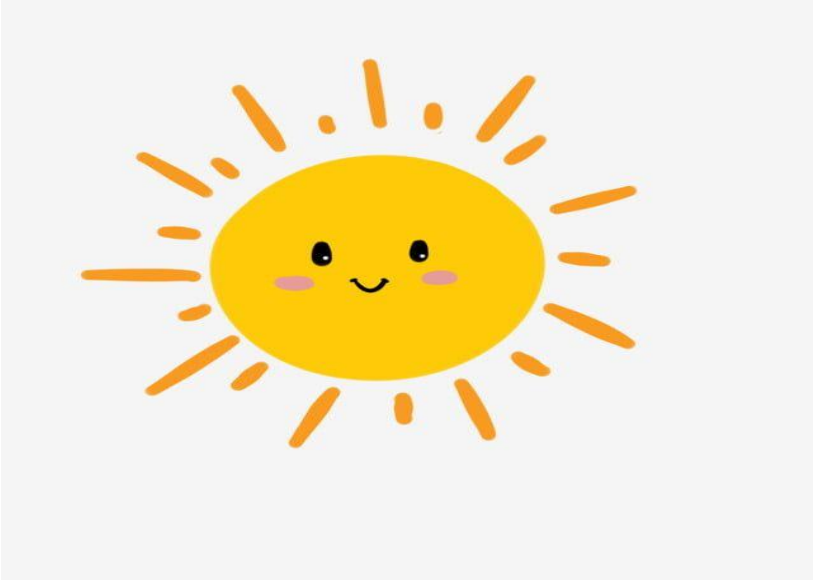


Crop Management System

Deliverable 4

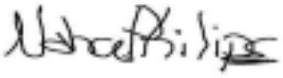
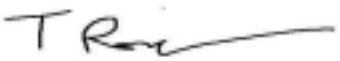
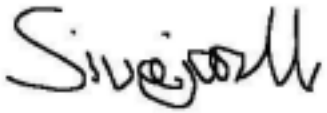
MUHAMMAD QAMAR – N01344609
NOHA PHILIPS – N01351336
TANVIR PAHWA – N01245843
SIVAJAN MANIKAVASAGAR – N01240148

Table of Contents

Brief Description

This project encapsulates the use of multiple sensors such as humidity, temperature, moisture, and level sensors to monitor and grow household plants. Our project will actively monitor plants to make sure they are growing optimally without manual intervention.

Table of Signatures

Name	ID	Signature	Effort
Muhammad Qamar	N01344609		100
Noha Philips	N01351336		100
Tanvir Pahwa	N01245843		100
Sivajan Manikavasagar	N01240148		100

Github Link

https://github.com/SivajanManikavasagar0124/CropManagementSystem

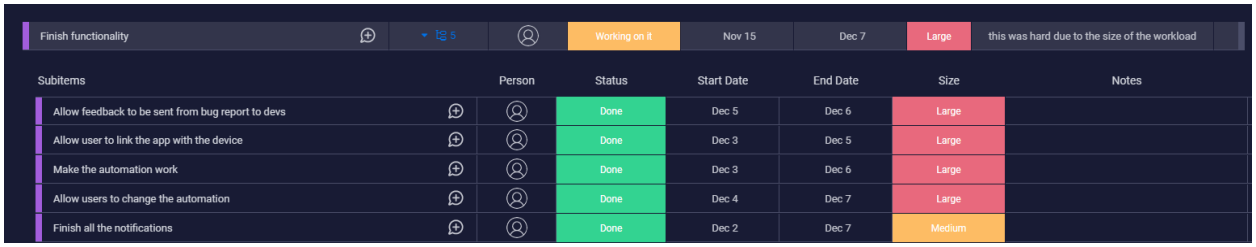
15. Sprints

Sprint 4	Subitems	Person	Status	Start Date	End Date	Size	Notes
User wants a reminder when water level in their container is low	5		Working on it	Nov 15	Dec 7	Medium	we ended up not implementing this feature in t...
User overwaters or sets too many watering days	5		Working on it	Nov 15	Dec 7	Medium	

Subitems	Person	Status	Start Date	End Date	Size	Notes
Show the user a warning that tells them about the dangers of overwatering.		Done	Nov 15	Dec 7	Medium	
Send the user a notification showing that the soil moisture is higher than expected.		Working on it	Nov 15	Dec 7	Large	
Automatically take the user to the automated watering screen so the user can re...		Done	Nov 30	Nov 30	Small	home is now the watering screen
If the user makes no changes before leaving the screen prompt them to make ch...		Working on it	Nov 15	Dec 7	Large	
Allow the user to change the watering limit.		Done	Dec 3	Dec 4	Medium	
+ Add Subitem						

Finish firebase	5		Done	Nov 15	Dec 7	Large	this was difficult due to lack of experience

