

Deliverable #4

CENG-322

Secure Home Automation (Software)

By Future Home ^{*(Team)}

Development Team:

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Harpreet Cheema (N01438638)

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Project Description

Project Scope & Goal:

This project aims to develop a system with various functions pertaining to the remote control of home automotive functions. The goal of developing such a system will be achieved by developing an app that allows the user to connect to and monitor these sensor controls from remote areas. Users will benefit from being granted access to all of these controls important in managing the functions and security of your home from a single app.

Peer Review

Name	ID	Signature	Effort
Zachary Learoyd	LRDZ0002	ZL	10/10
Akash Muhundhan	N01420118	AM	10/10
Harpreet Cheema	N01438638	HC	7/10
Krushang Parekh	N01415355	KP	10/10

GitHub

Repo link: <https://github.com/ZacharyLearoyd0791/SecureHomeAutomation>

Sprint

Story 1:

.. **November-December 2022 - Sprint 5**

<input type="checkbox"/>	Task		Person	Status	Date Assigned	Timeline (ETA)	Size	+
<input type="checkbox"/>	> Develop Test Cases for App 3		ZL	Done	Nov 21	<div></div>	Medium	
<input type="checkbox"/>	✓ Complete UI and functionality of temperature screen 4		HC AM	Done	Nov 21	<div></div>	Medium	
<input type="checkbox"/>	Subitem		Owner	Priority	Status	Completed Date		+
<input type="checkbox"/>	refine the temperature fragment UI							
<input type="checkbox"/>	link the schedule activity with temperature fragment							
<input type="checkbox"/>	fix issue of min max temperature setup							
<input type="checkbox"/>	add the french translations							
<input type="checkbox"/>	+ Add Subitem							

Story 2:

✓ **November-December 2022 - Sprint 5** 7 Tasks / 24 Subitems

<input type="checkbox"/>	Task		Person	Status	Date Assigned	Timeline (ETA)	Size	+
<input type="checkbox"/>	> Develop Test Cases for App 3		ZL	Done	Nov 21	<div></div>	Medium	
<input type="checkbox"/>	> Complete UI and functionality of temperature screen 4		HC AM	Done	Nov 21	<div></div>	Medium	
<input type="checkbox"/>	✓ Edit Profile functionality 5		K	Done	Nov 21	<div></div>	Medium	
<input type="checkbox"/>	Subitem		Owner	Priority	Status	Completed Date		+
<input type="checkbox"/>	getting old user data							
<input type="checkbox"/>	saving new user data,							
<input type="checkbox"/>	putting new profile image from gallery							
<input type="checkbox"/>	saving data offline/online							
<input type="checkbox"/>	change password functionality							
<input type="checkbox"/>	+ Add Subitem							

Story 3:

✓ **November-December 2022 - Sprint 5**

<input type="checkbox"/>	Task		Person	Status	Date Assigned	Timeline (ETA)	Size	+
<input type="checkbox"/>	> Develop Test Cases for App 3		ZL	Done	Nov 21	<div></div>	Medium	
<input type="checkbox"/>	> Complete UI and functionality of temperature screen 4		HC AM	Done	Nov 21	<div></div>	Medium	
<input type="checkbox"/>	> Edit Profile functionality 5		K	Done	Nov 21	<div></div>	Medium	
<input type="checkbox"/>	✓ windows fragment activity functionality 3		K	Done	Nov 21	<div></div>	Medium	
<input type="checkbox"/>	Subitem		Owner	Priority	Status	Completed Date		+
<input type="checkbox"/>	setting recyclerView							
<input type="checkbox"/>	on/off button							
<input type="checkbox"/>	setting device status							
<input type="checkbox"/>	+ Add Subitem							

Story 4:

November-December 2022 - Sprint 5

<input type="checkbox"/>	Task		Person	Status	Date Assigned	Timeline (ETA)	Size	+
<input type="checkbox"/>	> Develop Test Cases for App 3	<input type="checkbox"/>		Done	Nov 21	<div>-</div>	Medium	
<input type="checkbox"/>	> Complete UI and functionality of temperature screen 4	<input type="checkbox"/>		Done	Nov 21	<div>-</div>	Medium	
<input type="checkbox"/>	> Edit Profile functionality 5	<input type="checkbox"/>		Done	Nov 21	<div>-</div>	Medium	
<input type="checkbox"/>	> windows fragment activity functionality 3	<input type="checkbox"/>		Done	Nov 21	<div>-</div>	Medium	
<input type="checkbox"/>	▼ Account Fragment linking 3	<input type="checkbox"/>		Done	Nov 21	<div>-</div>	Medium	

