Project Name:

Smart Home Security & Monitoring System

Iteration-0: Planning Phase

Course Section: CS B

Group Members:

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Course: Software Engineering

1. Introduction

We’re a small team of students working on a **Smart Home Security & Monitoring System** project. In this document, we’ll outline our initial planning including our problem statement, envisioned features, user stories, team roles, working agreements

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2. Problem Statement

The problem of	**an increase in crime rates in large cities**
affects	middle-income homeowners
the impact of which is	uncertainty in the safety and security of homeowners and their belongings
a successful solution would be	a flexible, cost-effective home security system that’s easy to set up, integrates well with existing alarm monitoring, and provides real-time alerts and controls

3. Envisioned Features

1. **User Registration & Login**
2. **Profile Management**
3. **Sensor Setup & Configuration** (motion sensors, door/window sensors, cameras)
4. **Real-Time Alerts & Notifications**
5. **Activity Logs** (system events, sensor triggers)
6. **Remote Arm/Disarm**
7. **Live Video Feed**
8. **Scheduling Lights & Devices**
9. **Zone Management**
10. **Integration with Third-Party Alarm Services**
11. **Energy Usage Monitoring** (optional)

12. **Guest Access / Temporary Codes**
13. **Emergency Services Integration**
14. **System Health Dashboard**
15. **Automated Alerts for System Failures** (sensor offline, low battery)

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4. Product Backlog (User Stories)

We brainstormed and came up with **25 user stories** that capture the core needs.

1. **User Registration**
    - *As a new homeowner, I want to create a secure account so that I can access my home security dashboard.*
2. **User Login**
    - *As a returning user, I want to log in with my credentials so that I can manage my home security features.*
3. **Edit Profile**
    - *As a homeowner, I want to update my personal details so that I can keep my contact information current.*
4. **Add Motion Sensor**
    - *As a homeowner, I want to add a motion sensor to my system so that I can detect any movement when I'm away.*
5. **Add Door Sensor**
    - *As a homeowner, I want to install a door sensor so that I can be alerted when the door opens unexpectedly.*
6. **Remote Arm/Disarm**
    - *As a homeowner, I want to arm or disarm my security system from anywhere so that I can control access to my house.*
7. **Push Notifications**
    - *As a homeowner, I want to receive push notifications on my phone so that I'm immediately alerted if something unusual happens.*

8. **Email/SMS Alerts**
    - *As a homeowner, I want to get email or SMS alerts so that I can stay informed even if I'm not using the app.*
9. **View Activity Log**
    - *As a homeowner, I want to see a history of all sensor triggers and system actions so that I can review any suspicious events.*
10. **Live Camera Feed**

- *As a homeowner, I want to watch a live feed from my cameras so that I can check on my property in real time.*

11. **Playback Recorded Footage**

- *As a homeowner, I want to review recorded clips so that I can investigate what happened when I wasn't looking.*

12. **Schedule Lights**

- *As a homeowner, I want to set schedules for my lights so that I can simulate someone being home while I'm away.*

13. **Zone Management**

- *As a homeowner, I want to group sensors by zones so that I can easily monitor specific areas (like upstairs vs. downstairs).*

14. **Third-Party Alarm Service**

- *As a homeowner, I want to connect my system to a professional alarm service so that the police or security company are notified in a real emergency.*

15. **System Status Overview**

- *As a homeowner, I want a dashboard that shows me which sensors are active or offline so that I can quickly see if anything needs attention.*

16. **Low-Battery Alerts**

- *As a homeowner, I want to be notified when a sensor's battery is low so that I can replace it before it fails.*

17. **Add/Remove Users**

- *As a homeowner, I want to manage additional users (family, friends) so that they can access or monitor my system.*

18. **Guest Access Code**

- *As a homeowner, I want to create a temporary code for guests or maintenance people so that they can enter my house without triggering alarms.*

19. **Smart Lock Integration**

- *As a homeowner, I want my smart locks to integrate with the security system so that the doors automatically lock when I arm the system.*

20. **Mobile App Interface**

- *As a homeowner, I want a dedicated mobile app so that I can quickly check on my home from my phone.*

21. **Voice Assistant Support**

- *As a tech-savvy user, I want to control my security system through voice commands (e.g., Alexa, Google Home) so that I can arm/disarm hands-free.*

22. **Multi-Language Support**

- *As a bilingual user, I want the interface to support multiple languages so that I can comfortably navigate the system.*

23. **Emergency Services Button**

- *As a homeowner, I want a panic/emergency button in the app so that I can immediately call for help.*

24. **Night Mode**

- *As a homeowner, I want a “night mode” that only monitors doors and windows so that I don’t trigger the alarm by moving around inside.*

25. **Monthly Activity Report**

- *As a homeowner, I want a monthly summary of system activity so that I can spot any unusual patterns.*

5. Roles and Responsibilities

We decided on these roles for our group:

1. **Product Owner (PO)** – *Ahmad Javeed*
    - Communicates with stakeholders and clarifies requirements.
    - Maintains and prioritizes the product backlog.
2. **Scrum Master (SM)** – *Fahad*
    - Facilitates meetings (daily stand-ups, sprint planning, retros).
    - Removes any blockers and ensures the team follows the agreed-upon process.
3. **Development Team**
    - *Fahad (Front-End)*: Focuses on UI design, responsive layout, and user experience.
    - *Shaffin Imam (Back-End)*: Sets up the server, database, and core system logic.
    - *Ahmad Javeed (QA & Integration)*: Oversees testing, bug tracking, and ensures everything integrates smoothly.

