

CENG-322

Deliverable 3

The Automators

Smart Home Automation Project

By

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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>

Screenshots Sprint 2 and 3

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	5	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		
+ Add Subitem							
+ Add							
					Nov 1 - 13	5	sum

Login Security (Sprint 2)							Tasks	People	Status	Priority	Timeline ①	Hours Spent		
Login Security							+	5	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		
+ Add Subitem														
+ Add														

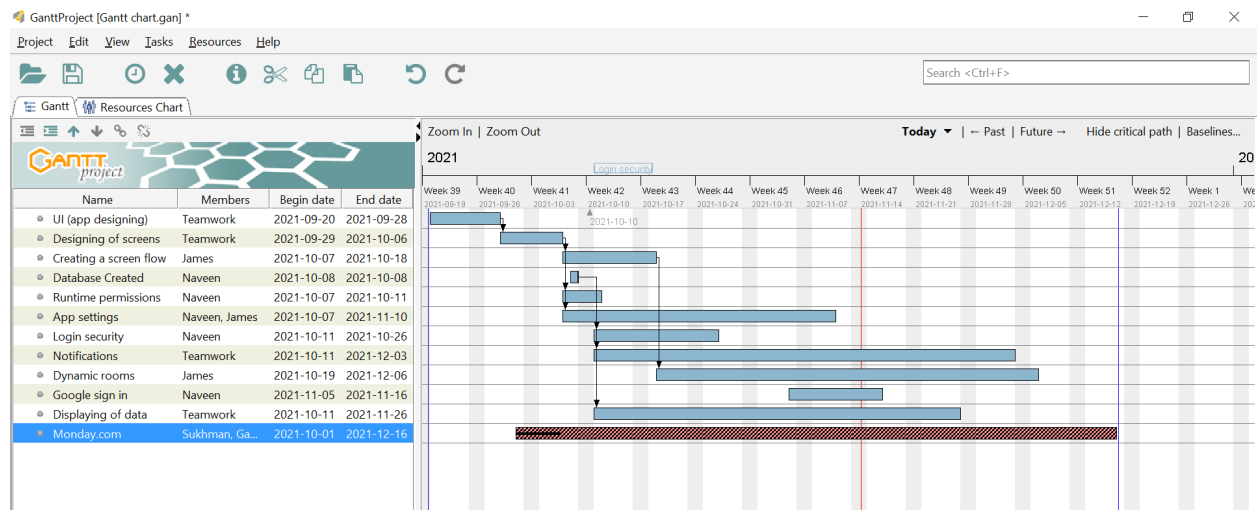
Provided Control for devices (Sprint...	Tasks	People	Status	Priority	Timeline	Hours Spent	
Provided Control for devices	5	Teamwork	Planned	High	Dec 1		
Subitems	Person	Status	Start Date	End Date	Size		
Lights on/off		Future Step					
Turning sensors on/off		Future Step					
Setting Light Color		Future Step					
Setting temperature Limits		Future Step					
Adding RFID/ Access Control		Future Step					
+ Add Subitem							
+ Add							
					Dec 1	0	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 Room (Sprint 3)	Tasks	People	Status	Priority	Timeline	Hours Spent	
Dynamic rooms	8	James	Working on it	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	Working on it	Nov 15	Nov 27	Large		
Create generic room fragment	James	Working on it	Nov 15	Nov 27	Medium		
In Landing fragment, read roo...	James	Working on it	Nov 15	Nov 27	Medium		
In Main Activity, handle navigat...	James	Working on it	Nov 15	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

Gantt Chart



Sprint Goals

1. Add Functionality to menu items
2. Add room name and icon changing abilities
3. Begin work on communicating with database
4. Add password encryption and authorization
5. Allow for settings to be persistent
6. Build structure for notifications and complete temperature notifications
7. Begin work on dynamic rooms
8. Add user feedback and issue report functionality

Daily Stand-ups

Nov 1, 2021

	James	Naveen	Gaganajeet	Sukhman
What did you work on yesterday?	Began work on room manager	Working on how to connect project with firebase	Made changes to the things went wrong in deliverable 2	Added new icons and cleaned out the files
What will you work on today ?	room manager	Today i completed the implementation	Ghannt chart	Gantt Chart
Any Blockers?	No	No	No	No

