it helped with version control and allowed us to roll back pushes in case of an error.

Microsoft Teams

We used Microsoft teams to allow for multiple members of the group to work on multiple files at once and share resources. This became increasingly helpful when it came to the writeup of our project as it allowed for an increased work production rate. We were also able to host meetings with one another and with our client when necessary.

Discord

Discord was another communication channel we used to host meetings and hold discussions on certain sections of work.

Minutes

Minutes were recorded during each client meeting. This allowed for a summary of the meeting to be recorded and highlight the key parts that need work.

Requirements

The client shared the necessary requirements for the application, these included:

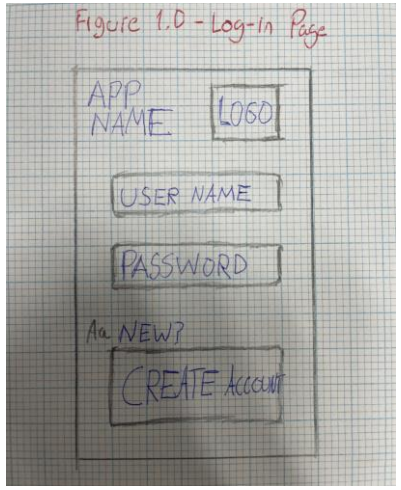
- Meaningful feedback to users ‘diseased’ or ‘healthy’.
- Some information about the leaf curl disease to educate users.
- Give a confidence score.
- Maintain a history of usage.
- Incorporate user feedback to continually improve the app's usability and features

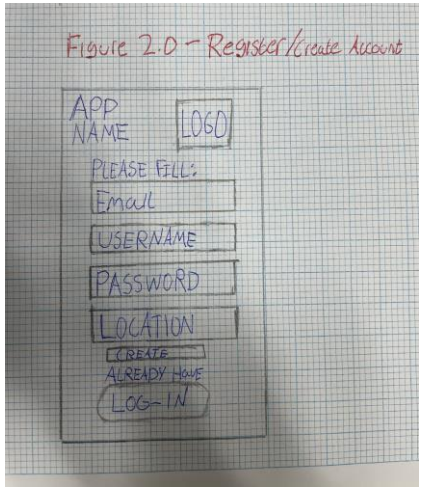
With the use of user stories, we were able to extract more requirements and further refine the given requirements. For example, These user stories consisted of;

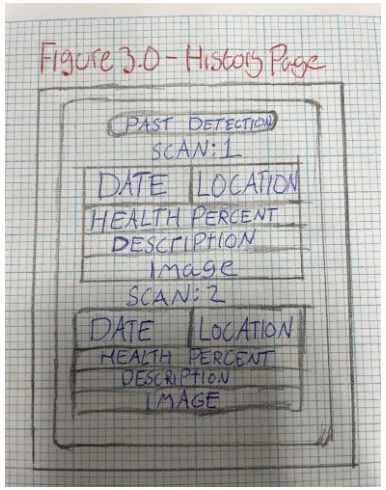
As a user, I want to create a profile
As a user, I want my details to save when I log into my account
As a user, I want to import photos in from my camera library

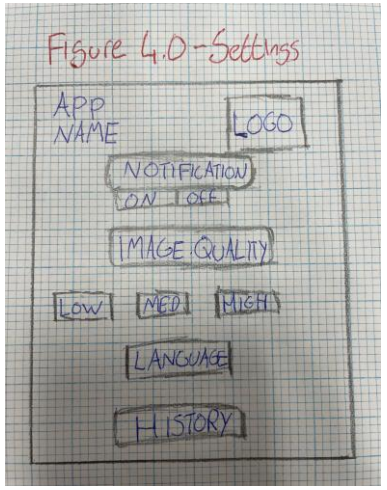
Initial Design - Wireframe

- The creation of the wireframe came first within the design process. The team came together to brainstorm ideas on what the design needed to look like, we took into consideration how the app needed to function and what the client's requirements consisted of.
- With the requirements of the app established, the architect then started to create the initial design of the application, that being the wireframe.
- Wireframes are a crucial starting point for the design of any application as they provide a structure to follow when creating the app.
- After creating the wireframe, the next step in the design process is to create a low fidelity prototype. This is a more detailed and in-depth design of the application but provides no functionality.









