



CS350 Software Engineering SafeHome Project

Bug Report for Team 8

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1. Manual System-Level Testing

1.1. BUG-101: Bad user manual, no dependency synchronization is given

```
pyenv shell 3.14.0rc2
● mickey@DrDancingMedleyremix CS350-Safehome % pyenv shell 3.14.0rc2
@ mickey@DrDancingMedleyremix CS350-Safehome % python main.py
Traceback (most recent call last):
  File "/Users/mickey/Documents/kaist/3.1/CS350/hw/hw4/CS350-Safehome/main.py", line 6, in <module>
    from safehome.core.system import System
  File "/Users/mickey/Documents/kaist/3.1/CS350/hw/hw4/CS350-Safehome/safehome/core/__init__.py", line 6, in <module>
    from .system import System
  File "/Users/mickey/Documents/kaist/3.1/CS350/hw/hw4/CS350-Safehome/safehome/core/system.py", line 8, in <module>
    from ..device.camera.camera_controller import CameraController
  File "/Users/mickey/Documents/kaist/3.1/CS350/hw/hw4/CS350-Safehome/safehome/device/camera/camera_controller.py", line 3,
in <module>
    from PIL import Image
ModuleNotFoundError: No module named 'PIL'
```

Author: Thiwat Chatkham

Bug description: No dependency synchronization is given, run [main.py](#) will indicate no modules

Steps to reproduce:

1. Run \$ python [main.py](#) in root directory

Note:

Currently, add dependency to pyproject.toml and use \$ uv sync to synchronize the dependency, the later work on bug detecting will use this dependency.

```
❶ pyproject.toml
1   [project]
2     name = "your_project_name"
3     version = "0.1.0"
4     description = "Your project description"
5     authors = [
6       { name = "Your Name" }
7     ]
8     requires-python = ">=3.14"
9     dependencies = [
10       "Pillow",
11     ]
12
13
14   [tool.black]
15   line-length = 88
16   target-version = ["py311"]
17
18   [tool.ruff]
19   line-length = 88
20   select = ["E", "F", "W", "I"]
21   ignore = ["F401", "F841", "E722"]
```

1.2. BUG-102: CameraView flood logs

```
1 [2025-12-07 15:41:24] [INFO] CameraController: Camera 1 view accessed
2 [2025-12-07 15:41:24] [INFO] CameraController: Camera 2 view accessed
3 [2025-12-07 15:41:24] [INFO] CameraController: Camera 3 view accessed
4 [2025-12-07 15:41:25] [INFO] CameraController: Camera 1 view accessed
5 [2025-12-07 15:41:25] [INFO] CameraController: Camera 2 view accessed
6 [2025-12-07 15:41:25] [INFO] CameraController: Camera 3 view accessed
7 [2025-12-07 15:41:26] [INFO] CameraController: Camera 1 view accessed
8 [2025-12-07 15:41:26] [INFO] CameraController: Camera 2 view accessed
9 [2025-12-07 15:41:26] [INFO] CameraController: Camera 3 view accessed
10 [2025-12-07 15:41:26] [INFO] CameraController: Camera 1 view accessed
11 [2025-12-07 15:41:26] [INFO] CameraController: Camera 2 view accessed
12 [2025-12-07 15:41:26] [INFO] CameraController: Camera 3 view accessed
13 [2025-12-07 15:41:27] [INFO] CameraController: Camera 1 view accessed
14 [2025-12-07 15:41:27] [INFO] CameraController: Camera 2 view accessed
15 [2025-12-07 15:41:27] [INFO] CameraController: Camera 3 view accessed
16 [2025-12-07 15:41:27] [INFO] CameraController: Camera 1 view accessed
17 [2025-12-07 15:41:27] [INFO] CameraController: Camera 2 view accessed
18 [2025-12-07 15:41:27] [INFO] CameraController: Camera 3 view accessed
19 [2025-12-07 15:41:28] [INFO] CameraController: Camera 1 view accessed
20 [2025-12-07 15:41:28] [INFO] CameraController: Camera 2 view accessed
21 [2025-12-07 15:41:28] [INFO] CameraController: Camera 3 view accessed
22 [2025-12-07 15:41:28] [INFO] CameraController: Camera 1 view accessed
23 [2025-12-07 15:41:28] [INFO] CameraController: Camera 2 view accessed
24 [2025-12-07 15:41:28] [INFO] CameraController: Camera 3 view accessed
25 [2025-12-07 15:41:29] [INFO] CameraController: Camera 1 view accessed
26 [2025-12-07 15:41:29] [INFO] CameraController: Camera 2 view accessed
27 [2025-12-07 15:41:29] [INFO] CameraController: Camera 3 view accessed
28 [2025-12-07 15:41:29] [INFO] CameraController: Camera 1 view accessed
29 [2025-12-07 15:41:29] [INFO] CameraController: Camera 2 view accessed
30 [2025-12-07 15:41:29] [INFO] CameraController: Camera 3 view accessed
31 [2025-12-07 15:41:30] [INFO] CameraController: Camera 1 view accessed
```