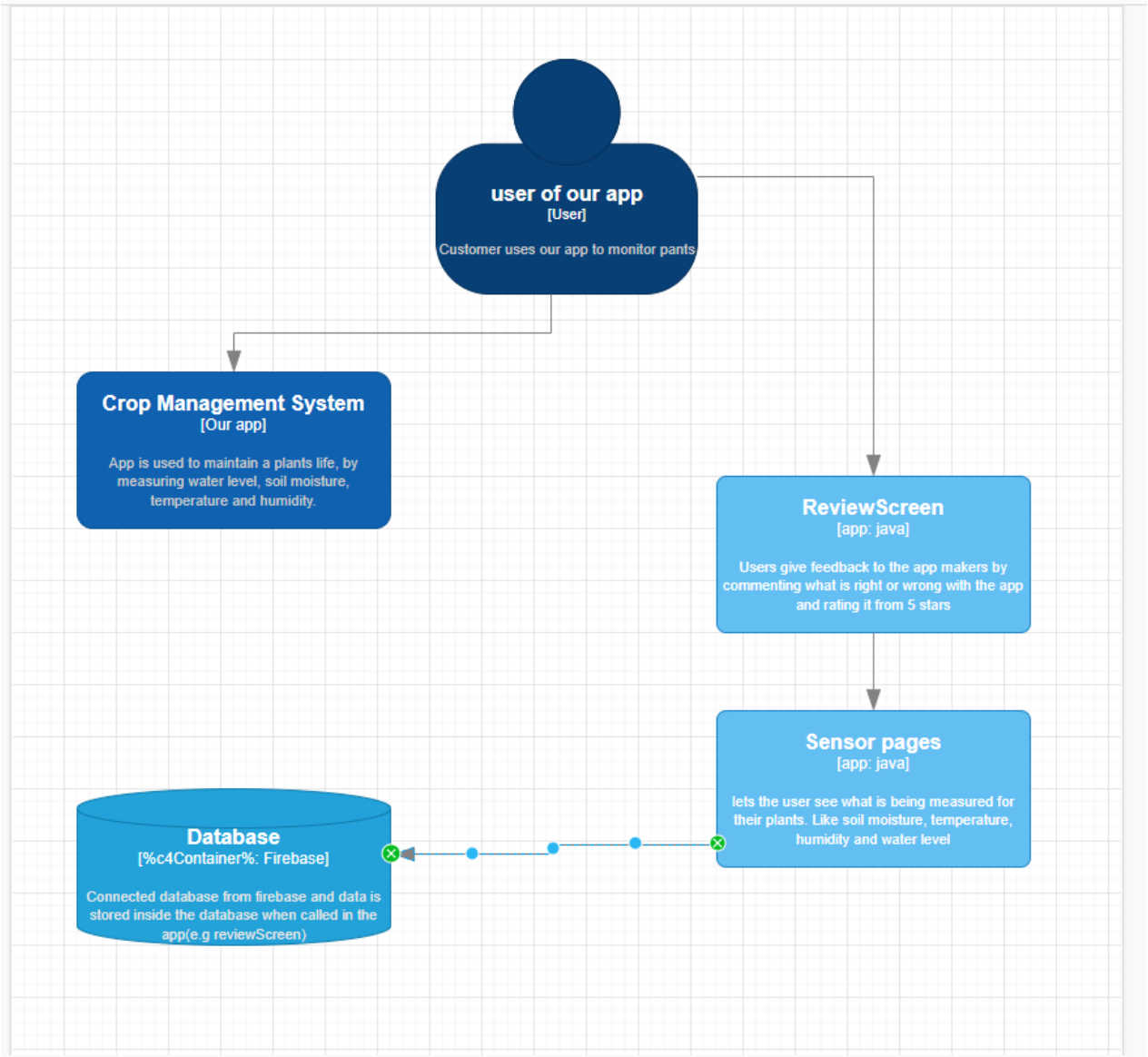
Subitems	Person	Status	Start Date	End Date	Size	Notes
Report sensor activity		Done	Dec 4	Dec 4	Medium	
Save crash reports		Done	Nov 26	Nov 26	Small	
Track amount of users		Done	Nov 26	Nov 26	Small	
Send bug reports		Done	Dec 3	Dec 5	Large	
Check app performance		Done	Nov 26	Nov 26	Medium	



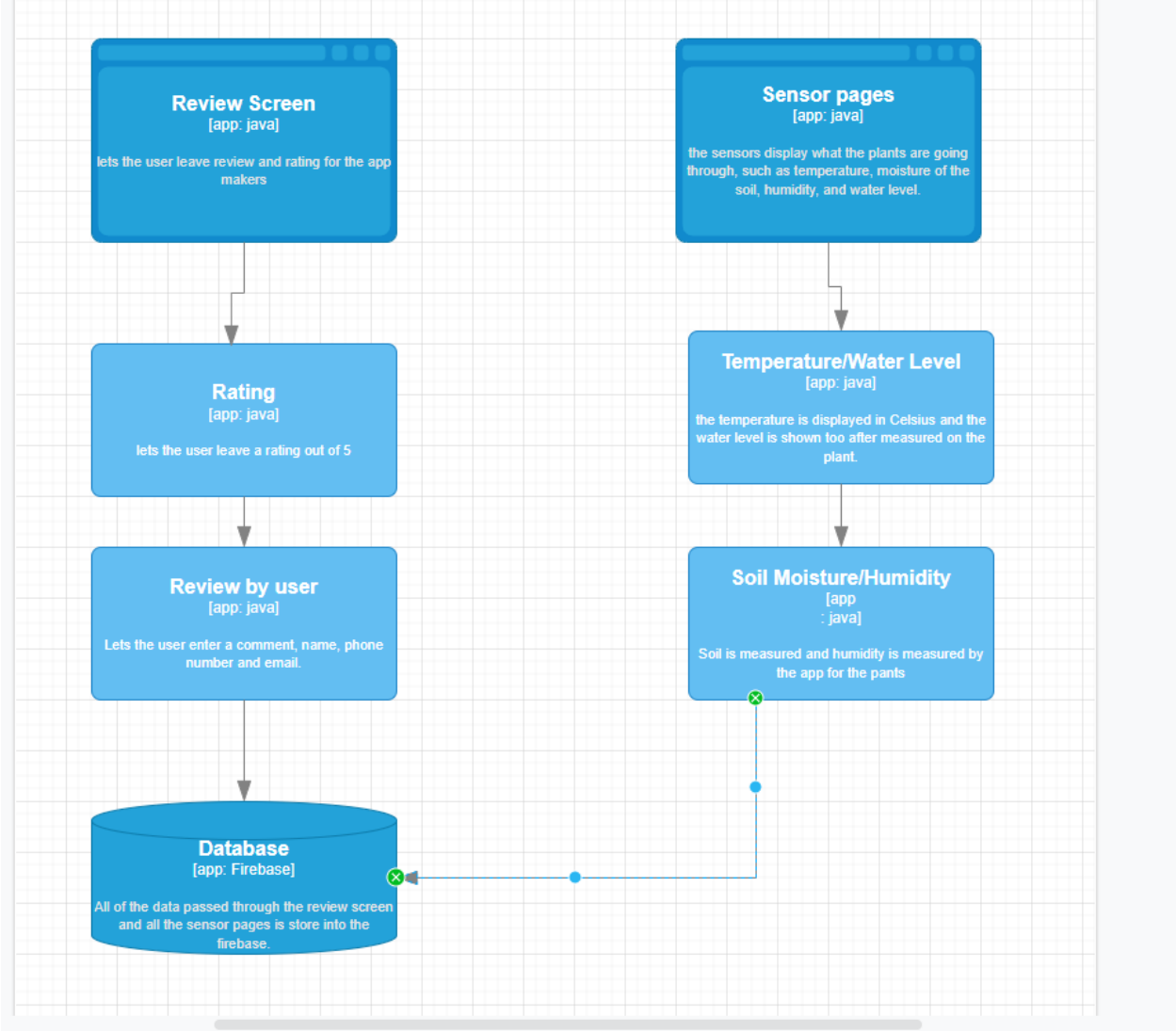
Finish functionality	5		Working on it	Nov 15	Dec 7	Large	this was hard due to the size of the workload