Nov 3, 2021

	James	Naveen	Gaganajeet	Sukhman
What did you work on yesterday?	Completed part of room manager	Completed login signup functionality	Searched the implementation of customer review screen	Added menu items, subitems and their icons.
What will you work on today ?	Room manager	Working on remember me function	Design of customer review screen	Will update Monday.com
Any Blockers?	No	No	No	No

Nov 7, 2021

	James	Naveen	Gaganajeet	Sukhman
What did you work on yesterday?	Added FirebaseConnect class	Remember me is implemented and working on google sign in	Design of review screen done	Worked on Customer review screen

What will you work on today ?	Room Manager	Implemented google sign in and signup button and still working on functionality	Start on the functionality on this screen and design legal screen	Will work designing new screen
Any Blockers?	No	Login and signup working on 2 clicks	problem showing Rating bar size in different screens	No

Nov 9, 2021

	James	Naveen	Gaganajeet	Sukhman
What did you work on yesterday?	Room name change - complete	Google sign in working	Review Screen is done and some changes to the menu item functionality	Added new About an App screen
What will you work on today ?	Room icon change	Still looking for 2 clicks error.	Functionality of legal screen	Make changes in the designing of screen
Any Blockers?	No	Login works in 2 clicks	No	No

Nov 10,2021

	James	Naveen	Gaganajeet	Sukhman
What did you work on yesterday?	Added more vector assets, completed icon change, Added	Two clicks error solved and working.	Legal Screen done and connecting review screen	About App done

	save state to room manager		data to database	
What will you work on today ?	Begin work on Dynamic rooms	Implementing a access code requirement before signup	Report screen design	Exit Functionality
Any Blockers?	No	NO	No	No

Nov 12, 2021

	James	Naveen	Gaganajeet	Sukhman
What did you work on yesterday?	Added all the classes I think we'll need for dynamic rooms. Device class has been structured	Implemented google signup with access code requirement	Report Screen done	Report Screen functionality
What will you work on today ?	Writing functionality in Device class stub routines	Making remember me for google sign in	Check the complete functionality of my screens and using proper buttons	Review the report an issue screen
Any Blockers?	No	NO	No	No\

Nov 13, 2021

	James	Naveen	Gaganajeet	Sukhman
What did you work on yesterday?	Completed Device class. Added create and delete row functionality to Room Manger.	Checking everything login signup and working fine	All given screens for my part is done	Updated Monday.com

What will you work on today ?	AsyncTask, Dark mode, Begin work on Firebase communication	Allowing user to setup profile image which is being saved to database	Checking and testing the code	Checked Monday.com, Gantt Chart, documentation, Code testing.
Any Blockers?	No	No	No	No