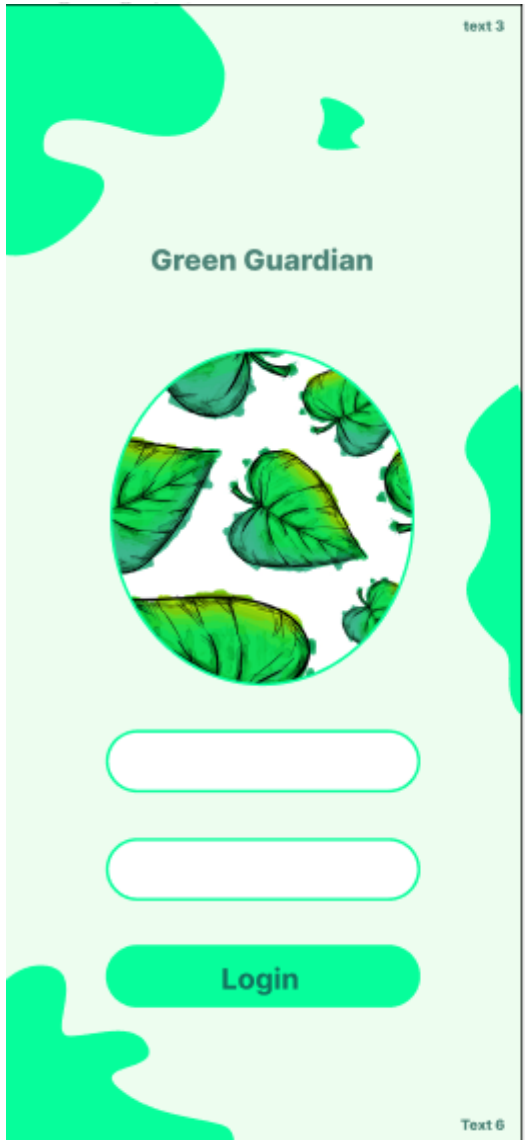
Low-Fidelity Prototype

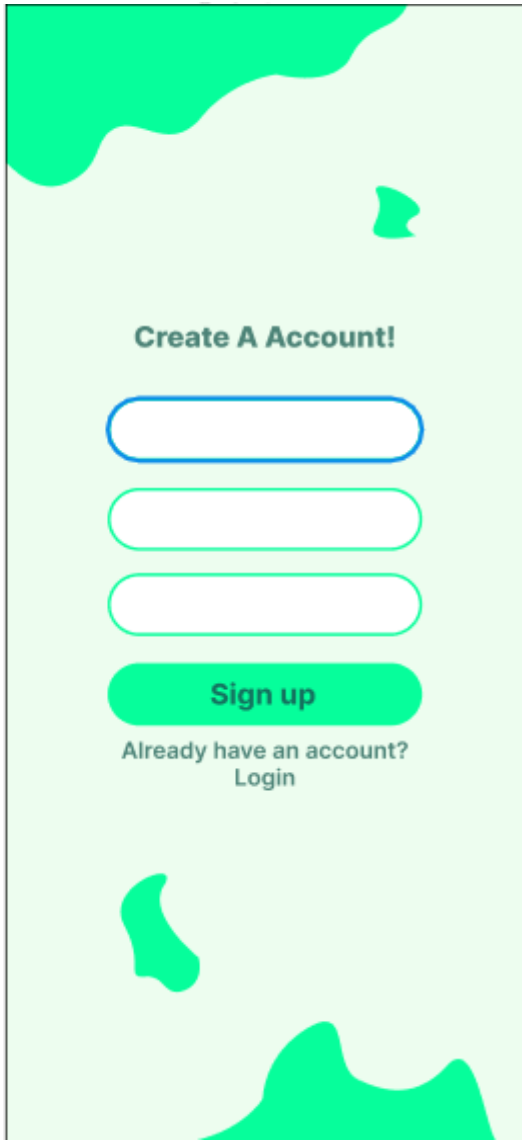
Figma Prototype

- Our Low fidelity prototype began in Figma. The team created the first of many designs.

- The first design serving as a base for improvement, this design was cluttered and not very user friendly, but it served as a good starting point.

- We then improved this design by changing the colour scheme and by using rounder edges and reducing clutter on the page, resulting in a more friendly user experience