Author: Thiwat Chatkham

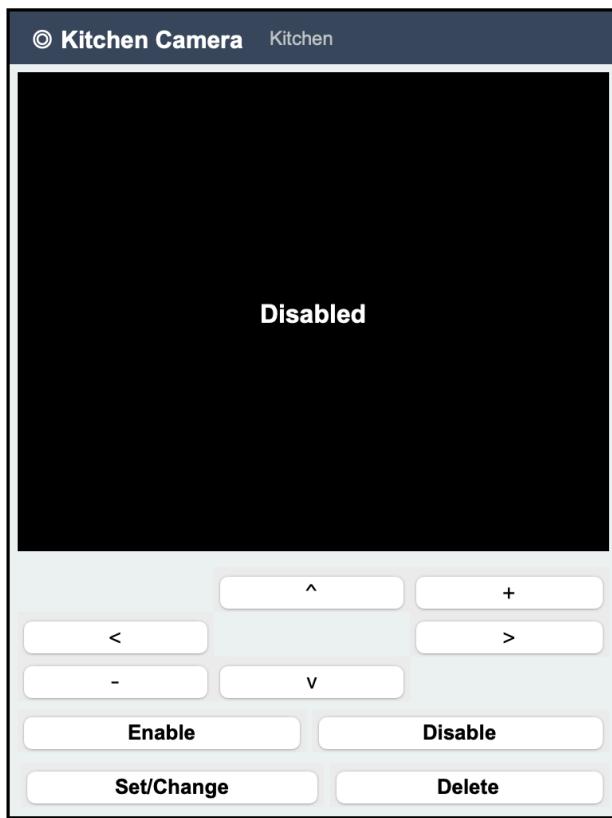
Bug description: Performance bug. Every second, CameraController will log 3 cameras view actions, reducing the space in logs, and confuse the user reading logs.

Steps to reproduce:

1. \$ uv run python [main.py](#)
2. Login as admin successfully
3. Observe 3 main cameras, dining room camera, kitchen camera, and living room camera.
4. In source code directory, observe data/safehome_events.log, will result in the evidence shown above,
5. Optionally, the logs messages can be observed via LOGS in the main window after successfully login, observing similar results.

Note: At the time testing this, no severe system failure was observed yet.

1.3. BUG-103: Camera shown disabled after password remove



Author: Thiwat Chatkham

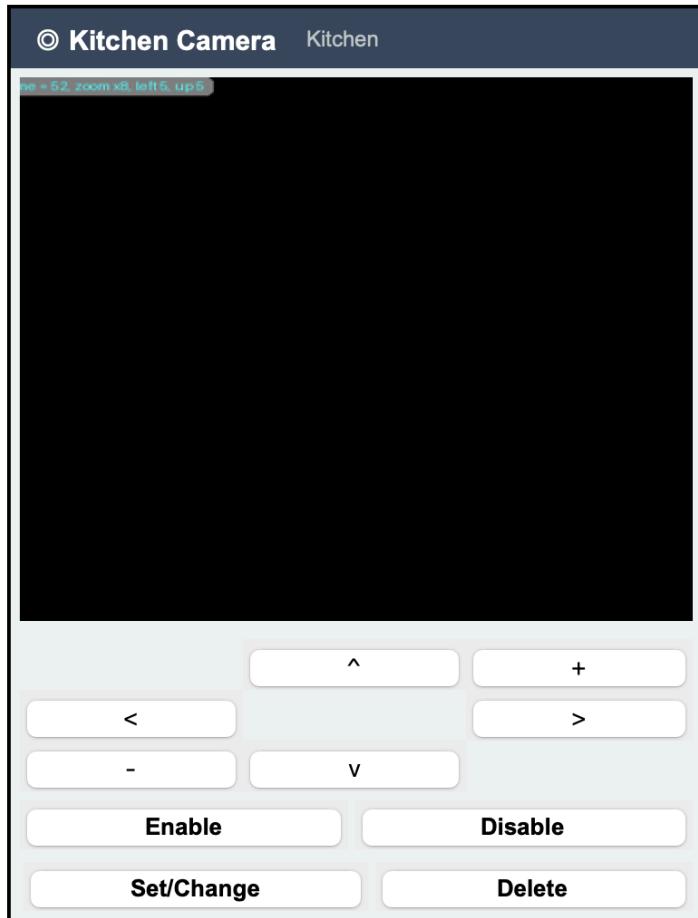
Bug description: The camera single view show disabled after removing password

Steps to reproduce:

1. On any camera at the main window, set password
2. Disable that camera
3. Delete password
4. The camera still show disabled as the screenshot

Note: Can use Enable button to turn on camera single view

1.4. BUG-104: Camera out of view



Author: Thiwat Chatkham

Bug description: Camera show black screen (out of view) after a sequence of zoom and pan

Steps to reproduce:

1. At kitchen camera, pan up 5 times
2. Pan left 5 times
3. Zoom in 6 times
4. Observe black screen

1.5. BUG-105: Camera settings back to default when reopen after shutdown the system

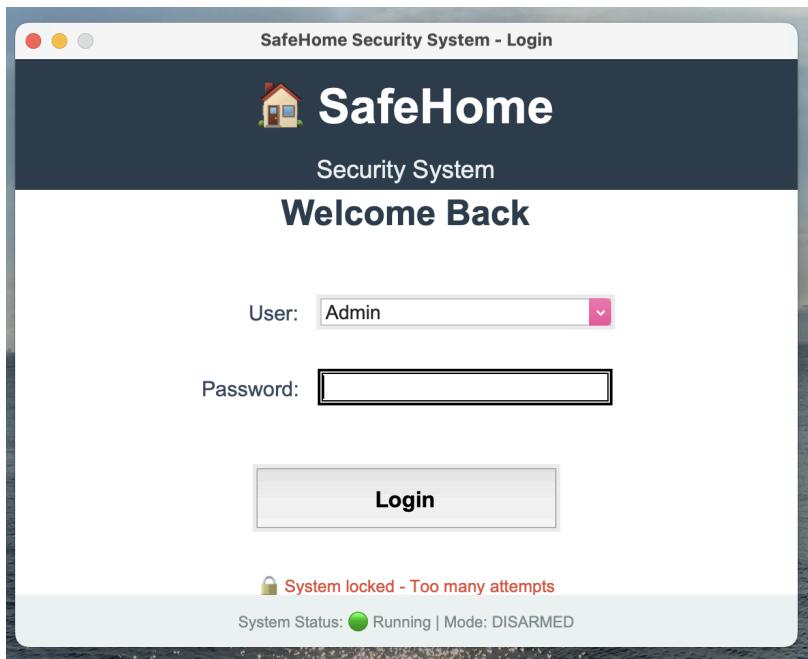
Author: Thiwat Chatkham

Bug description: Camera settings including camera movements, and password is reset to default