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6. Team Agreement

1. **Communication Methods**
    - We'll use a WhatsApp group for quick updates.
    - Trello is our main tool for tracking tasks and progress.
2. **Response Times**
    - We'll do our best to respond to team messages within 6 hours.
    - On weekends, responses might be slower, but we'll still check in at least once a day.
3. **Meeting Attendance**
    - We'll hold a virtual meeting on google meet every Monday at 10 PM.

- Everyone should join unless they have an urgent reason not to.
- If someone can’t attend, they must read the meeting notes afterward.

4. **Meeting Format**
   - Fahad (Scrum Master) will lead the meeting.
   - One person will take notes and post them on Trello so we have a written record.
   - Everyone is expected to share progress, roadblocks, and next steps.
5. **Preparation**
   - Before each meeting, we review the Trello board and update our tasks.
   - If we’re stuck, we mention it in the group chat so we can address it during the meeting.
6. **Version Control**
   - We’re using GitHub.
   - Each new feature or bug fix will be developed on a separate branch.
   - We’ll merge into main only after at least one team member reviews the code.
7. **Division of Work**
   - The PO (Ahmed Javeed) will prioritize stories.
   - Each dev team member chooses stories based on their skill set and interest, with an eye on balancing the workload.
8. **Assignment Submission**
   - Final check is done at least 24 hours before the deadline.
   - Fahad (Scrum Master) will handle the upload to Google Classroom.
   - We’ll do a quick internal review to confirm the document or code is correct.
9. **Contingency Planning**
   - If someone drops out or becomes inactive, we’ll redistribute tasks and notify the instructor if needed.

- Repeated no-shows will be handled by a one-on-one conversation, and if it persists, we’ll escalate.
- We all agree to maintain academic integrity no plagiarism or copying code from unauthorized sources.

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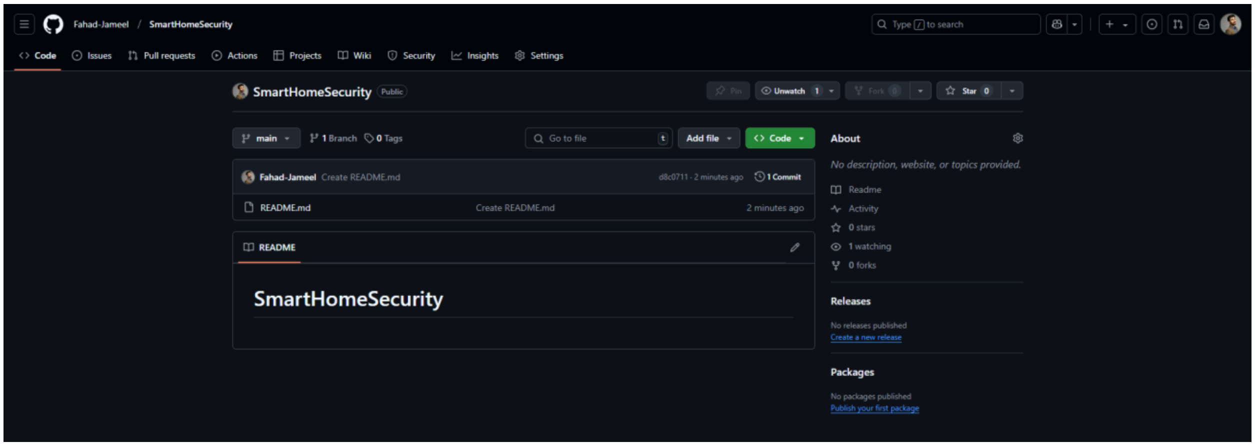
7. GitHub Repository

- **Repository Link:** https://github.com/Fahad-Jameel/SmartHomeSecurity
- **Screenshot:**



SmartHomeSecurity

Fahad-Jameel Create README.md d8c0711 · 2 minutes ago 1 Commit

README.md Create README.md 2 minutes ago

README

SmartHomeSecurity

About

No description, website, or topics provided.

