CENG-322
Deliverable 4

The Automators

Smart Home Automation Project

By

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Table of Contents

Brief Description of the project. **3**

Member Participation **3**

Git Hub Repo link **3**

Sprint Goal **3**

C4 Model Container Diagram **4**

C4 Model Component Diagrams **5**

Google Play Link Screenshot **6**

Offline Functionality **6**

Runtime Permissions Instructions **7**

Scrum dashboard **7**

Post Mortem Performance Review **13**

Technical Debt **14**

Refactoring **14**

Feedback **14**

Brief Description of the project.

Our Project goal is to make a complete Smart home system, which consists of multiple hardware applications in one model. From our android app, the user can control and check the status of the sensors and devices. The main objective of the system is to improve the quality of life and convenience in the home. Further goals are greater security and more efficient use of energy, along with remotely-controllable devices. This product saves time by streamlining device control and also provides energy-efficient solutions. This cost-efficient system could also be adapted for commercial and industrial settings.

Member Participation

Name	Id	Signature	Effort
Naveen Kumar	N01355935	Naveen	100%
James Ricci	N00411900	James	100%
Gaganajeet Hanny	N01350705	GSingh	100%
Sukhmanpreet Kaur	N01355022	sukhman	100%

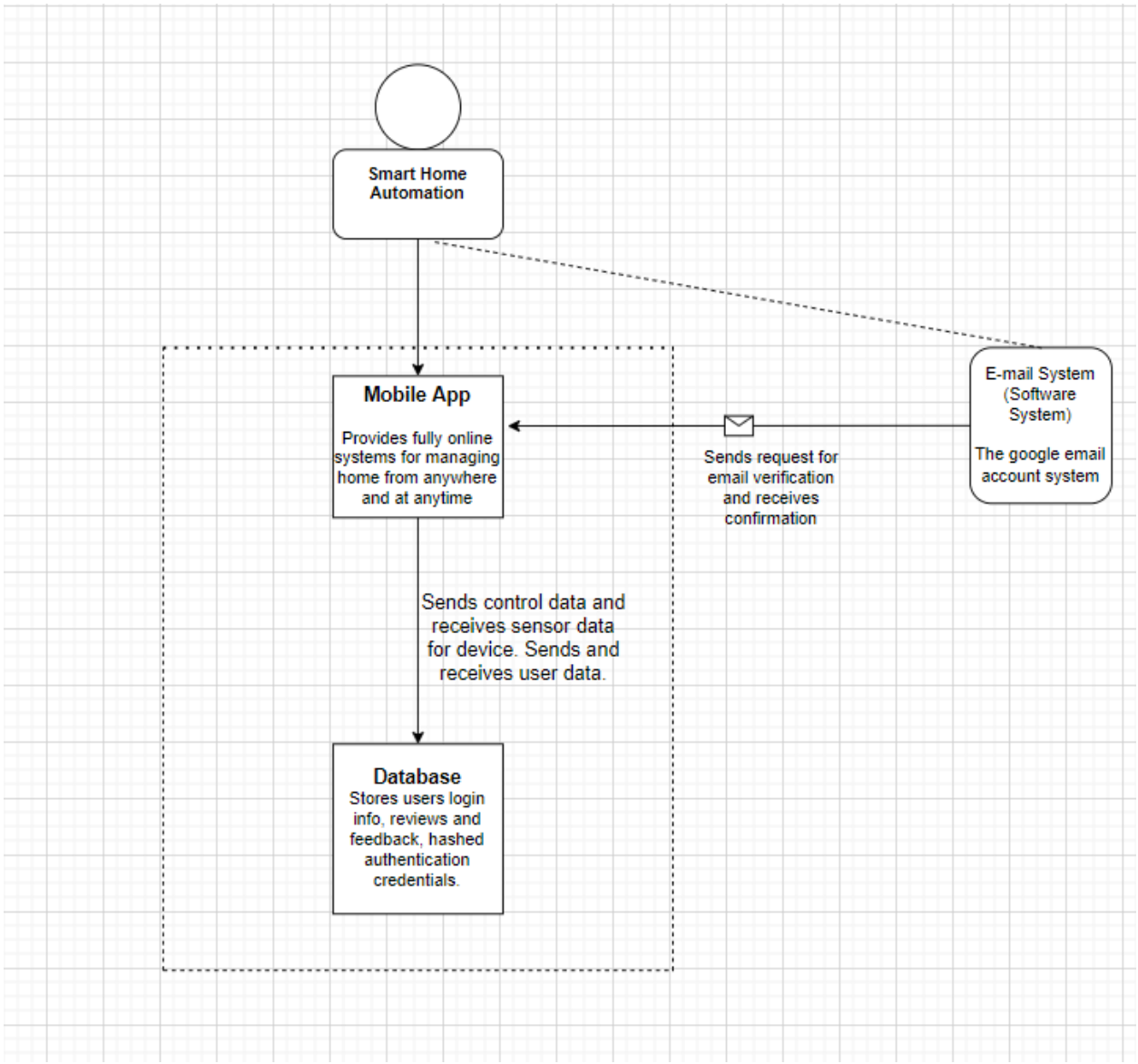
Git Hub Repo link

https://github.com/naveenKumar5935/smartHomeAutomation.git

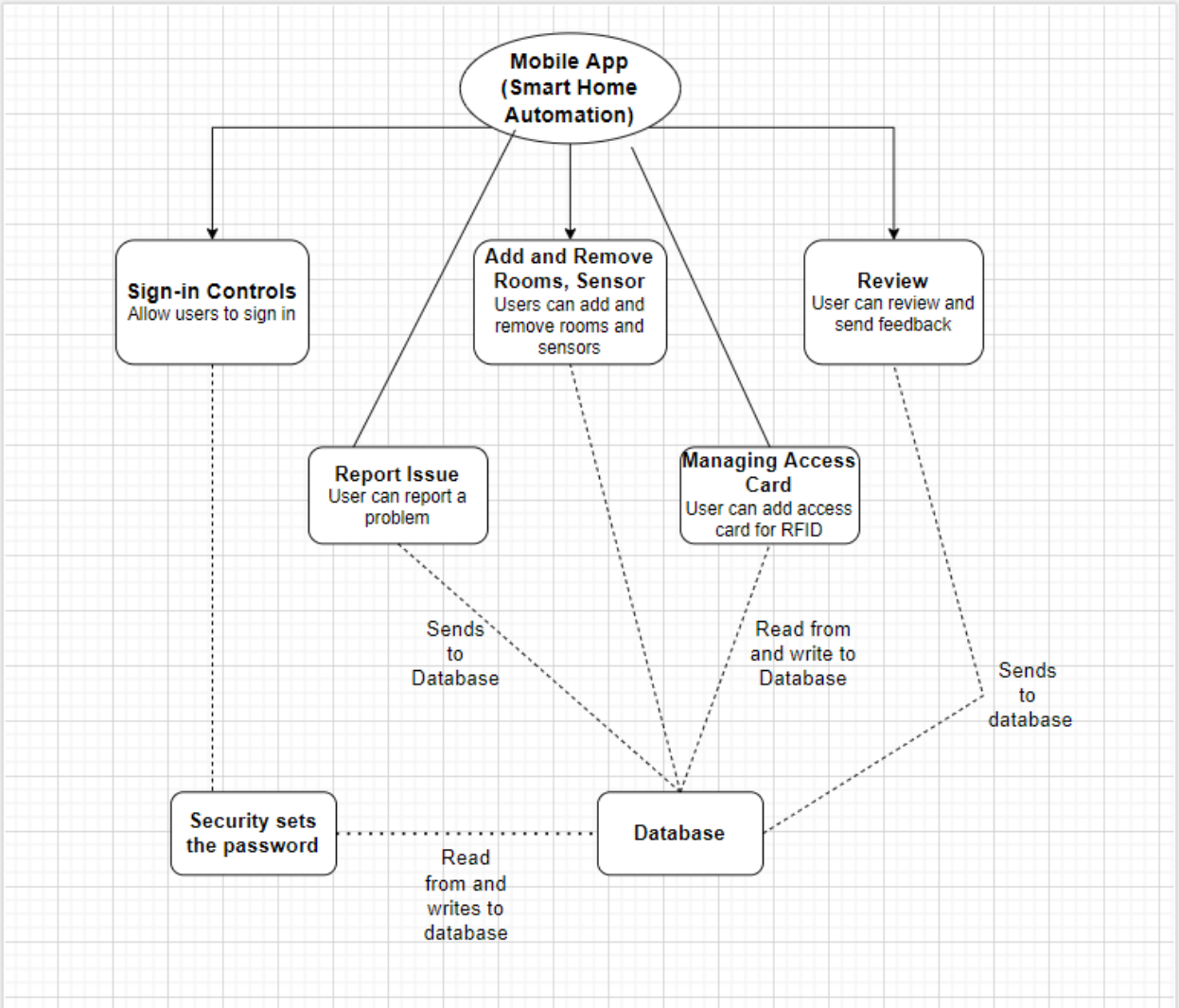
Sprint Goal

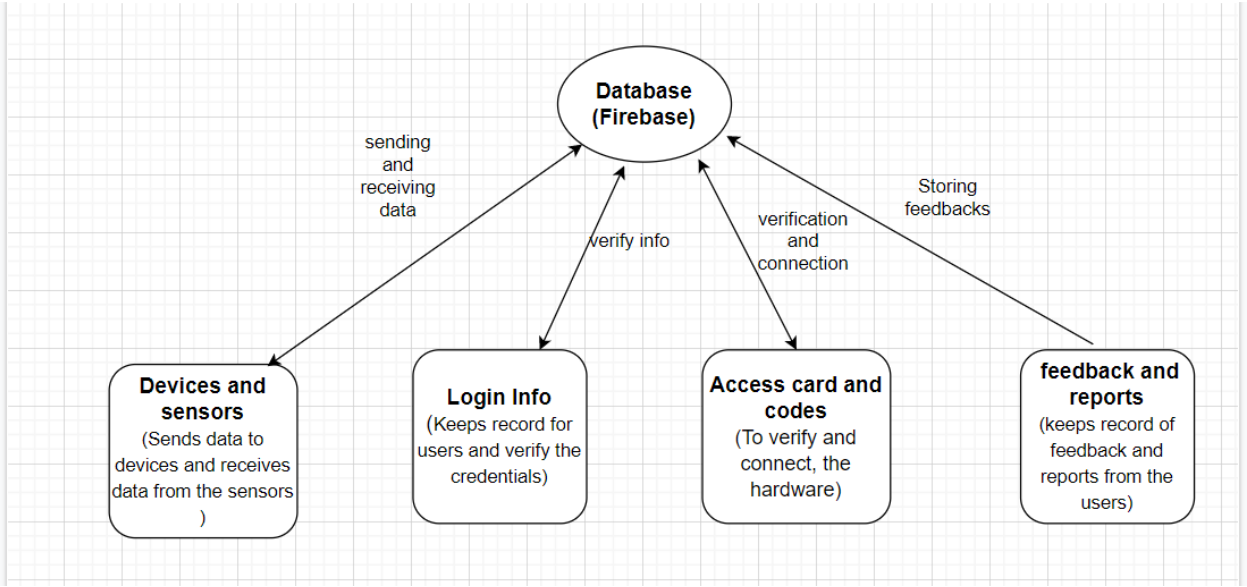
Finalize all functionality and prepare it for deployment.