<input type="checkbox"/>	Subitem		Owner	Priority	Status	Completed Date	+
<input type="checkbox"/>	getting user details from google	<input type="checkbox"/>					
<input type="checkbox"/>	getting user details from email sign in	<input type="checkbox"/>					
<input type="checkbox"/>	getting user detail locally	<input type="checkbox"/>					
<input type="checkbox"/>	+ Add Subitem						

Story 5:

November-December 2022 - Sprint 5

<input type="checkbox"/>	Task		Person	Status	Date Assigned	Timeline (ETA)	Size	+
<input type="checkbox"/>	> Develop Test Cases for App 3	<input type="checkbox"/>		Done	Nov 21	-	Medium	
<input type="checkbox"/>	> Complete UI and functionality of temperature screen 4	<input type="checkbox"/>		Done	Nov 21	-	Medium	
<input type="checkbox"/>	> Edit Profile functionality 5	<input type="checkbox"/>		Done	Nov 21	-	Medium	
<input type="checkbox"/>	> windows fragment activity functionality 3	<input type="checkbox"/>		Done	Nov 21	-	Medium	
<input type="checkbox"/>	> Account Fragment linking 3	<input type="checkbox"/>		Done	Nov 21	-	Medium	
<input type="checkbox"/>	✓ UI Clean up 1	<input type="checkbox"/>		Done		-	Small	
<input type="checkbox"/>	Subitem		Owner	Priority	Status	Completed Date	+	
<input type="checkbox"/>	cleaning all UI in application for clean and user satisfied view	<input type="checkbox"/>			Done	Dec 3		
<input type="checkbox"/>	+ Add Subitem							

Story 6:

November-December 2022 - Sprint 5

<input type="checkbox"/>	Task		Person	Status	Date Assigned	Timeline (ETA)	Size	+
<input type="checkbox"/>	> Develop Test Cases for App 3		<div>ZL</div>	Done	Nov 21	<div>-</div>	Medium	
<input type="checkbox"/>	> Complete UI and functionality of temperature screen 4		<div>HCAM</div>	Done	Nov 21	<div>-</div>	Medium	
<input type="checkbox"/>	> Edit Profile functionality 5		<div>K</div>	Done	Nov 21	<div>-</div>	Medium	
<input type="checkbox"/>	> windows fragment activity functionality 3		<div>K</div>	Done	Nov 21	<div>-</div>	Medium	
<input type="checkbox"/>	> Account Fragment linking 3		<div>KAM</div>	Done	Nov 21	<div>-</div>	Medium	
<input type="checkbox"/>	> UI Clean up 1		<div>AM</div>	Done		<div>-</div>	Small	
<input type="checkbox"/>	▼ Junit test cases 5		<div>AM</div>	Done		<div>-</div>	Medium	

<input type="checkbox"/>	Subitem		Owner	Priority	Status	Completed Date	+
<input type="checkbox"/>	Added test case to test if name has numbers or characters		<div></div>		Done		
<input type="checkbox"/>	tested true and false		<div></div>		Done		
<input type="checkbox"/>	tested email if valid		<div></div>		Done		
<input type="checkbox"/>	check if string is null		<div></div>		Done		
<input type="checkbox"/>	sum check		<div></div>		Done		
<input type="checkbox"/>	+ Add Subitem						

Project Post Mortem

Summary

Since September, our team (Future Home) has been able to develop an android app to control a proprietary smart-home device (Secure Home Automation), with planned hardware integration to come in the first half of the new-year (2023). Although many planned features have been fully implemented into the app already, some development was incomplete, such as:

- Scheduler feature: used to schedule set time and day for sensor to be activated programmatically (ie. turn on lights everyday at 5pm, or turn off A/C during weekdays between the hours of 8am-4pm)

- Sensor quick access control: feature used on the home screen to quickly enable and disable sensor features (ie. enable user set scheduled tasks)

- Google Assistant: incorporate the api to support AI assisted app and sensor control (optional extra feature, not required for app functionality)

Performance Review

The performance of each team member varied by deliverable, with some irregular scheduling and time management issues. However, overall the quality of the app and development was not impacted. Team members were quick to support one another when in need, working around different schedules due to other life commitments (ie. working full time jobs, assignments, etc). Almost nothing regarding the app was compromised, if anything, aside from a few features mentioned above that were removed due to continuous bugs/crashes, unable to fix within a reasonable time.

