

**Software Design Document**

**For**

**Baby Monitor**

Course: ECCE-336-Intro to Software Engineering

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Section No.: 1

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Link: <https://github.com/ECCE336-100053463/ECCE-336-Project>

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1. Introduction .

**1.1**  **Introduction**

The purpose of this design document is to display all of the system’s diagrams and how do they implement the functional requirements of the system. Starting with the use case diagram, then to the class diagrams, moving on to sequential diagrams, and finally end on the state diagrams. While also explaining the use cases each use case in detail.

**1.2**  **Scope**

The system's goal is to set up a portable app in which the parents Mouza and Ahmed are able to view their child wherever they may be. Only the four group members and the clients will have access to this document. We will try to make the most out of the budget at hand by minimizing unnecessary costs. The final prototype of the project will be delivered by Friday the 9th of December.

**1.3**  **Overview**

The product is a Baby monitoring application with a live camera that shows live footage of the child’s room 24/7. Moreover, the system will send notifications of the wellbeing of the child and send alerts in the case of emergencies. Furthermore, the application can even contact the local authority in the case that the parents do not reply fast. Multiple devices will be able to use this application at once.

2. Functional Requirements

|  |  |
| --- | --- |
| **Requirement** | **Description** |
| AccessRegistrationSystem() | Access the system’s registration system |
| EnterPersonalInfo() | Ask Client for his/her email and phone number and store the email as a public string and the number as private Integer |
| EnterUsername() | Ask the user for his/her username of choice and store it as public string |
| EnterPassword() | Ask the user for his/her password of choice and store it as private string |
| ValidatePassword() | Check if the passwords entered match and if it meets the requirements required |
| RegisterUser() | Register the user and all his info in the system’s database |
| AccessLoginSystem() | Access the system’s login system |
| CheckUser() | Check if the user exists in the system’s database |
| CheckPassword() | Check if the password matches the one linked with the user in the system’s database |
| MainMenu() | Access the application main menu |
| AccessCameraSystem() | Access the system’s camera system |
| AccessCameraFeed() | Access the camera’s feed |
| AccessLiveFeed() | Access the live came feed of the child’s room |
| AccessRecordedFeed | Access the recorded feed of the last 7 days |
| RecordFeed() | Record the camera feed continuosly and delete the recordings older than week automatically |
| AccessNotificationSystem() | Access the system’s notification system |
| UpdateFeed() | Update the notification feed accordingly |
| SendAlert() | Send an alarming notification to the parents phone |
| ContactParents(PhoneNumber) | Contact the parents using the stored phone number in the database |
| ContactAuthority(Local\_Authority\_Num) | Contact the local authority using the stored local authority phone number in the database |
| ExitApp() | Exit the system |

3. Use Case Diagram

**Diagram

Description automatically generated**

4. Class Diagrams

**4.1. Application Class Diagrams**

Diagram

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**4.1. Registration & Login Systems Class Diagrams**

Diagram

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**4.1. Camera System Class Diagram**

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**4.1. Notification Class Diagram**

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5. Sequential Diagrams

Diagram

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UC2: Access Registration and Login Systems

1. Unregistered Client Accesses Registration System
2. System asks for personal Information
3. System asks for Username and Password
4. System checks if user exists in Database
5. User does not exist
6. Register new user in Database
7. Client Access Login System
8. System asks for email and password
9. System verifies with Database
10. User is found in Database
11. System Logs the client in

Alternatives:

1A. Registered Client Accesses Login System

2. System asks for email and password

3. System verifies with Database

4. User is not found in Database

5. System asks the client to try again

6. System verifies with Database

7. User is found in Database

8. System Logs the Client in

Diagram

Description automatically generated

UC3: Access Camera System

1. Client Requests Access to Camera Feed
2. System asks which feed to access
3. Client Chooses Live Feed
4. System gives access
5. Client Logs Out
6. System Updates Information and work normally