C4 Model Container Diagram



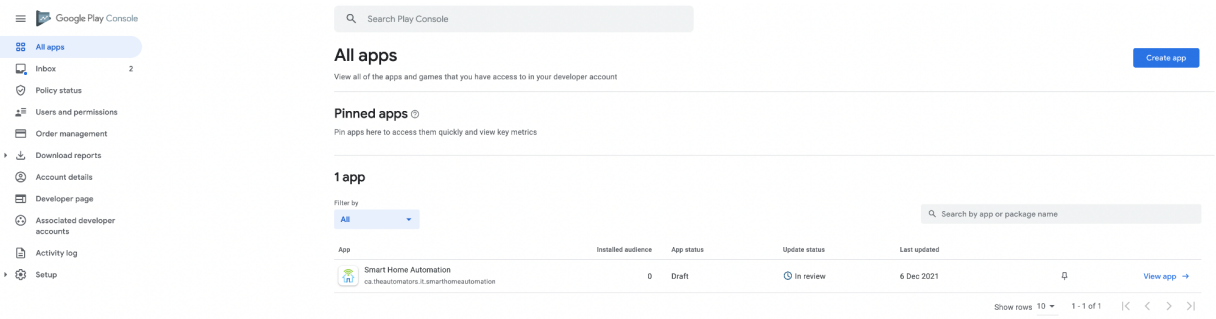
C4 Model Component Diagrams





Google Play Link Screenshot

As of December 7th, 2021, the app is still waiting approval from Google



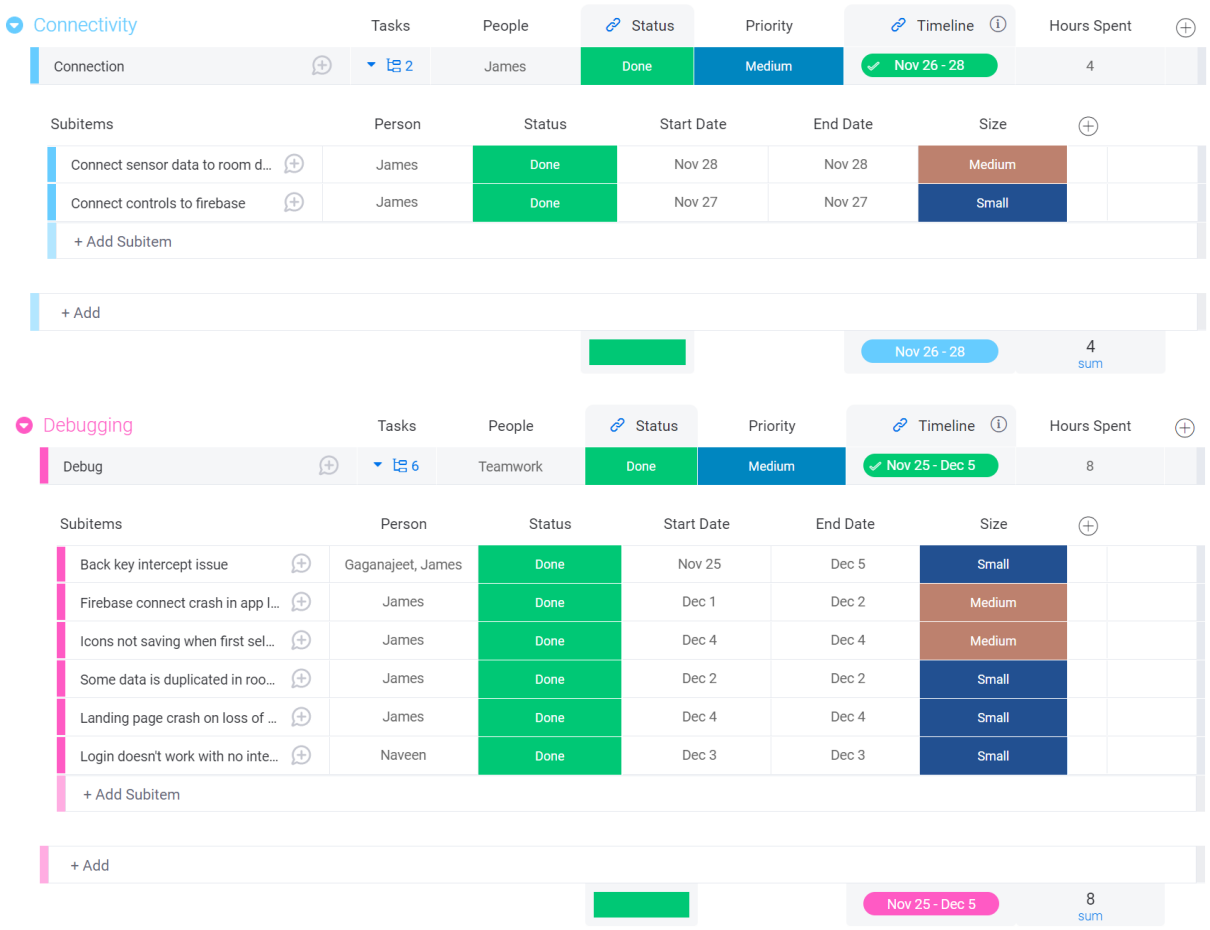
Offline Functionality

The users will be able to edit, add or remove rooms from the app whether online or offline.
Data sent from the database is stored in a cache and updated once the app goes back online.
The user will be able to change their profile picture in settings.
Users can also add or delete access cards when offline- it will be updated once the app goes online.
The user can also give review and report and issue when offline.

Runtime Permissions Instructions

Go to Settings → Choose Image → It will ask for storage permission → When you choose the picture it will set as your profile picture.

Scrum dashboard



Connectivity

Tasks	People	Status	Priority	Timeline	Hours Spent
Connection 2	James	Done	Medium	Nov 26 - 28	4

Subitems	Person	Status	Start Date	End Date	Size
Connect sensor data to room d...	James	Done	Nov 28	Nov 28	Medium
Connect controls to firebase	James	Done	Nov 27	Nov 27	Small
+ Add Subitem					

+ Add

	Nov 26 - 28	4 sum

Debugging

Tasks	People	Status	Priority	Timeline	Hours Spent
Debug 6	Teamwork	Done	Medium	Nov 25 - Dec 5	8

Subitems	Person	Status	Start Date	End Date	Size
Back key intercept issue	Gaganajeet, James	Done	Nov 25	Dec 5	Small