Subitems	Person	Status	Start Date	End Date	Size	Notes
Allow feedback to be sent from bug report to devs		Done	Dec 5	Dec 6	Large	
Allow user to link the app with the device		Done	Dec 3	Dec 5	Large	
Make the automation work		Done	Dec 3	Dec 6	Large	
Allow users to change the automation		Done	Dec 4	Dec 7	Large	
Finish all the notifications		Done	Dec 2	Dec 7	Medium	

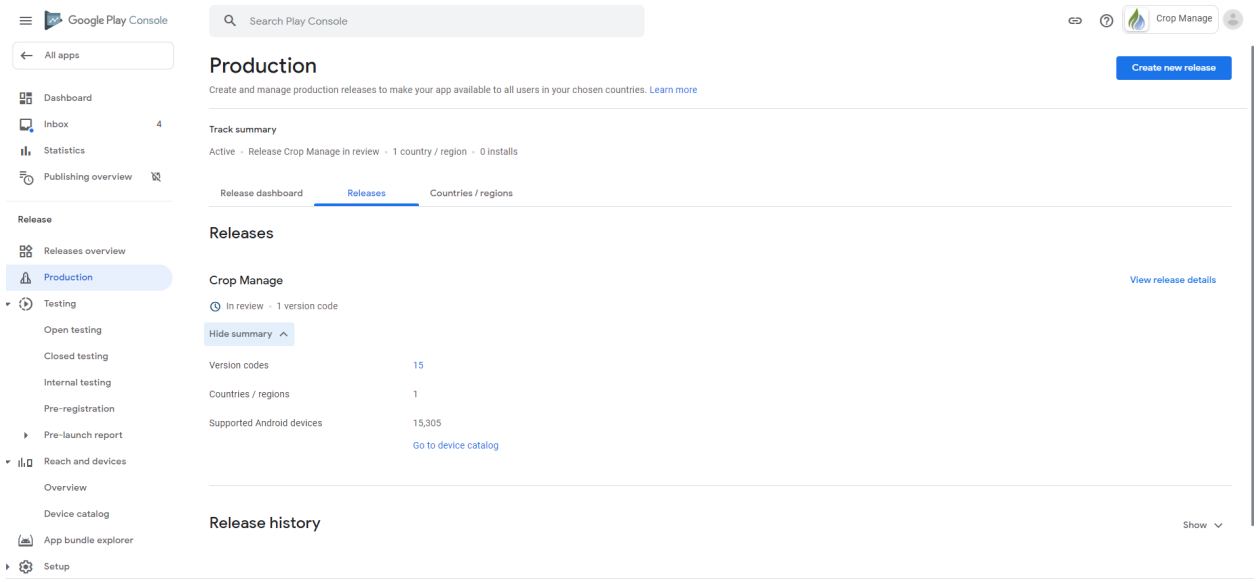
16. C4 diagram container



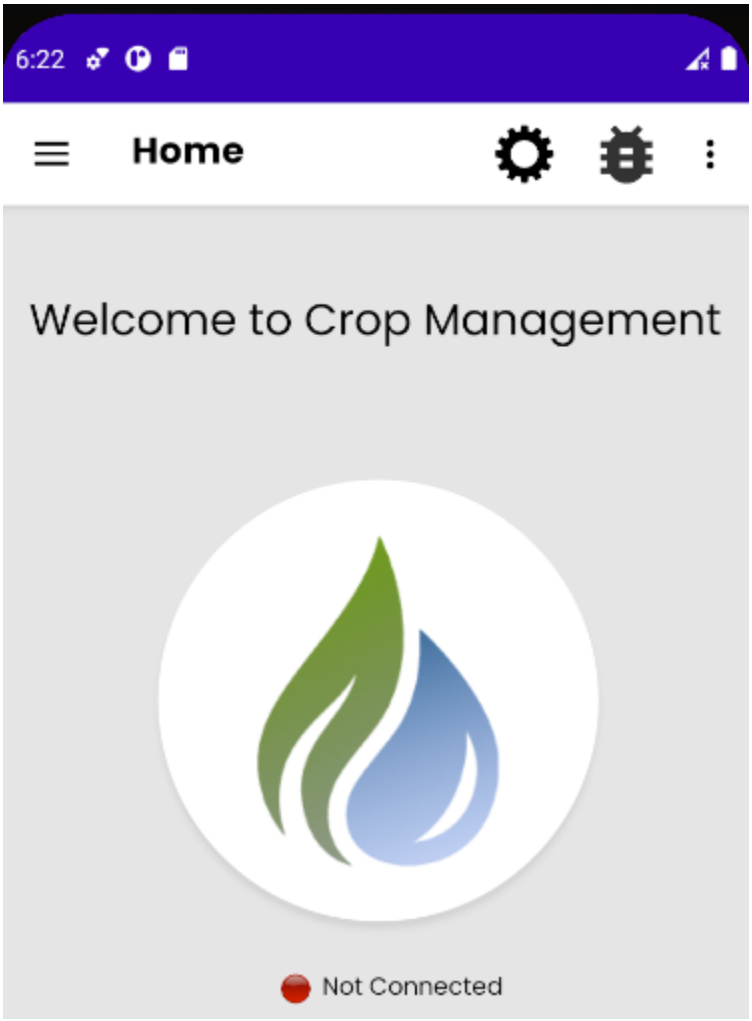
17. C4 diagram components



20. Google play submission



21. For off-line we chose to save our settings locally using sharedprefs. The application is very difficult to develop for offline mode because our app requires calls to the database for every page as well as online functionality to connect to the sensor. If the application is started in offline mode then the application will not water plants or connect to the sensor, however, the settings, about us, and task scheduler save locally therefore can be used in offline mode.



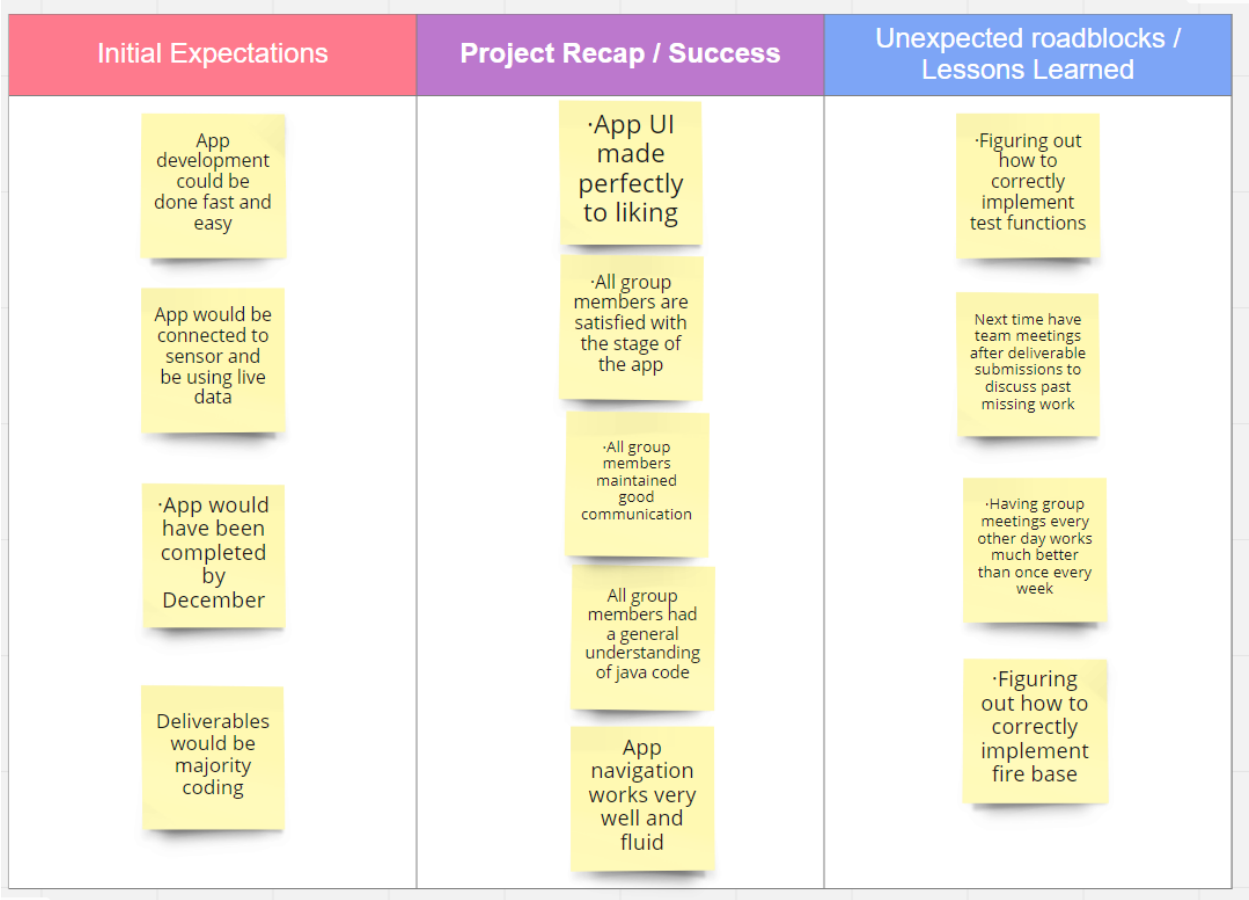
22. All of the runtime permissions we use are enabled automatically. We only use the internet and bluetooth permissions.