Steps to reproduce:

1. Change settings of any camera, pan up/down, zoom in/out, password-related operation
2. Shutdown the system by click x and out of loop from [main.py](#)
3. Run [main.py](#) again, all the settings are reset, no settings persist in file, only logs that the user can see from last run main.py

1.6. BUG-106: Login window does not show lock time remaining



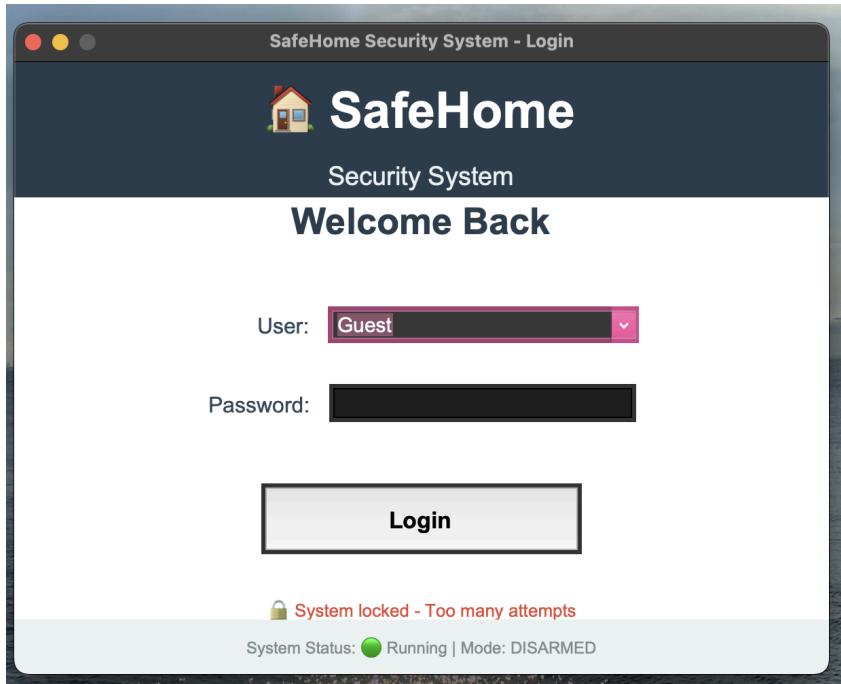
Author: Thiwat Chatkham

Bug description: Login window does not show lock time remaining

Steps to reproduce:

1. Intentionally use the wrong password 3 times. In this case, use password 1 as admin
2. Observe System locked - Too many attempts
3. Observe no remaining lock time left.

- 1.7. BUG-107: When the lock is resulted from one type of user, the login will lock the other user type as well



Author: Thiwat Chatkham

Bug description: Cannot log in with other user type after the login window is locked by the other user type

Steps to reproduce:

1. After 3 failed attempts to login in either Admin or Guest
2. Change to the other type either Guest or Admin
3. Observe, cannot log in as well

- 1.8. BUG-108: Safehome mode settings reset after shutdown and reopen



Author: Thiwat Chatkham

Bug description: Safehome mode will reset after shutdown

Steps to reproduce:

1. Successfully login
2. The initial safehome mode is DISARMED
3. Change to any safehome mode, e.g. AWAY
4. Shutdown and rerun [main.py](#)
5. The safehome mode is back to DISARMED

1.9. BUG-109: Safehomemode at login window always has status of DISARMED



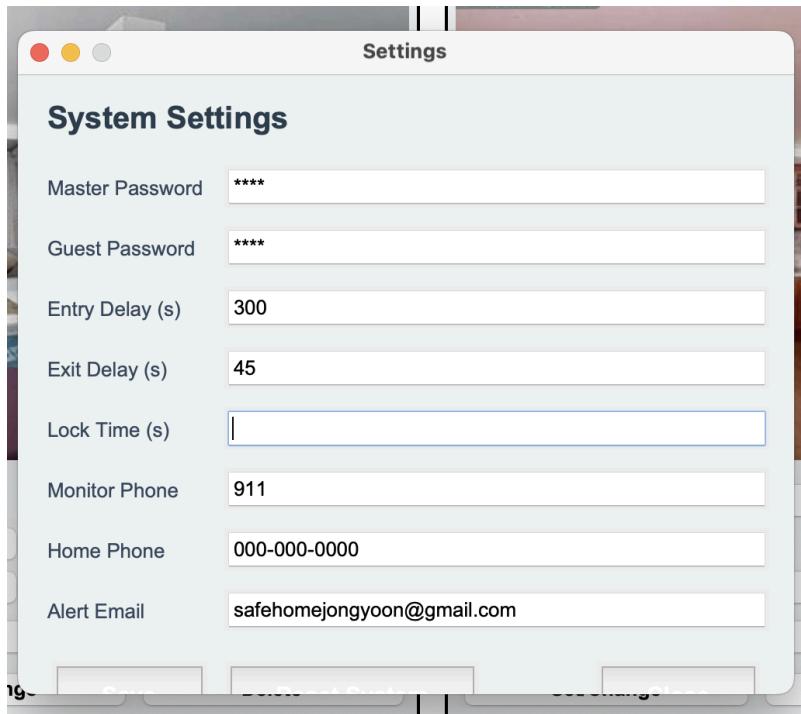
Author: Thiwat Chatkham

Bug description: At login window, the safehome mode always shows as DISARMED

Steps to reproduce:

1. Successfully login
2. Change safehome mode to any Safehome mode, e.g. away
3. Logout
4. The login window will always show Mode: DISARMED at the bottom of window