Firebase connect crash in app l...	James	Done	Dec 1	Dec 2	Medium
Icons not saving when first sel...	James	Done	Dec 4	Dec 4	Medium
Some data is duplicated in roo...	James	Done	Dec 2	Dec 2	Small
Landing page crash on loss of ...	James	Done	Dec 4	Dec 4	Small
Login doesn't work with no inte...	Naveen	Done	Dec 3	Dec 3	Small
+ Add Subitem					

+ Add

	Nov 25 - Dec 5	8 sum

Final

Final	Tasks	People	Status	Priority	Timeline	Hours Spent
Final	8	Teamwork	Working on it	High	Dec 5 - 7	3

Subitems	Person	Status	Start Date	End Date	Size
C4 container diagram	Sukhman, Gaganaj...	Done	Dec 5	Dec 7	Small
2 C4 component diagrams	Sukhman, Gaganaj...	Done	Dec 5	Dec 7	Small
Document runtime access and...	Naveen	Done	Dec 7	Dec 7	Small
Uploading on google play store	Teamwork	Done	Dec 5	Dec 5	Large
3 downloads and 3 reviews for ...	Teamwork	Pending			
Offline functionality	James, Naveen	Done	Dec 2	Dec 4	Small
Suggestions for instructor	Teamwork	Done	Dec 7	Dec 7	Small
Post-Mortem	Teamwork	Done	Dec 7	Dec 7	Small
+ Add Subitem					

+ Add

Dec 5 - 7 | 3 sum

Testing

Testing	Tasks	People	Status	Priority	Timeline	Hours Spent
Testing	3	Teamwork	Done	High	Nov 30 - Dec 5	7

Subitems	Person	Status	Start Date	End Date	Size
5 Junit	Sukhman	Done	Dec 4	Dec 5	Medium
5 Roblectric	Gaganajeet	Done	Dec 3	Dec 5	Medium
5 espresso	Naveen	Done	Nov 30	Dec 2	Medium
+ Add Subitem					

+ Add

Nov 30 - Dec 5 | 7 sum

Provided Control for devices (Sprint...