24. Scrum Dashboard

	Owner	Difficulty	Timeline	status
COMPLETE IMPLEMENTATION OF UI	Sunshine Boys	hard	DECEMBER 1-7	done
WRITING TO FIREBASE	sunshine boys	hard	DECEMBER 1-7	done
FUNCTIONALITY OF SENSORS	sunshine boys	hard	DECEMBER 1-7	done
REMOVE ALL HARD CODING	sunshine boys	easy	DECEMBER 1-7	done
FUNCTIONALITY FOR MENU	sunshine boys	easy	DECEMBER 1-7	done

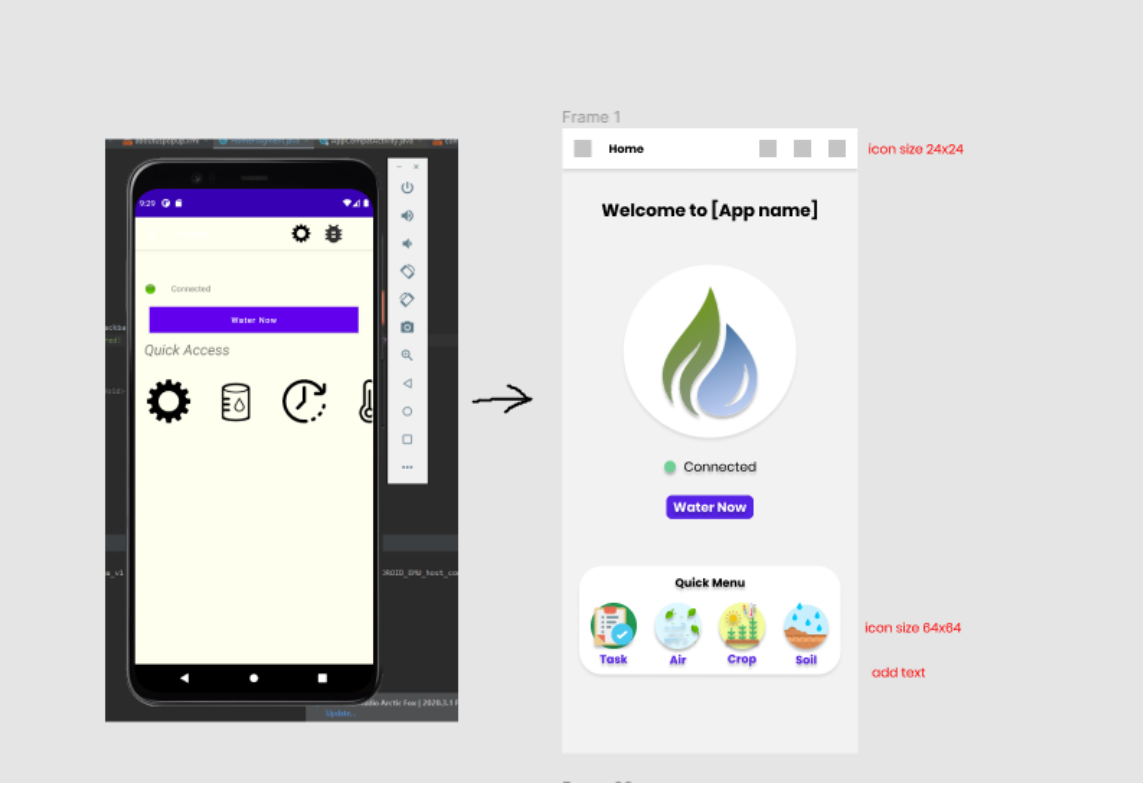
25. Our performance was satisfactory. We started off slow but gained a lot of momentum towards the end of the project when much of it was coming together. Sensors were mostly inexpensive thus making our hardware side of the project easy to develop. Our quality went up slightly towards the end but we had issues with some members starting their tasks last minute which gave our app development a bottleneck. Because of issues like part-time jobs and commitment to other classes our issues mostly came from being students. In an ideal world where our team members had no other commitments our application development would be more fluid. Many of the smaller tasks were developed on a time crunch therefore were sloppy and had to be refactored in future deliverables. There were some compromises, we had to skip out on some smaller requirements to work on bigger tasks which would help us with the overall app rather than have certain smaller features that are optional but add to the QOL (Quality of life) of the app. Our meetings were more spontaneous because of the schedule of some team-members with other classes and jobs outside of class so we couldn't meet at the required time everyday but we had meetings on different days which helped us outline what we needed to do tasks-wise as well as communicated throughout the week of what we needed to accomplish that week. We believe we could've managed our time more wisely. An area of improvement would be the smaller features we can add to improve the app maintainability such as more information for our sensors. Currently our sensors only display the data provided and we don't have much control over the sensor from a software standpoint. In the future we would like to learn more about our sensors and use the full capability of such sensors to implement a better software application.