1.10. BUG-110: UI bug and poor choice of color in settings



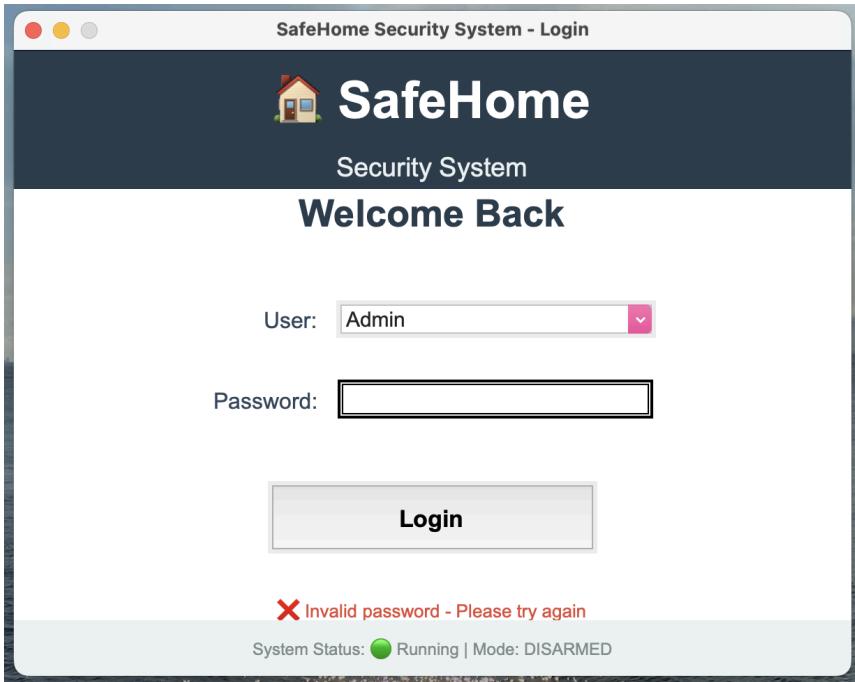
Author: Thiwat Chatkham

Bug description: The buttons settings choose poor color matching and ui bug in buttons

Steps to reproduce:

1. Successfully login as admin
2. Click Settings button
3. Observe the Settings configuration window

1.11. BUG-111: Login success status is not updated



Author: Thiwat Chatkham

Bug description: The error message from last login appears on current login

How to reproduce:

1. Run main.py
2. Login Fail one time, use password as 1 for admin
3. Successful login with password 1234 for admin
4. Logout, observe the login window show invalid password status

1.12. BUG-112: Misbehaviour of login lock time

https://drive.google.com/file/d/18zOBbfZGZix5Kkxbx2sveqlhqrmz2SMp/view?usp=share_link

Author: Thiwat Chatkham

Bug description: Login lock time is not following the configuration

Steps to reproduce:

1. Login Successfully, change lock time in settings to 10 s
2. Try login with password 1 for 3 times to lock login window
3. Attempt correct password 1234 many times, before 10 seconds, and after 10 seconds
4. Cannot login successfully

Note: for all attempt in login use Enter keyboard, not direct mouse click on Login button

1.13. BUG-113: User password not updated after logging out

Author: Thiwat Chatkham

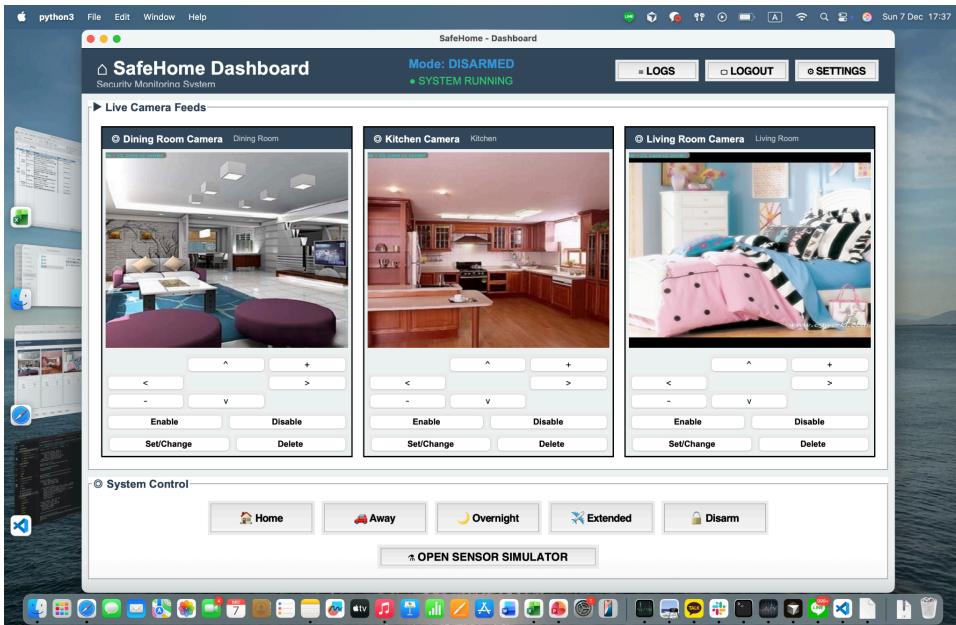
Bug description: The user password is not updated after log out action

Steps to reproduce:

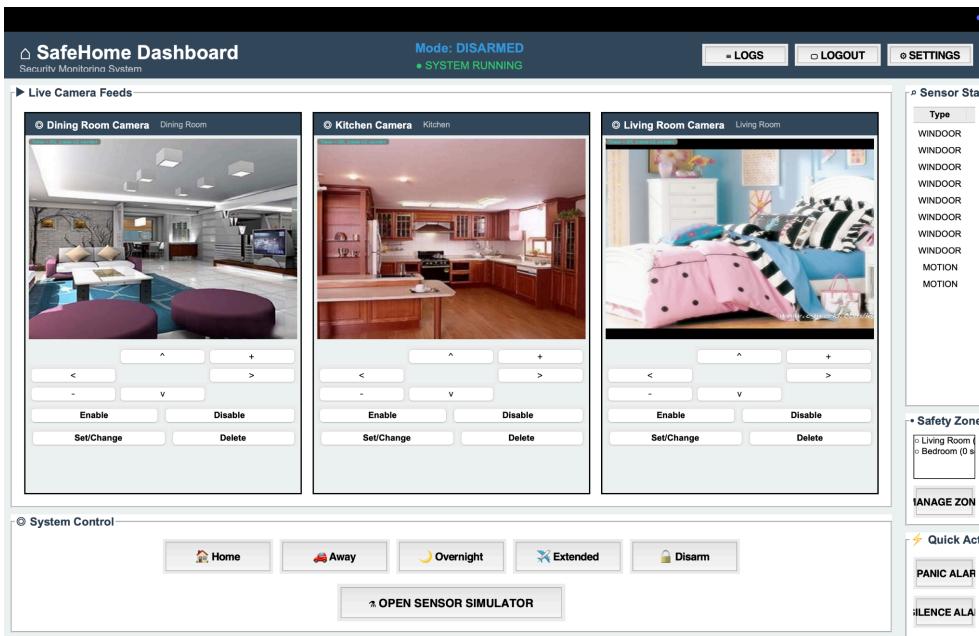
1. Login Successfully as admin, change the Master password to 7777, previously 1234
2. Logout
3. Try 7777 -> invalid password
4. Try 1234 -> successful login
5. Shutdown the system
6. Login with 7777 will valid after reboot the system, but not after logout

1.14. BUG-114: UI bug of main window size

Partial screen from mac m3 machine:



Full screen from mac m3 machine:



Expected window from user manual for mac user:

The screenshot displays the SafeHome Dashboard interface. At the top, it shows the mode as "DISARMED" and the system as "SYSTEM RUNNING". The main area is divided into several sections:

- Live Camera Feeds:** Three camera feeds are shown: Dining Room Camera (Dining Room), Kitchen Camera (Kitchen), and Living Room Camera (Living Room). Each feed includes zoom controls (Up/Down, Left/Right) and buttons for "Enable", "Disable", "Set/Change", and "Delete".
- Sensor Status:** A table listing sensor types, locations, and zones. The data is as follows:

Type	Location	Zone
WINDOR	DR Window 1	-
WINDOR	DR Window 2	-
WINDOR	Kitchen Window	-
WINDOR	LR Window 1	Zone 1
WINDOR	LR Window 2	Zone 1
WINDOR	LR Window 3	Zone 1
WINDOR	Hallway Door	-
WINDOR	Kitchen Door	-
MOTION	Motion DR-LR	-
MOTION	Motion Kitchen	-

- Safety Zones:** Shows "Living Room (1 sensor)" and "Bedroom (0 sensors)".
- System Control:** Buttons for "Home", "Away", "Overnight", "Extended", and "Disarm".
- Quick Actions:** Buttons for "MANAGE ZONES" and "PANIC ALARM".

Author: Thiwat Chatkham

Bug description: The window size is cropped and when using full screen mode, the layout is not followed the expected

Steps to reproduce:

1. Setup of the test machine
 - a. Mac m3 Apple silicon
 - b. macOS Sequoia 15.6.1
 - c. Use python 3.14.0rc2
2. Run uv python [main.py](#) and successfully login (either guest/ admin) to main window, based on this dependency

1.15. BUG-115: Console indicates Error during insert query: database disk image is malformed, after many tests.

Console before success fully login:

```
mickey@DrDancingMedleyremix CS350-Safehome % uv run python main.py
=====
SafeHome Security System
=====
[System] Initializing Core System...
Error preloading logs: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
✓ System initialized

[Setup] Resetting system to default hardware configuration...
Settings saved to JSON successfully.
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
[Zones] System reset. Default zones created.
[Zones] Total zones: 2
[Sensors] Adding sensors to system...
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
Error during insert query: database disk image is malformed
[Sensors] Added 10 sensors (6 windows, 2 doors, 2 motion)
[Cameras] Adding cameras to system
```

Console after login (error loops):

Author: Thiwat Chatkham

Bug description: The error indicates about database disk image

Steps to reproduce:

I am not sure how to directly reproduce this error or even how to converge to this error. This happened after many tests including all above tests, and after around 1.5 hours of manual interaction. My comment is that this is likely to be the result of camera view action.

1.16. BUG-116: Sensors in the safety zone always has status: active

Safety Zones

Zone Name	Sensors	Status
Living Room	3	Inactive
Bedroom	0	Inactive
1234	3	Inactive

Zone Details

Zone: 1234 (ID: 3) Status: Disarmed
--

Sensors in this Zone

Type	Name	Status
Door/Window	Kitchen Window	Active
Door/Window	Kitchen Door	Active
Motion	Motion Kitchen	Active

Live Sensor Status List

ID	Type	Location	Armed State	Physical State
1	WINDOW	DR Window 1	Disarmed	Closed
2	WINDOW	DR Window 2	Disarmed	Closed
3	WINDOW	Kitchen Window	Disarmed	Closed
4	WINDOW	LR Window 1	Disarmed	Closed
5	WINDOW	LR Window 2	Disarmed	Closed
6	WINDOW	LR Window 3	Disarmed	Closed

Buttons: + Add Zone, Edit Zone, Delete Zone, Assign Sensors, DISARM ALL, CLOSE/CLEAR ALL

Author: Thiwat Chatkham

Bug description: Sensors in the safety zone always has active status

Steps to reproduce:

1. Successfully login as admin
2. In safety zone part, click manage safety zone
3. Add zone with name
4. Assign sensors in zones
5. Back to sensor simulator window, click disarm all
6. Observe all the sensors' statuses are disarmed
7. Back to safety zone manager, the sensors in safety zone status: active

Note : can disarm with another way like Disarm safehome mode. The sensors status of safety zone will always show as Active

1.17. BUG-117: System allows saving invalid values in system settings

Author: Ngo

Bug description: Invalid values in system settings (passwords, time periods, phone numbers, emails) can be successfully saved