Provided Control for devices	Tasks	People	Status	Priority	Timeline	Hours Spent
Provided Control for devices	3	Teamwork	Done	High	Nov 27 - 28	6

Subitems	Person	Status	Start Date	End Date	Size
Lights on/off	James	Done	Nov 27	Nov 27	Small
Turning sensors on/off	James	Done	Nov 27	Nov 27	Small
Adding RFID/ Access Control	James	Done	Nov 27	Nov 27	Small
+ Add Subitem					

+ Add

Nov 27 - 28 | 6 sum

Room name change (Sprint 3)

Tasks	People	Status	Priority	Timeline	Hours Spent
Room functionality	5	James	Done	High	Nov 3 - 13	16

Subitems	Person	Status	Start Date	End Date	Size
Create the room state class	James	Done	Nov 3	Nov 4	Small
Load the current state of the ro...	James	Done	Nov 3	Nov 5	Small
Save state of the room	James	Done	Nov 4	Nov 6	Medium
Change the room name	James	Done	Nov 5	Nov 6	Medium
Changing icons for room	James	Done	Nov 7	Nov 9	Small
+ Add Subitem					

+ Add

Nov 3 - 13 | 16 sum

Dynamic Rooms (Sprint 3)

Tasks	People	Status	Priority	Timeline	Hours Spent
Dynamic rooms	13	James	Done	Medium	Nov 3 - 27	18

Subitems	Person	Status	Start Date	End Date	Size
Create device class	James	Done	Nov 8	Nov 8	Small
Add send and receive methods...	James	Done	Nov 9	Nov 11	Medium
In room manager activity add c...	James	Done	Nov 11	Nov 11	Medium
Add Manage Device Activity	James	Done	Nov 12	Nov 12	Large
Create room builder class	James	Done	Nov 15	Nov 27	Large
Create generic room fragment	James	Done	Nov 15	Nov 27	Medium
In Landing fragment, read roo...	James	Done	Dec 2	Nov 2	Medium
In Main Activity, handle navigat...	James	Done	Nov 15	Nov 27	Medium
Landing page scroll view	James	Done	Nov 28	Nov 28	Small
Landing page auto populate	James	Done	Nov 29	Nov 29	Large
Adjust screen flow	James	Done	Nov 26	Nov 26	Small
Add room names if deleted an...	James	Done	Nov 26	Nov 27	Medium
Device manager save button tri...	James	Done	Nov 25	Nov 27	Medium
+ Add Subitem					

+ Add

Nov 3 - 27 | 18 sum

Implementing Google sign in (Sprint...

Tasks	People	Status	Priority	Timeline	Hours Spent
Google sign in	5	Naveen	Done	High	Nov 7 - 11	6

Subitems	Person	Status	Start Date	End Date	Size
Saving the email and name of t...	Naveen	Done	Nov 7	Nov 8	Medium
Verifying user with access code	Naveen	Done	Nov 10	Nov 11	Medium
Saving SHA keys to the databa...	Naveen	Done	Nov 10	Nov 10	Small
Verifying user if already registe...	Naveen	Done	Nov 7	Nov 10	Large
Checking the user credentials ...	Naveen	Done	Nov 7	Nov 8	Medium
+ Add Subitem					

+ Add

Nov 7 - 11 | 6 sum

Database (Sprint 2)

Tasks	People	Status	Priority	Timeline	Hours Spent
Database	6	Naveen	Done	High	Oct 8 - Nov 13	15

Subitems	Person	Status	Start Date	End Date	Size
Create Database	Naveen	Done	Oct 8	Oct 9	Large
Database Design	Naveen, James	Done	Oct 8	Oct 15	Large
Save Customer review	Naveen, Gaganajeet	Done	Nov 10	Nov 10	Medium
Report an issue	Sukhman, Gaganaj...	Done	Nov 10	Nov 11	Medium
Save username and password	Naveen	Done	Nov 6	Nov 8	Medium
Add Static Device Nodes	James	Done	Nov 11	Nov 11	Small
+ Add Subitem					

+ Add

Oct 8 - Nov 13 | 15 sum

Menu item functionality (Sprint 2)

Tasks	People	Status	Priority	Timeline	Hours Spent
Menu functionality	8	Gaganajeet, Sukhm...	Done	High	Nov 1 - 13	5