Readme
Activity
0 stars
1 watching
0 forks

Releases

No releases published
Create a new release

Packages

No packages published
Publish your first package

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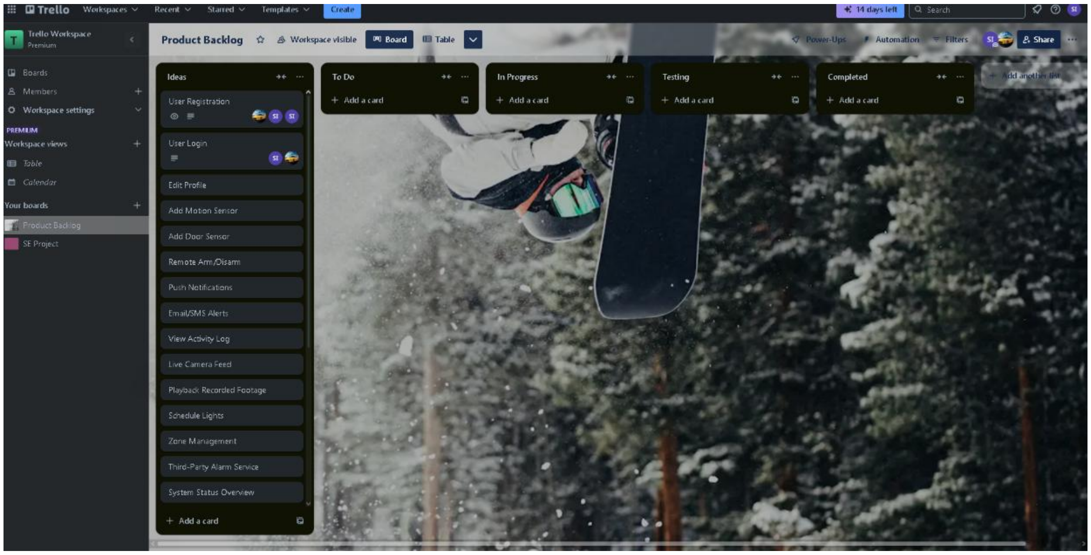
8. Trello Board Snapshots

1. **Snapshot #1: Product Backlog**



Product Backlog

Ideas
- User Registration
- User Login
- Edit Profile
- Add Motion Sensor
- Add Door Sensor
- Remote Arm/Disarm
- Push Notifications
- Email/SMS Alerts
- View Activity Log
- Live Camera Feed
- Playback Recorded Footage
- Schedule Lights
- Zone Management
- Third-Party Alarm Service
- System Status Overview
- Add a card

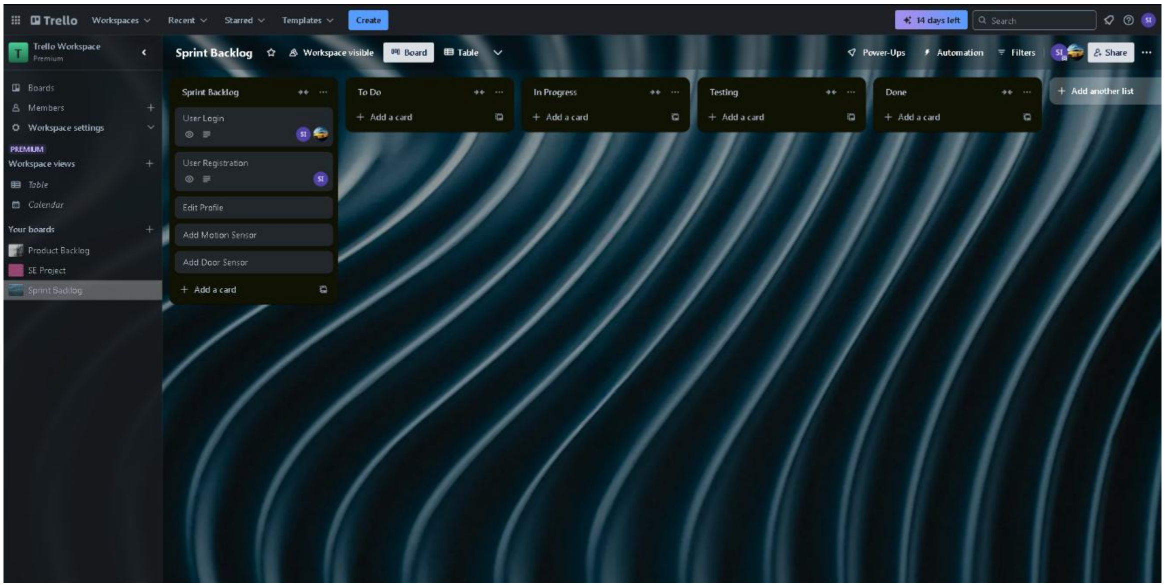
To Do
- Add a card

In Progress
- Add a card

Testing
- Add a card

Completed
- Add a card

2. **Snapshot #2: Sprint Backlog**



Sprint Backlog

Sprint Backlog
- User Login
- User Registration
- Edit Profile
- Add Motion Sensor
- Add Door Sensor
- Add a card

To Do
- Add a card

In Progress
- Add a card

Testing
- Add a card

Done
- Add a card