Steps to reproduce:

1. Successfully login as admin and navigate to system settings
2. Change entry/exit delay time and lock time to negative integer values, and/or any phone number/email to values with invalid types
3. Click save
4. System successfully saves instead of returning error messages

1.18. BUG-118: Setting values not updated after shutting down

Author: Ngo

Bug description: Any changes to system settings are not updated after logging out

Steps to reproduce:

1. Login Successfully as admin and navigates to system settings
2. Change setting values and save all changes
3. Shutdown the system
4. Login Successfully as admin and navigates to system settings
5. All setting values return to default

1.19. BUG-119: Safety zone not updating sensor stats of zones immediately after changes

Author: Ngo

Bug description: Any changes to sensors of safety zones are not updated immediately

Steps to reproduce:

1. Login Successfully as admin and navigates to zones management
2. Increase/decrease the number of sensors in a given zone
3. Navigate to main window => sensor stats of that zone remain unchanged
4. Shutdown the system and login successfully => sensor stats updated to latest change

2. Test Oracle

2.1. Common Use Cases

2.1.1. Summary

Use Cases (From SRS/SDS)	Result	BUG ID
Log onto the system through control panel	1 issue	BUG-201
Log onto the system through web browser	1 issue	BUG-202
Configure system setting	Pass	
Turn the system on	1 issue	BUG-201
Turn the system off	1 issue	BUG-201
Reset the system	1 issue	BUG-201
Change master password through control panel	1 issue	BUG-201

2.1.2. Control Panel Use Case

2.1.2.1. BUG-201: There is no Control Panel

Author: Thommakoon

Related Use Case:

1. Log onto the system through control panel
2. Log onto the system through web browser
3. Turn the system on
4. Turn the system off
5. Reset the system
6. Change master password through control panel
7. Security Use Case: Arm/disarm system through control panel
8. Security Use Case: Call monitoring service through control panel

Step:

1. Run python main.py

Expected Result:

Got 3 windows: sensor test, web interface, and control panel

Actual Result:

Only the web interface appears on screen.



2.1.3. Log onto the system through web browser

2.1.3.1. BUG-202: No Username Typing

Author: Thommakoon

Step:

1. Run python [main.py](#)
2. Try to enter username by typing

Expected Result:

Web ask for username and password

Actual Result:

Instead of typing username, web allows only 2 users: Admin or Guest



2.2. Security Use Cases

2.2.1. Summary

Use Cases (From SRS/SDS)	Result	BUG ID
Arm/disarm system through control panel	1 Issue	BUG-201
Arm/disarm system through web browser	Pass	
Arm/disarm safety zone selectively	1 Issue	BUG-203
Alarm condition encountered	Pass	
Configure safety zone	1 Issue	BUG-203
Create new safety zone	1 Issue	BUG-203
Delete safety zone	1 Issue	BUG-203
Update an exist safety zone	1 Issue	BUG-203
Configure SafeHome modes	1 Issue	BUG-204
View intrusion log	Pass	
Call monitoring service through control panel	1 Issue	BUG-201

2.2.2. Safety Zone Use Cases

2.2.2.1. BUG-203: No Floorplan

Author: Thommakoon

Related Use Case:

1. Arm/disarm safety zone selectively
2. Configure safety zone
3. Create new safety zone
4. Delete safety zone
5. Update an exist safety zone

Step:

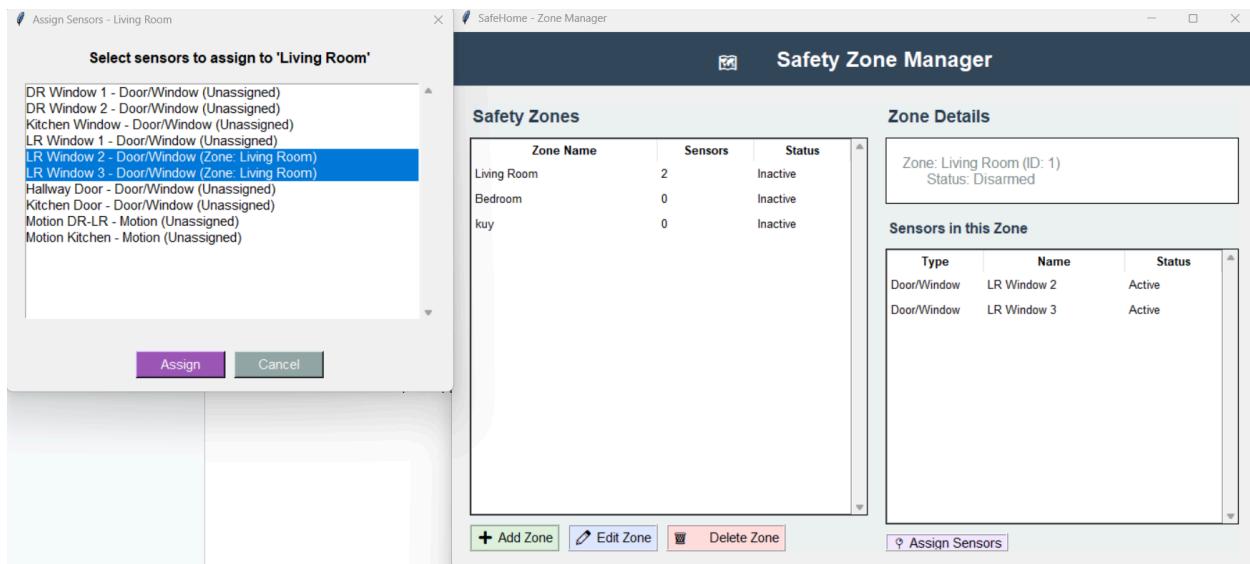
1. Run python [main.py](#)
2. Press “MANAGE ZONES” button
3. User do one of following actions:
 - a. Click “Add zone” and enter new zone name
 - b. Select zone from “Safety Zones” and click “Delete Zone”
 - c. Select zone from “Safety Zones”, Click “Assign Sensors”, and Select/Remove sensors.