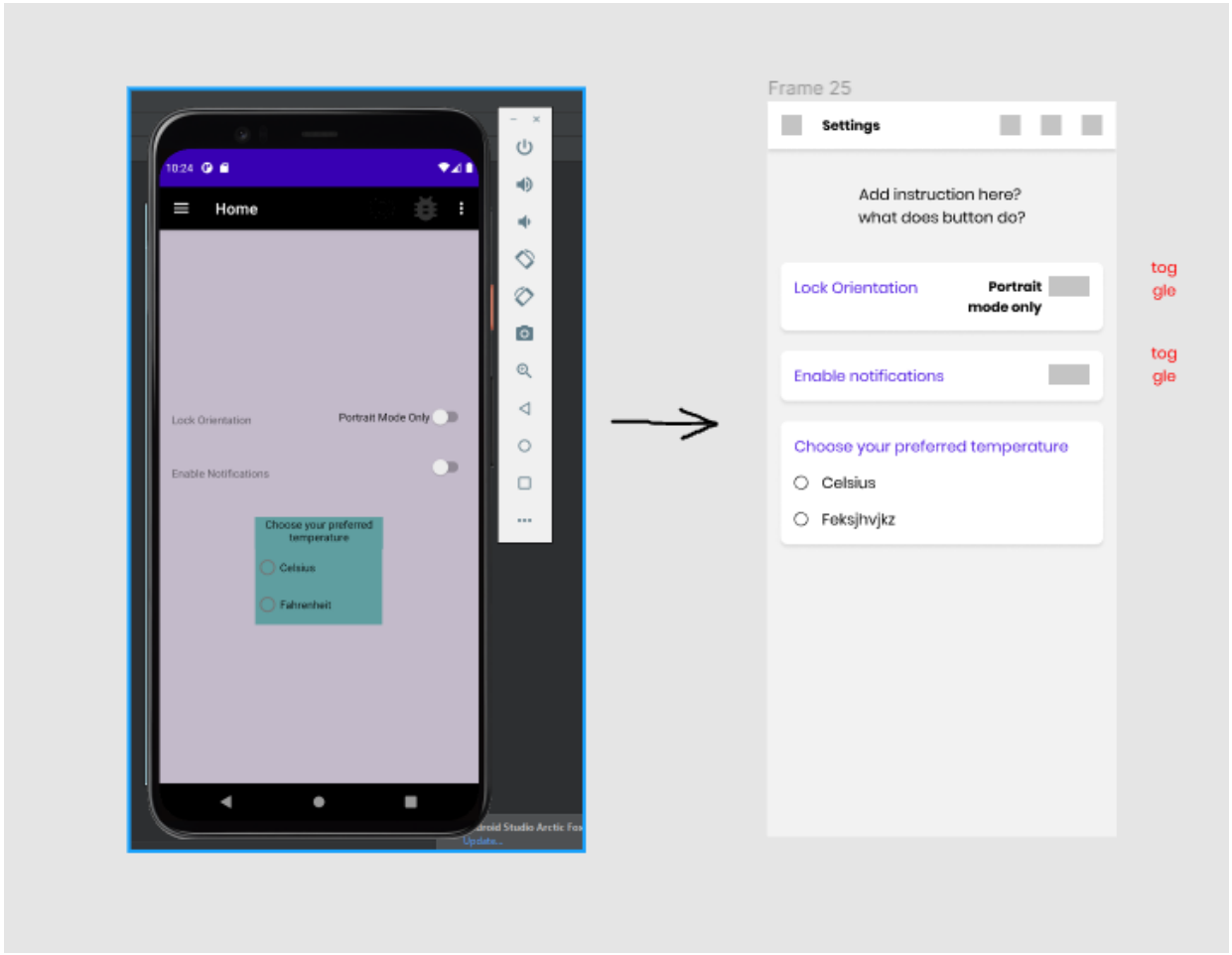
26. Project Review Meeting (made w miro)