Subitems	Person	Status	Start Date	End Date	Size
Created menu tabs and added ...	Sukhman	Done	Nov 1	Nov 1	Small
Create new customer review s...	Gaganajeet	Done	Nov 7	Nov 7	Large
Added legal polices	Gaganajeet	Done	Nov 10	Nov 11	Medium
Added new screen AboutApp	Sukhman	Done	Nov 10	Nov 10	Medium
Added report an issue and exit ...	Sukhman, Gaganaj...	Done	Nov 11	Nov 11	Medium
Validate email format for revie...	Gaganajeet	Done	Nov 23	Nov 24	Small
Progress dialog for review scre...	Gaganajeet	Done	Nov 24	Nov 25	Small
Cleaning of files, removing unn...	Sukhman	Done	Nov 29	Nov 29	Small
+ Add Subitem					

+ Add

Nov 1 - 13 | 5 sum

General Screen Design (Sprint 2)

Tasks	People	Status	Priority	Timeline	Hours Spent

Subitems	Person	Status	Start Date	End Date	Size
Landing fragment	James	Done	Sep 29	Oct 1	Medium
Splash screen	Gaganajeet	Done	Oct 1	Oct 3	Medium
Kitchen Fragement	James	Done	Oct 1	Oct 3	Medium
Landscape Views	Gaganajeet	Done	Oct 1	Oct 6	Medium
Bedroom Fragment	James	Done	Oct 3	Oct 5	Medium
Living room fragment	James	Done	Oct 5	Oct 7	Medium
Menu items	Sukhman	Done	Oct 5	Oct 7	Small
Button Styling	James	Done	Oct 7	Oct 9	Medium
Background Styling	James	Done	Oct 9	Oct 12	Medium
Login activity	Naveen	Done	Oct 1	Oct 4	Medium
Registration Activity	Naveen	Done	Oct 1	Oct 3	Medium
Images and icons	Sukhman, Gaganaj...	Done	Oct 3	Oct 7	Medium
Setting fragment	Naveen	Done	Oct 1	Oct 6	Medium
FAB button	Naveen	Done	Nov 27	Nov 29	Medium
+ Add Subitem					

+ Add

Sep 29 - Nov 30 | 20 sum

Login Security (Sprint 2)

Login Security	Tasks	People	Status	Priority	Timeline	Hours Spent
	8	Naveen	Done	High	Nov 2 - 12	7

Subitems	Person	Status	Start Date	End Date	Size
Grab the hashed Password fro...	Naveen	Done	Nov 3	Nov 4	Medium
Grab the salted key from the d...	Naveen	Done	Nov 4	Nov 12	Medium
Get the password from the user	Naveen	Done	Nov 4	Nov 6	Medium
Hashed the salted password	Naveen	Done	Nov 2	Nov 4	Medium
Compare the two	Naveen	Done	Nov 6	Nov 8	Medium
Adding regex to login and regis...	Naveen	Done	Nov 23	Nov 23	Medium
Updated layouts for login	Naveen	Done	Nov 23	Nov 23	Medium
Writing test cases for login	Naveen	Done	Nov 30	Dec 2	Medium
+ Add Subitem					

+ Add

	Nov 2 - 12	7 sum

View Status of Sensors (Sprint 2)

View Status of Sensors	Tasks	People	Status	Priority	Timeline	Hours Spent
	3	James	Done	High	Oct 3 - Nov 30	3

Subitems	Person	Status	Start Date	End Date	Size
Sensors designs status for all ...	James	Done	Oct 3	Oct 12	Small
Obtaining list of data	James	Done	Nov 13	Nov 13	Medium
Display the data	James	Done	Nov 27	Nov 29	Medium
+ Add Subitem					

+ Add

	Oct 3 - Nov 30	3 sum

Trigger Notifications (Sprint 2)

Trigger Notifications	Tasks	People	Status	Priority	Timeline	Hours Spent
	6	Teamwork	Done	Medium	Nov 1 - Dec 5	4

Subitems	Person	Status	Start Date	End Date	Size
Smoke alarm notification	Gaganajeet	Done	Nov 15	Nov 27	Medium
Overheating notification	James	Done	Nov 13	Nov 13	Medium
Motion sensor notification	Sukhman	Done	Nov 30	Dec 1	Medium
Unknown RFID scanned	Naveen	Done	Nov 26	Nov 27	Medium
Add Low Temp Notification	James	Done	Nov 13	Nov 13	Medium
Humidity level Notificaions	Naveen	Done	Nov 29	Nov 29	Small
+ Add Subitem					