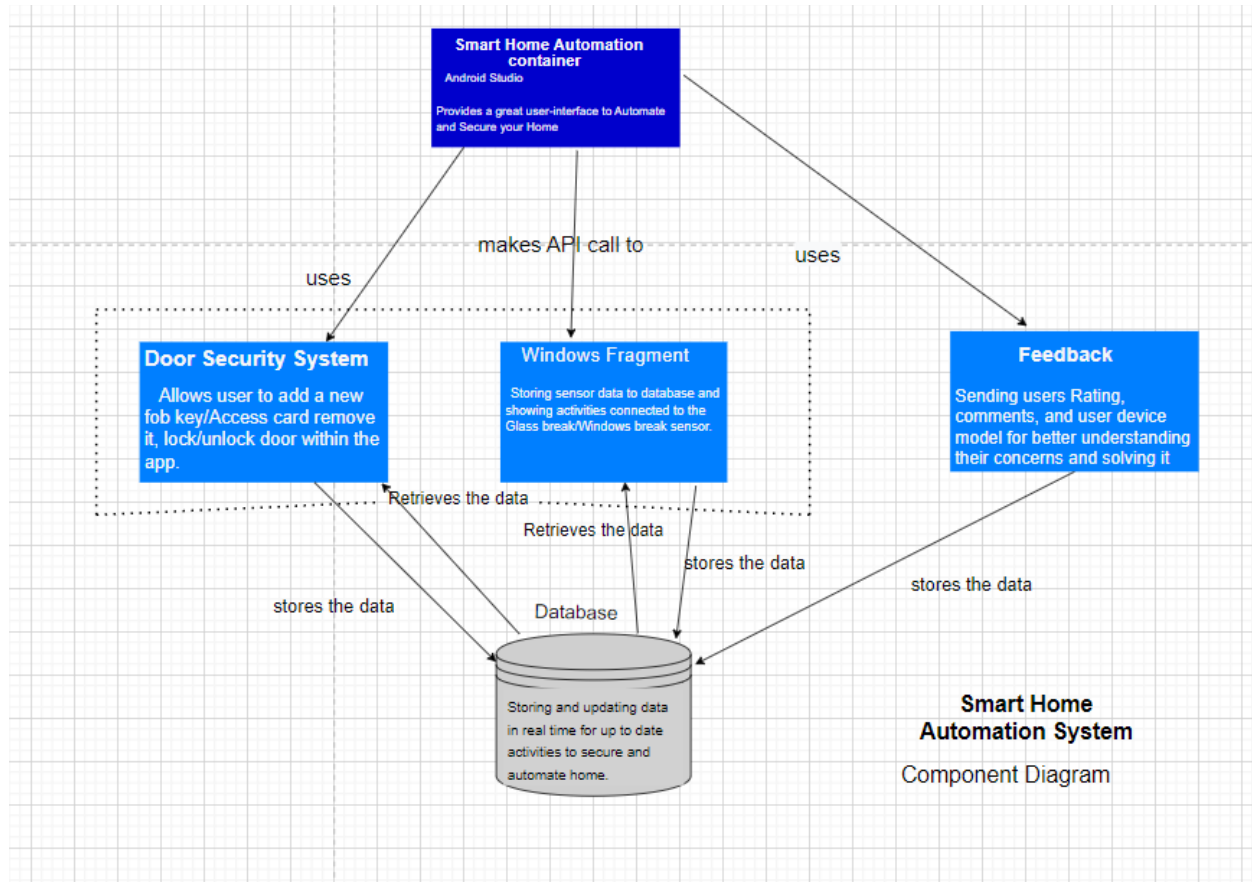
Miscellaneous & Development Costs

The costs incurred during development include: creating a Google developer account (\$25), adding Google Assistant API (\$25, although this feature was dropped due to technical issues). No other additional costs were incurred, unless development time is considered.

Learning Outcomes

Overall I would say the team learned a lot, not only about app development, but about what it means to be a part of a team working towards a common goal, including how to take on the role of project leader or scrum master. Constant communication and feedback led us to our success in developing new features, creating a solid UI/UX design, as well as managing our abilities/limits when learning/overcoming obstacles. However, we could have improved on focusing our time and resources on fixing crucial functionality before moving on to the next task, creating technical debt.