Expected Result:

- Display of safety zone on floorplan.
- Select Safety Zone from Floorplan
- Assign sensor for safety zone from floorplan

Actual Result:

No Floorplan appears on web interface.



2.2.3. Configure SafeHome modes

2.2.3.1. BUG-204: No Interface for mode configuration

Author: Thommakoon

Step:

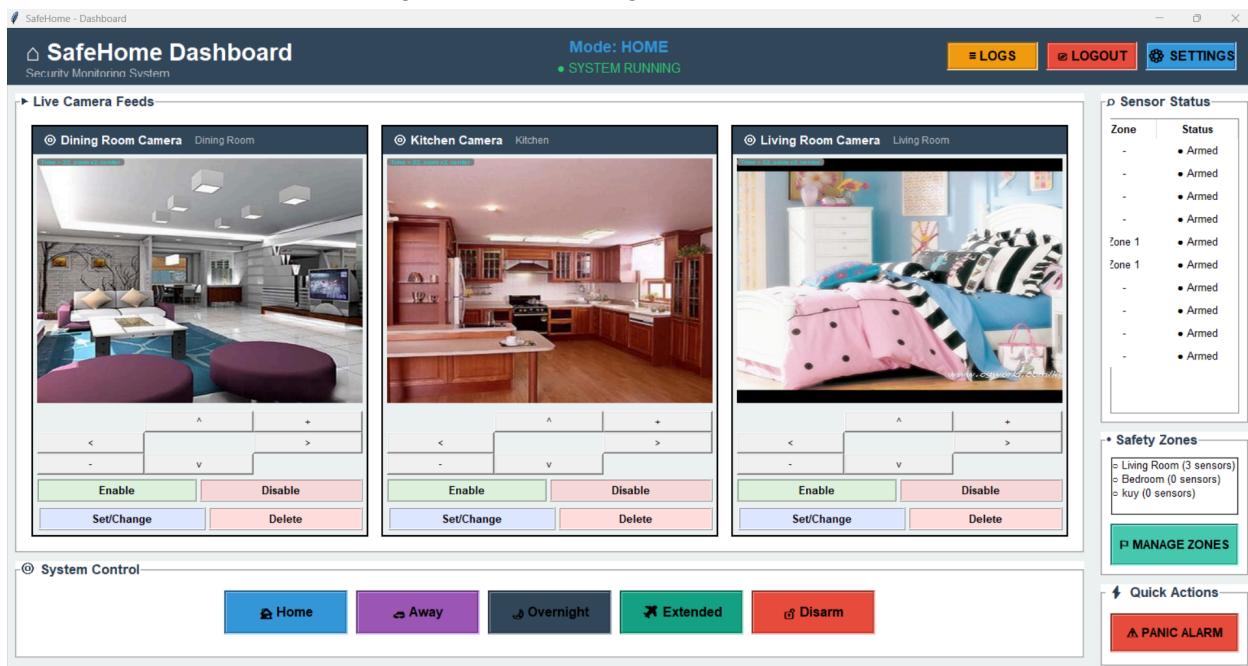
1. Run python [main.py](#)
2. Try to configure mode by adding/removing sensors

Expected Result:

Navigate to web page that allow user to configure SafeHome mode

Actual Result:

No Button and Web Page for mode configuration



2.3. Surveillance Use Cases

2.3.1. Summary

Use Cases (From SRS/SDS)	Result	BUG ID
Display Specific camera view	1 issue	BUG-205
Pan/Zoom specific camera view	Pass	
Set camera password	1 issue	BUG-206
Delete camera password	Pass	
View thumbnail Shots	1 issue	BUG-207
Enable camera	Pass	
Disable camera	1 issue	

2.3.2. Display Specific camera view

2.3.2.1. BUG-205: No Interface for specific camera view

Author: Thommakoon

Step:

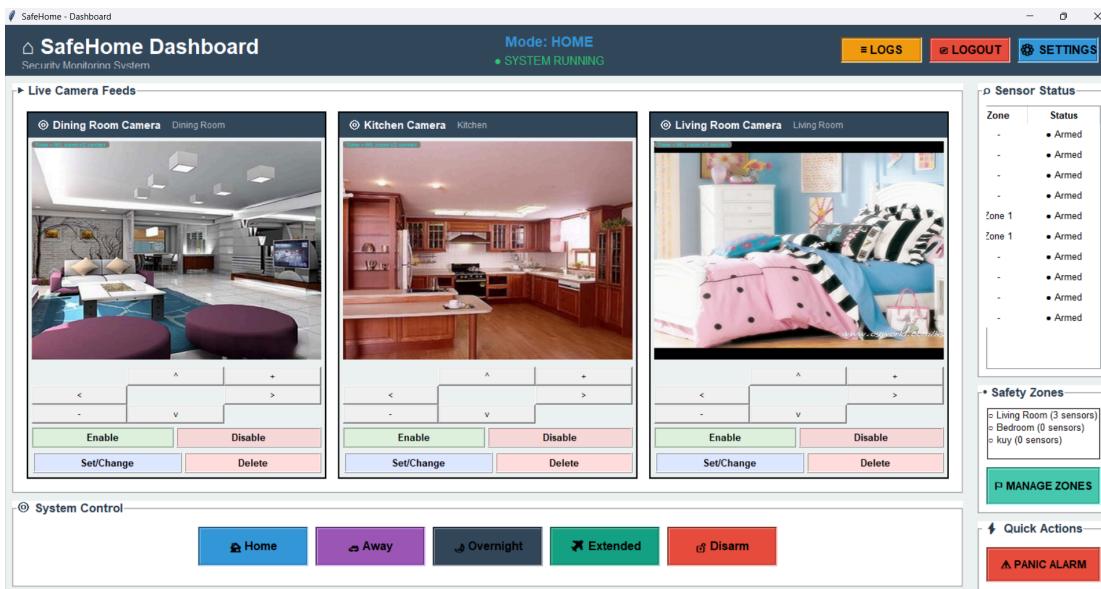
1. Run python [main.py](#)
2. Try to select camera from thumbnails and enter web page for specific camera