Sprint Retrospective

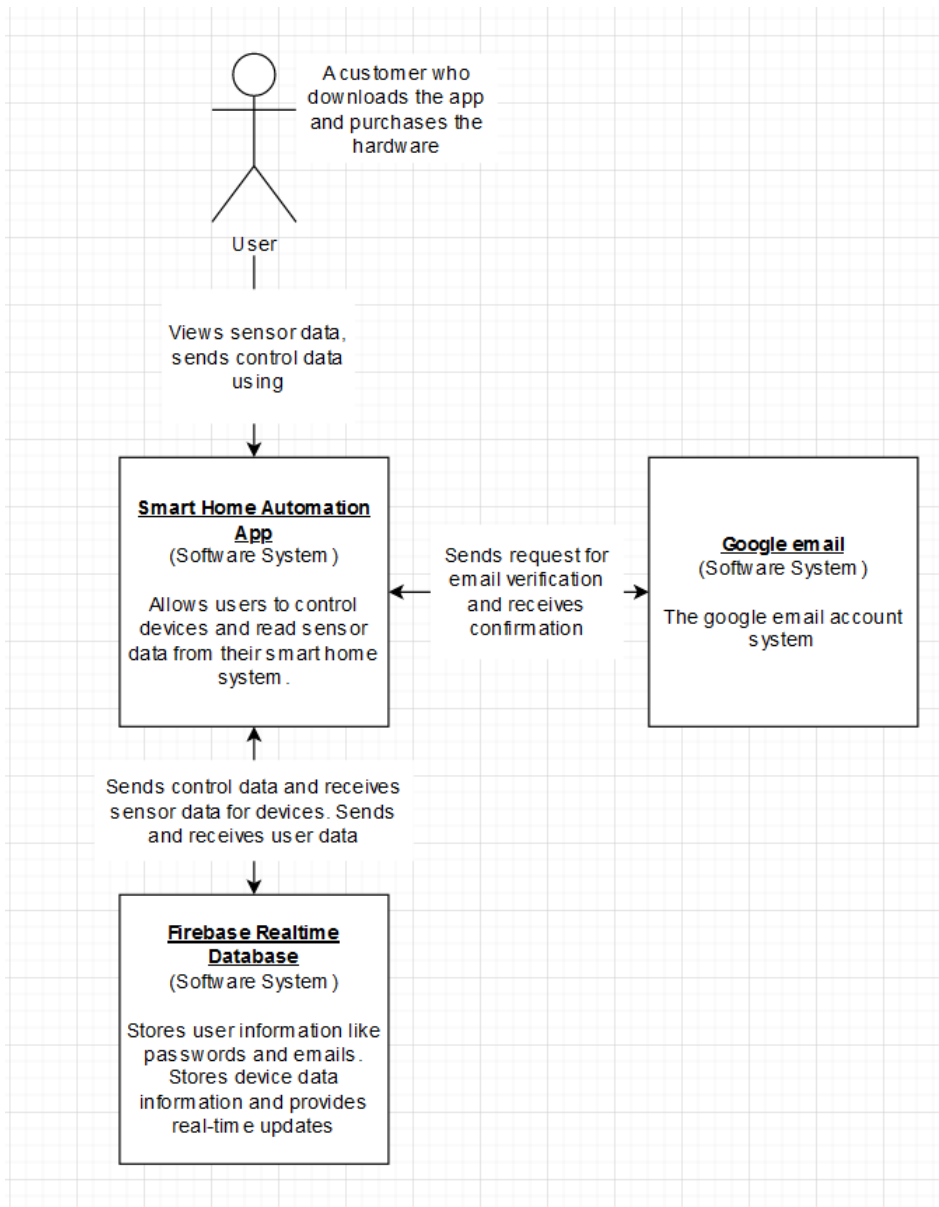


Smart Home Automation

14-11-21 Retrospective



C4 - System Context Diagram



Design Patterns

Device class - Dependency injection

The device class depends on the identifier being injected into it by the process it is being called by.

FirebaseConnect class - Singleton

FirebaseConnect occurs in only a single instance throughout the app and handles all device data communication with firebase.

Design Principles

ManageDeviceActivity (getDrawable method) - Keep It Simple and Stupid

The getDrawable method is a simple and quick method that could have been incorporated into the display method, but extracting it to its own method allows it to be reused and changed easily.

PasswordEncryption class - Single Responsibility

The PasswordEncryption class has only one responsibility. To encrypt and return the given password string as a hashed string.

Coding work progress since deliverable 2.

- Integrated Firebase into app
- User registration, login, logout, and remember me using firebase with app persistence
- New menu items with functionality added
 - Legal policies
 - Customer Review
 - Help
 - About App
 - Report an issue
 - Exit
- RoomManager class, room name and icon changing functionality with app persistence
- FirebaseConnect singleton added to handle firebase sensor data communication
- Customer Review with firebase connection, reads device model to database
- Began work on Dynamic Rooms
- Google sign in with app persistence
- About app screen
- Device Class
- Lock screen to portrait
- Dark mode
- RoomState class saves room state to shared preferences
- AsyncTask added to room state
- Profile image now saved to database
- Upload access card from settings screen
- Various UI improvements
- Temperature limit notifications
- Various Bug and crash Fixes

Runtime permission implemented

The runtime permission used is for storage and gallery access. The user can provide permissions for the gallery and if so, they can select an image which they want to set as a profile image for the account.