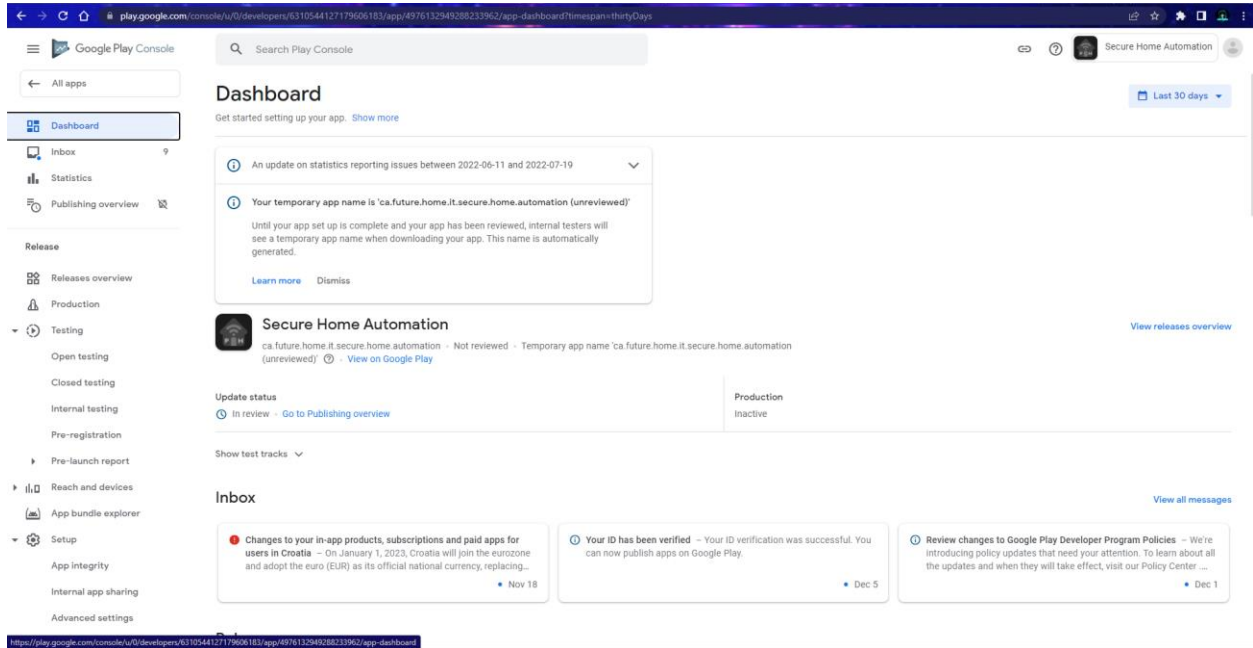
C4



Google Play Link:

Waiting for Google to review the app!

Screenshot of App Submission



Offline Mode

The offline mode is to output old data that was saved before the connection went out! Since this is a secure home automation, this app needs 100% internet connection but we implemented it so that if you sign in using email and password with remember me on, it will show the data that was saved before connection lost.

Runtime Permissions

- We are using 5 runtime permission as follows:
 - 1) Accessing the Vibrator in device - used when alarm sound is activated.
 - 2) Accessing the Bluetooth - used to connect the sensors with the application.
 - 3) Accessing the Location - used to connect the sensor with the application.
 - 4) Accessing for the Notification - used to send Notification if there is any activity happening.
 - 5) Accessing Biometric data - this is used for biometric login features.

Technical Debt

We had a lot of technical debt in our program. We realized it was a problem when we were changing classes we did not work on. So what we did instead of a big mess in the code, we divided long code that has multiple steps into each method. This made the code easier to follow and understand. What we did next was we sorted items that went together. This made stuff the code easier to follow and does not call random stuff in random areas. Finally we had classes that were repeated on each screen which makes the code shorter and cleaner.

Refactor

For refactor in our code, we have made a smaller method instead of having all of the code in a single method. This is helpful because having everything in 1 method is harder to track and harder to understand. Having a smaller method will help. Also adding comments helped understand the code. We also named variables in such a way that it is easy to understand.

Feedback To Course

This project was fun and was a lot. We learned a lot of new things in the course and were really active. The only issue was some of the team members had busy schedules and other course load which affected the workload. We feel like some of the deliverable has less time to finish compared to the time given and the amount of work to be done. We feel like if it was divided properly, this issue wouldn't have happened. We also have done more work in some deliverables which affected the deliverables after we finished it beforehand.

App Sign in account

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Password: Team2002