+ Add

	Nov 1 - Dec 5	4 sum

App Settings (Sprint 1)

	Tasks	People	Status	Priority	Timeline	Hours Spent
App Settings	4	Teamwork	Done	Medium	Oct 22 - Nov 26	6

Subitems	Person	Status	Start Date	End Date	Size
Dark Mode	James	Done	Nov 13	Nov 13	Small
Adding/Removing RFID	Naveen	Done	Nov 25	Nov 28	Small
Logging out	Naveen	Done	Nov 3	Nov 4	Medium
Checking internet connection	Naveen	Done	Dec 2	Dec 3	Medium
+ Add Subitem					

+ Add

	Oct 22 - Nov 26	6 sum

Register Activity

	Tasks	People	Status	Priority	Timeline	Hours Spent
User can Sign Up	7	Naveen	Done	Medium	Oct 1 - Nov 29	7

Subitems	Person	Status	Start Date	End Date	Size
Updating Layout	Naveen	Done	Oct 1	Nov 22	Small
User can Sign Up with google	Naveen	Done	Nov 7	Nov 12	Small
access code required to signUp	Naveen	Done	Nov 6	Nov 6	Small
Data sent to database with has...	Naveen	Done	Nov 6	Nov 8	Small
Hashing User password	Naveen	Done	Nov 6	Nov 6	Small
Adding regex to password for v...	Naveen	Done	Nov 29	Nov 29	Small
Making UI Scrollable	Naveen	Done	Nov 4	Nov 4	Small
+ Add Subitem					

+ Add

	Oct 1 - Nov 29	7 sum

User Access Card(RFID)

	Tasks	People	Status	Priority	Timeline	Hours Spent
User can add/remove user access	4	Naveen	Done	High	Nov 26 - 29	3

Subitems	Person	Status	Start Date	End Date	Size
Displaying list of RFID cards pr...	Naveen	Done	Nov 26	Nov 28	Medium
User can delete the previous rfid	Naveen	Done	Nov 27	Nov 28	Small
User can add new rfid cards	Naveen	Done	Nov 27	Nov 28	Small
Updating and fetching data to ...	Naveen	Done	Nov 26	Nov 28	Medium
+ Add Subitem					

+ Add

	Nov 26 - 29	3 sum

Post Mortem Performance Review

Technical Debt

Technical debt was mainly addressed by removing minor functionality in order to have the app function in a more stable way. Examples of this include the dark theme switch and the portrait lock switch. In order to implement dynamic rooms, fragment switching and inflating was implemented dynamically. This made more sense for the user, allowing them to customize the app to what they have in their home, however it caused an unforeseen issue with those two functions that was not caught until close to the deliverable date. With more time the issue could have been resolved, but the team decided to just remove the functionality for now to prevent the app from crashing when released.

Refactoring

Major refactoring was done in the navigation drawer and the general structure of the app, and also in the Manage Rooms activity to better handle dynamic rooms. The refactoring was done to address the feedback received about our static rooms and room names. Initially, the room manager was created to allow the user to change the room names and icons. The next major step was to convert our static room layout to a dynamic one to allow the user to decide the layout of their rooms and which sensors would belong where. Once this major refactoring was complete, the room manager code needed to be refactored to better handle the dynamic room layout since the number of rooms and sensors attached to those rooms would be variable.

Feedback

- Using Git to work with a team was fun and informative.
- Working in a group to complete the project, and the promotion of team meetings and daily standups taught us to be more effective and efficient with our time
- Knowing the general requirements for the deliverables ahead of time, like at the beginning of the semester, would have made it easier to plan out the app. We found that we needed to backtrack and change some details of our plan a couple times due to deliverable requirements.
- If the course should be a little more flexible with the option to choose what the group needs to complete first so they can plan out in a more efficient way other than completing deliverables.
- We found you were very helpful and understanding during the course of the project. We appreciate how available and patient you were with our questions.