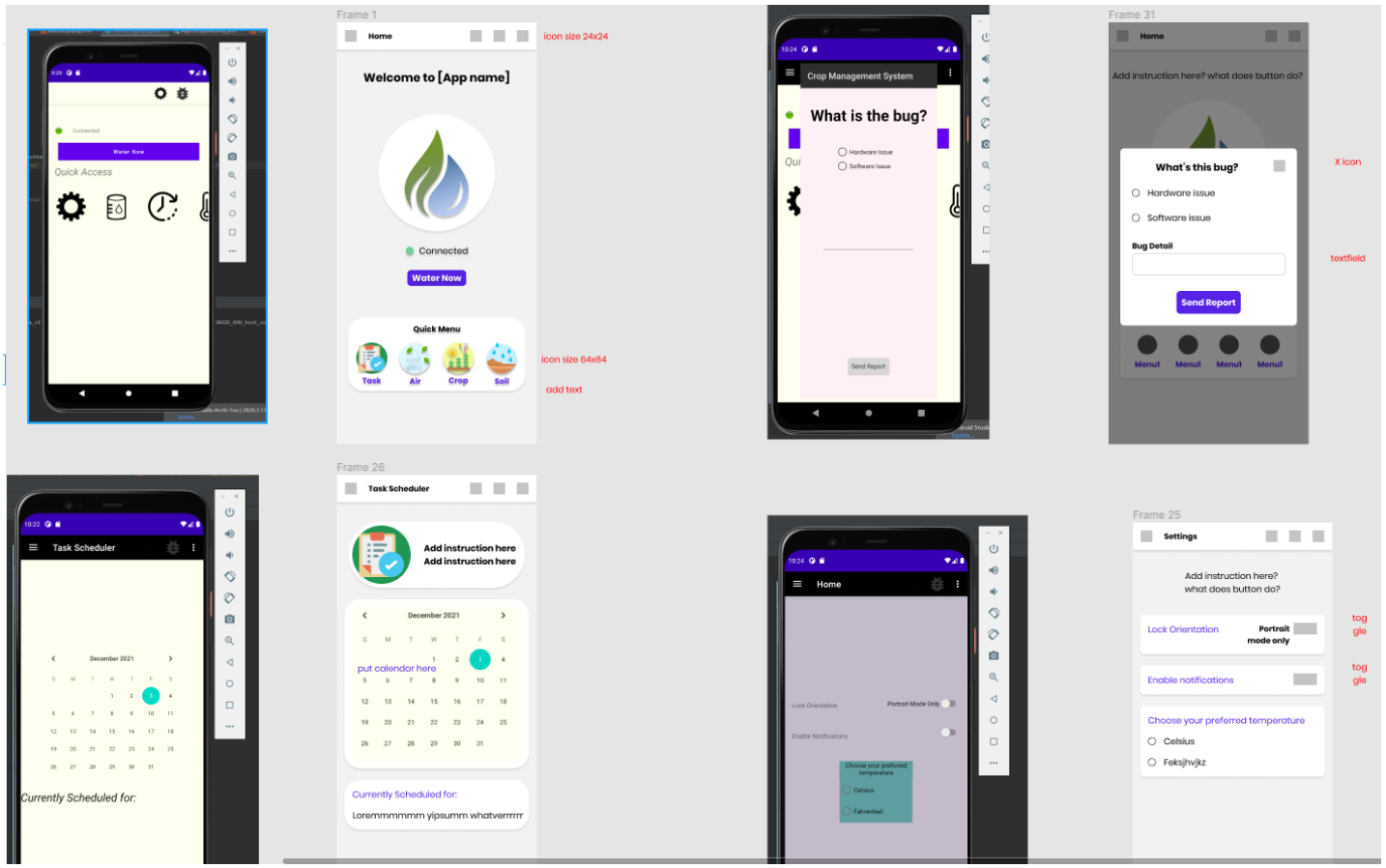


27. We addressed the technical debt by trying to salvage as much code as possible. There were points where we had to start something from scratch but that is inevitable when something is poorly implemented. We spread the work amongst the group in certain situations and at other times we delegated the technical debt to one person and the rest of us worked on new features.

28. UI/UX Refactor, We used a variety of vectors to completely refactor the UI in our app allowing for a cleaner minimalistic approach. This allowed us to make the homepage and the rest of the app look more appealing and simple to the average user. We followed the same design principles to other pages so that our app has a uniform look and feel to the experience.




10:24
Home
Lock Orientation
Portrait Mode Only
Enable Notifications
Choose your preferred temperature
Celsius
Fahrenheit
Frame 25
Settings
Add instruction here?
what does button do?
Lock Orientation
Portrait mode only
tog gle
Enable notifications
tog gle
Choose your preferred temperature
Celsius
Fəksjhvjkz