Alternatives:

3A. Client Chooses Recorded Feed

1. System gives access
2. Client Logs Out
3. System Updates Information and work normally

Graphical user interface, application

Description automatically generated

Alternatives:

A)

2A. System detects nothing

3. System Update information and work normally

B)

4A. Clients confirm notification

5. System updates information and work normally

UC4: Access Notification System

1. System detects state of child
2. Detect emergency
3. System Contact Clients
4. Clients do not respond
5. System Contacts local authority
6. Local Authority confirm notification
7. System updates information and work normally

6. State Diagrams

Diagram

Description automatically generated

Alternatives:

A)

3A. Client chooses Registration

4. System accesses registration system

5.Exit System

B)

7A. Client chooses notification system

8. System accesses notification system

9. Exit system

UC1: Access Application

1. Client Accesses Application
2. System asks to choose Registration or Login
3. Client Chooses to Login
4. System accesses login system
5. Client accesses the app main menu
6. System asks to choose camera or notification system
7. Client chooses camera system
8. System accesses camera system
9. Exit System

Diagram

Description automatically generated

UC2: Access Registration System

1. Client Accesses Registration System
2. System asks for personal Information
3. System asks for Username
4. System asks for password
5. System asks for password again
6. System validates password
7. Password is validated
8. Register new user in Database
9. Access Login System

Alternatives:

A)

7A. Password not validated

8. System ask client to retry or exit system

9. Client chooses to retry

10. System asks for password

11. Password is validated

12. Register new user in Database

13. Access Login System

B)

7A. Password not validated

8. System ask client to retry or exit system

9. Client chooses exit

10. System exits

Diagram

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Alternatives:

A)

4A. User is not in database

5. System ask client to retry, register or exit system

6. Client chooses to exit

7. System exits

B)

6A. Password does not match

8. System ask client to retry, register or exit system

9. Client chooses to retry

10. System ask for Username and password

11. Client Enters Username and Password

12. System checks if user in database

13. User in database

14. System checks if Passwords match

15. Passwords match

16. Client accesses application main menu

UC2: Access Login System

1. Client Accesses Login System
2. System asks for Username and Password
3. Client Enters Username and Password
4. System checks if user in database
5. User in database
6. System checks if the password entered match
7. Password match
8. Client accesses application main menu

Diagram

Description automatically generated

UC3: Access Camera System

1. Client Accesses Camera Feed
2. System asks which feed to access
3. Client Chooses Live Feed
4. System gives access to live feed
5. Client accesses main menu

Alternatives:

A)

3A. Client Chooses Recorded Feed

1. System gives access to recorded feed
2. Client accesses main menu
3. System Updates Information and work normally

5. System rotates barrier

6. System notes visit, increments visitor count

7. System locks barrier

Diagram

Description automatically generated

UC4: Access Notification System

1. Client accesses notification system
2. System displays notification feed
3. System detects state of child
4. System Detected emergency
5. System Contact Clients
6. Clients do not respond
7. System Contacts local authority
8. Local Authority confirm notification
9. Client accesses main menu

Alternatives:

A)

3A. System detects nothing

4. System Update feed and work normally

5. Client accesses main menu

B)

6A. Clients confirm notification

7. System updates feed and work normally

8. Client accesses main menu

7. Data Dictionary

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Length** | **Description** |
| Email | Public String | 30 characters | Client email |
| PhoneNumber | Private Integer | 15 characters | Client phone number |
| Username | Public String | 15 characters | Client’s username |
| Password | Private String | 20 characters | Client’s login password |
| Local\_Authority\_Num | Public Constant Integer | 15 characters | Phone number to contact local authority |

8. Tools

| **Tools** | **Purpose** |
| --- | --- |
| Plant UML | Drawing Diagrams |
| Microsoft Word | Processing Words |
| Visual Studio Code | Prototyping and Development |
| Github | Project Management |