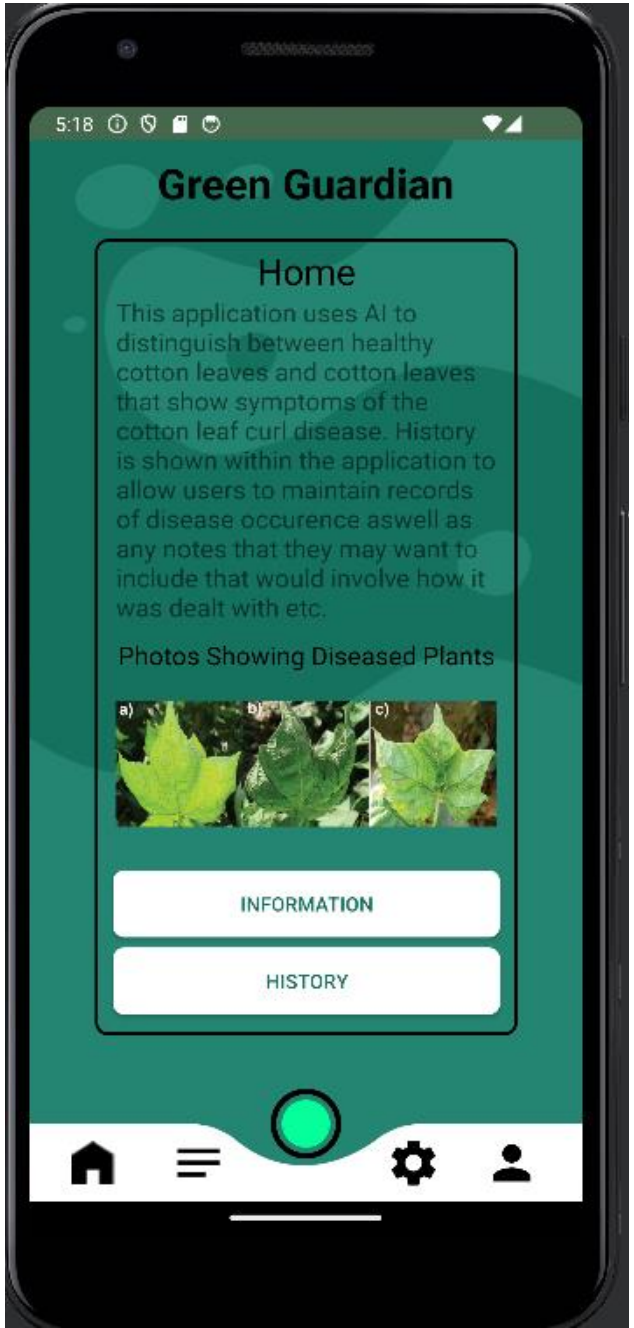




High-Fidelity Prototype

Android Studio

- We moved from Figma to Android Studio to create our high-fidelity prototype.
- This prototype will be the final design of the application and will also have full functionality.
- This means the prototype has to be user friendly and have a clean design. We used what we had created on Figma to guide us into the final design of the application.



Software usage

Android Studio

- In android studio we used Java as our main coding language
- Along with Java we used XML for the appearance of the pages on the mobile application
- We also used python within the integration of the AI model into the application.

Communication Software

- During the project, the team used multiple different communication channels to communicate within the team and with the client
- The main software used with client communication would be Email and online meetings through teams or zoom.
- The main software within the team to communicate would be Trello, teams and discord.

Sprint plans

The sprint plan was essential in ensuring we got tasks done on time, if they weren't implemented within the time period we would fail them and then work on these sprints when we could.

Sprint Plan for Leaf Application	Date Started	Date to be Completed by	Status
Create Communication Channels	31/10/2023	01/11/2023	Pass
Review Brief and take notes	31/10/2023	09/11/2023	Pass
Create Trello User Stories	06/11/2023	20/11/2023	Pass
Familarise ourselves with raw leaf detection code	15/11/2023	22/11/2023	Pass
Establish Project Framework	18/11/2023	02/12/2023	Pass
Create Figma Prototype Low-Fidelity	02/12/2023	15/12/2023	Pass
Create Android Studio Prototype High-Fidelity	15/12/2023	09/01/2023	Pass
Login Page API working	09/01/2024	16/01/2024	Pass
Discuss with Asiya Prototype changes	16/01/2024	23/01/2024	Pass
Improve the design of android studio	23/01/2024	30/01/2024	Pass
Add Java code to make settings work	30/01/2024	07/02/2023	Pass
Add java code to make the profile page work	30/01/2024	08/02/2023	Pass
Add camera functions	28/02/2023	03/03/2023	Pass
Add photo library storage functionality	03/03/2023	05/03/2023	Pass
Implement AI Code	05/03/2024	07/03/2024	Fail
Store the AI result	07/03/2024	10/03/2024	Fail
Display the AI result	10/03/2024	13/03/2024	Fail
User Testing	14/03/2024	14/04/2024	Pass

Legal, social, ethical and professional standards

- Legal
- We decided to use google firebase for a login system as it allowed us to safely store and login users
- We also created all images ourselves and any we did not create we ensured had a creative commons license to make sure we complied with copyright laws.
- GDPR compliance – We have also encrypted and hashed all passwords.
- Alongside this we took the disability discrimination act into account by making sure all colours we used are colour blind friendly
- Social
- As our app will be deployed in Pakistan we have added the ability to swap between the native language (Urdu) and English.
- We also used an android API level of 24 so that the economic status of the user would not effect the ability to use the application.
- Ethical
- To further comply with the disabilities act, we added content descriptions to all buttons and text views, this was done so that the app would be screen reader friendly. We also made it so that content descriptions would be reflective upon the language the user has chosen.
- Professional
- Following industry standards by using the Agile Methodology (Allows us to adapt the application based on user feedback).
- We also rigorously tested the application checking for any functionality, performance or security issues.

The final product

Show case of the final product in android studio

Thank you for watching

Please feel free to ask any questions.