Frame 1
Home
Welcome to [App name]
Connected
Water Now
Quick Menu
Task
Air
Crop
Soil
icon size 24x24
icon size 64x64
add text
Crop Management System
What is the bug?
Hardware issue
Software issue
Send Report
Frame 31
Home
Add instruction here? what does button do?
What's this bug?
Hardware issue
Software issue
Bug Detail
Send Report
Menu1
Menu2
Menu3
Menu4
X icon
textfield
Task Scheduler
December 2021
Currently Scheduled for:
Frame 26
Task Scheduler
Add instruction here
Add instruction here
put calendar here
Currently Scheduled for:
Loremmmmmm yipsumm whatverrrrrr
Home
Lock Orientation
Portrait Mode Only
Enable Notifications
Choose your preferred temperature
Celsius
Fahrenheit
Frame 25
Settings
Add instruction here?
what does button do?
Lock Orientation
Portrait mode only
Enable notifications
Choose your preferred temperature
Celsius
Feksjhvjkz
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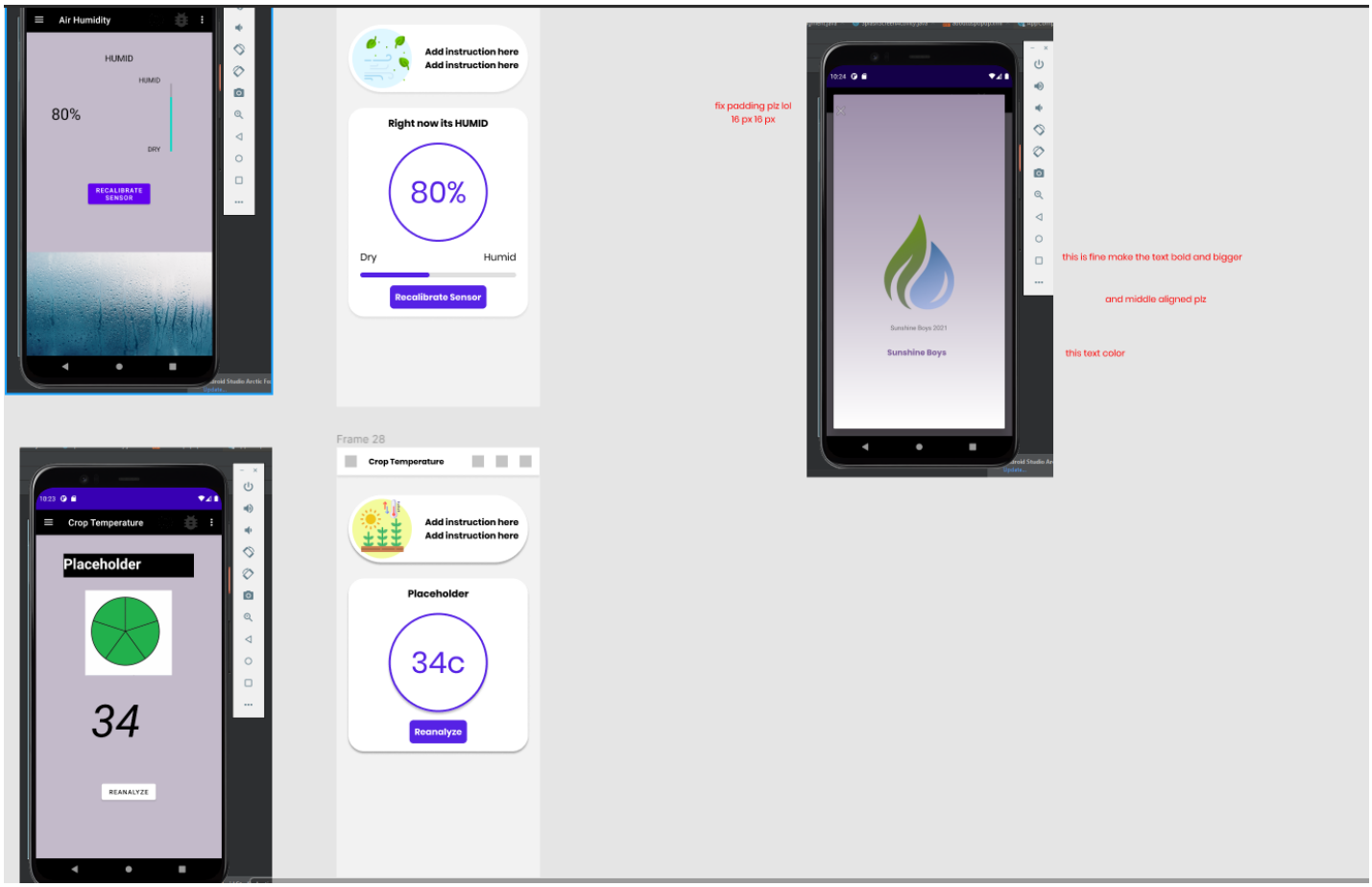
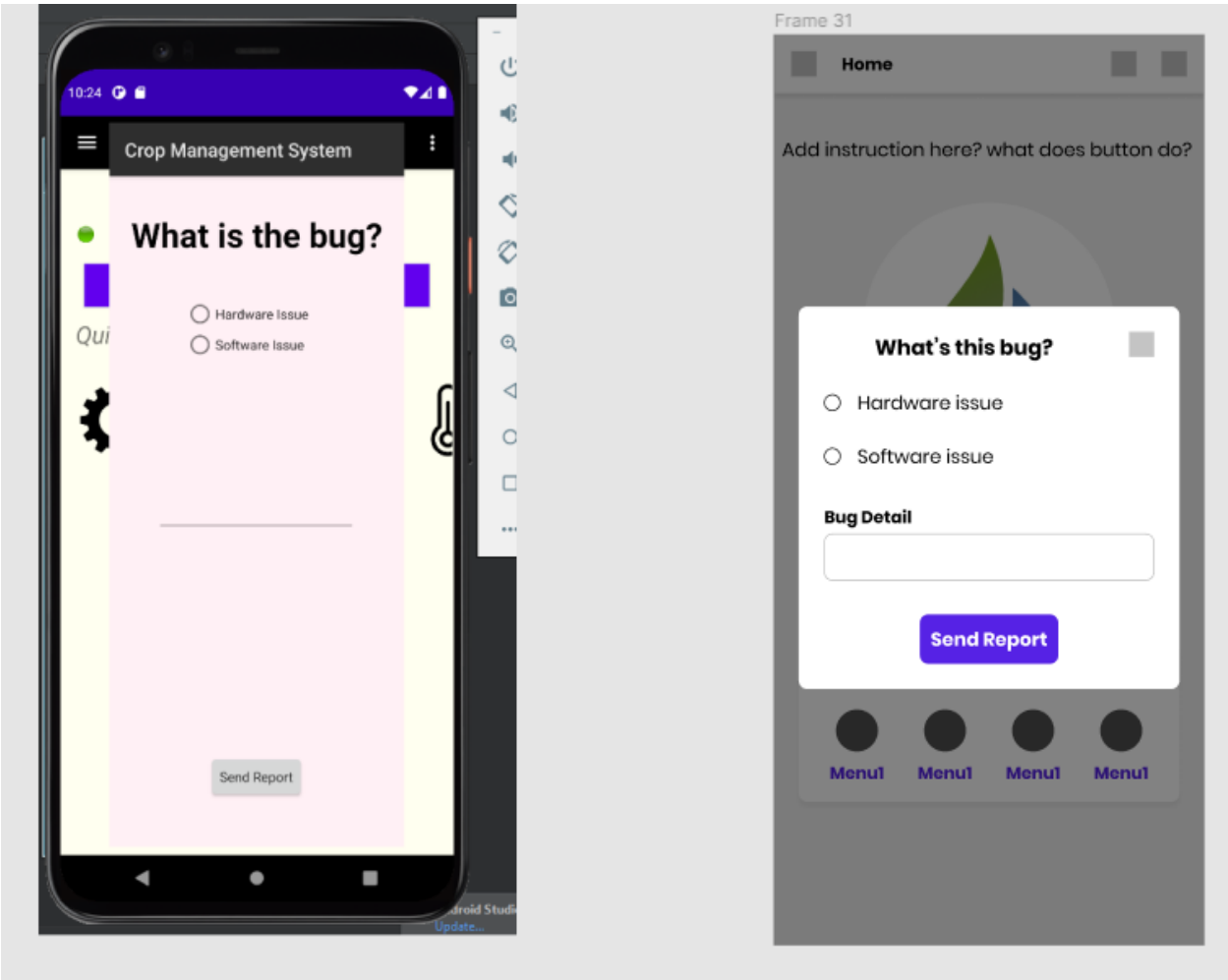


Another thing we had to refactor was the bug report screen. We did due to technical debt. The technical debt was that the original design was buggy. We also had to redesign the graphical side to fit a little better with the app but also have the feel of being a bug report form. With the original design you had barely any space to cancel a bug report as it was just tapping off of the form, but with the new design it is much more compact and allows you to click off way easier.


10:24
Crop Management System
What is the bug?
Hardware Issue
Software Issue
Send Report
Frame 31
Home
Add instruction here? what does button do?
What's this bug?
Hardware issue
Software issue
Bug Detail
Send Report
Menu1
Menu1
Menu1
Menu1

29. Some things we liked in these projects were the requirements for the deliverables. Some of the stuff given were things we had not attempted before, such as firebase, it was nice to step out of our comfort zones and attempt something new that will be helpful in the future.