Expected Result:

Click on specific camera and got web page with specific camera detail and camera view

Actual Result:

No Interface for specific camera view



2.3.3. Set camera password

2.3.3.1. BUG-206: User can see camera view after setting password.

Author: Thommakoon

Step:

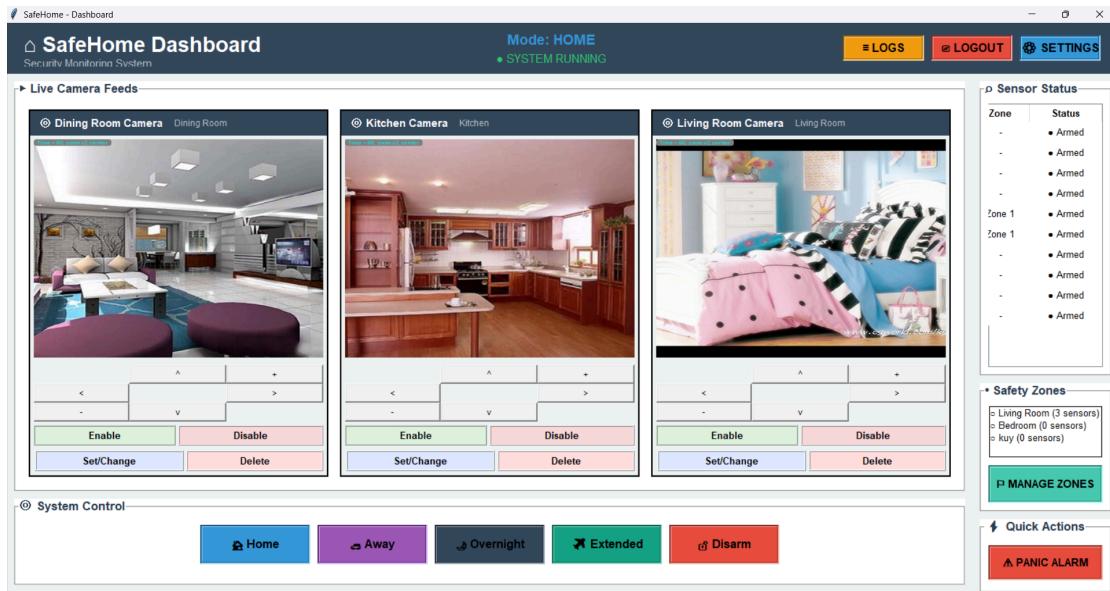
1. Run python [main.py](#)
2. Click “Set/Change” for specific camera
3. Enter and Reenter new password

Expected Result:

Web block view of camera with password. After setting password, camera requires a password to display the view.

Actual Result:

Web shows camera view despite camera has password



2.3.4. View thumbnail Shots

2.3.4.1. BUG-207: No options to see camera list other than thumbnail view.

Author: Thommakoont

Step:

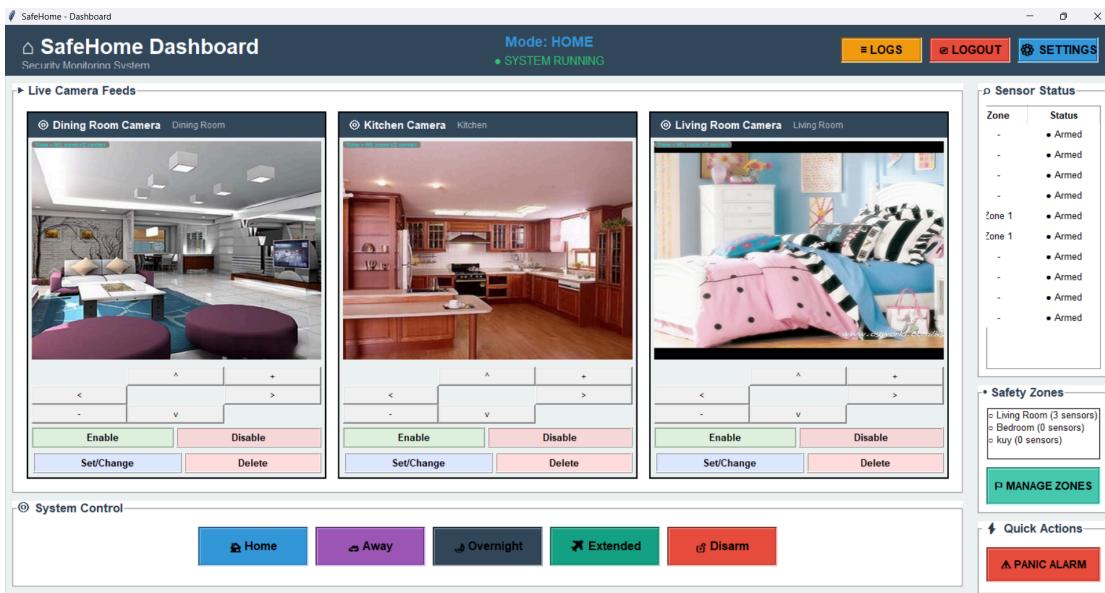
1. Run python [main.py](#)

Expected Result:

User can switch between seeing all camera as list and thumbnail.

Actual Result:

Web only allow thumbnail view



2.3.5. Disable camera

2.3.5.1. BUG-208: User can not disable camera if camera does not have password.

Author: Thommakoon

Step:

1. Run python [main.py](#)
2. Saw Camera thumbnails view
3. Press “Disable” on specific camera

Expected Result:

Camera disable the specific camera

Actual Result:

Web allow disable camera only if camera has password. Web displays “Set a camera password before disabling this camera.”

