

ER-Assist

Smart Virtual Assistant for Paramedics

Software Design Document

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1. Introduction

a. System Overview

These days, paramedics, nurses and doctors spend substantial amount of time on documenting treatments instead of being 100% of the time treating the patients. ER-Assist system intends to assist the health care teams with documenting treatments by providing voice recognition feature which can be used to document treatments vocally without the need to write them down while treating the patient or memorize them to write later. The final result will be a complete medical form that document the treatments

b. Purpose

- Reduce the time that medical staff members spending on documenting treatments
- Construct detailed treatment reports in real time .

c. Scope

This document is intended to give a detailed technical description of the ER-Assist software project, which focus on the following fields:

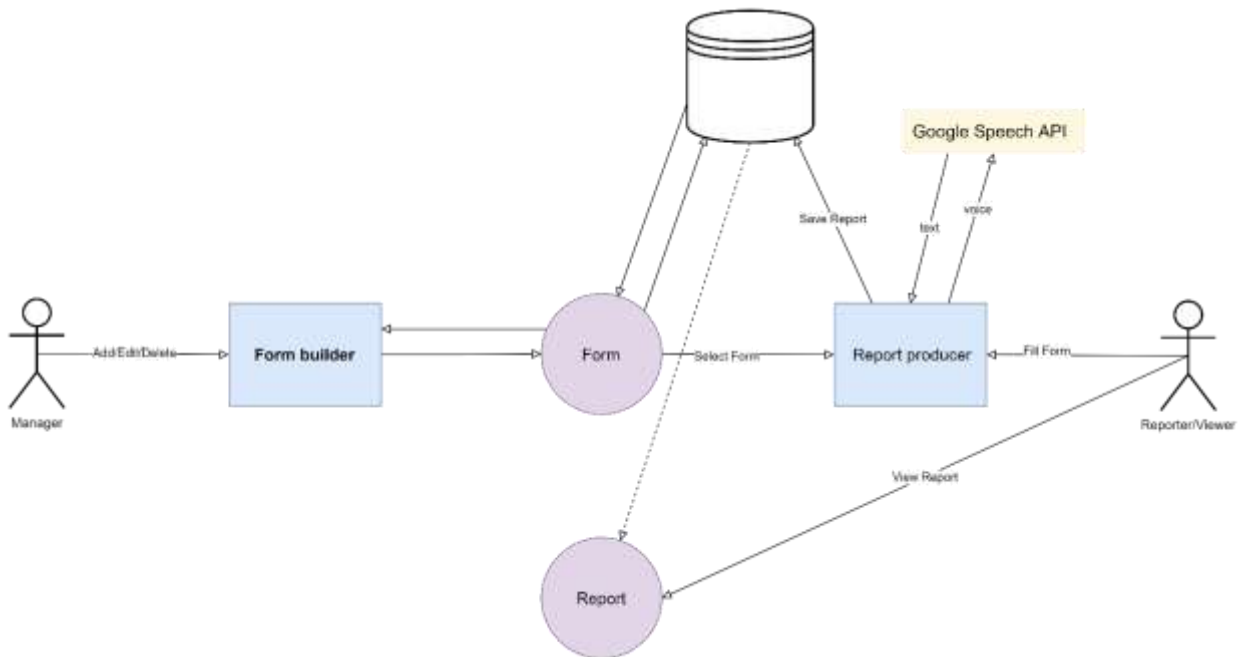
- Voice recognition
- Documents management
- Health care

d. Constraints

- In order to use the ordering automatic location tracker, the mobile application need access to the GPS navigation system within the mobile phone
- In order to use the live voice recognition, the system need internet access

2. System Architecture

a. Architectural Description and Design: Roles, Activities and Data

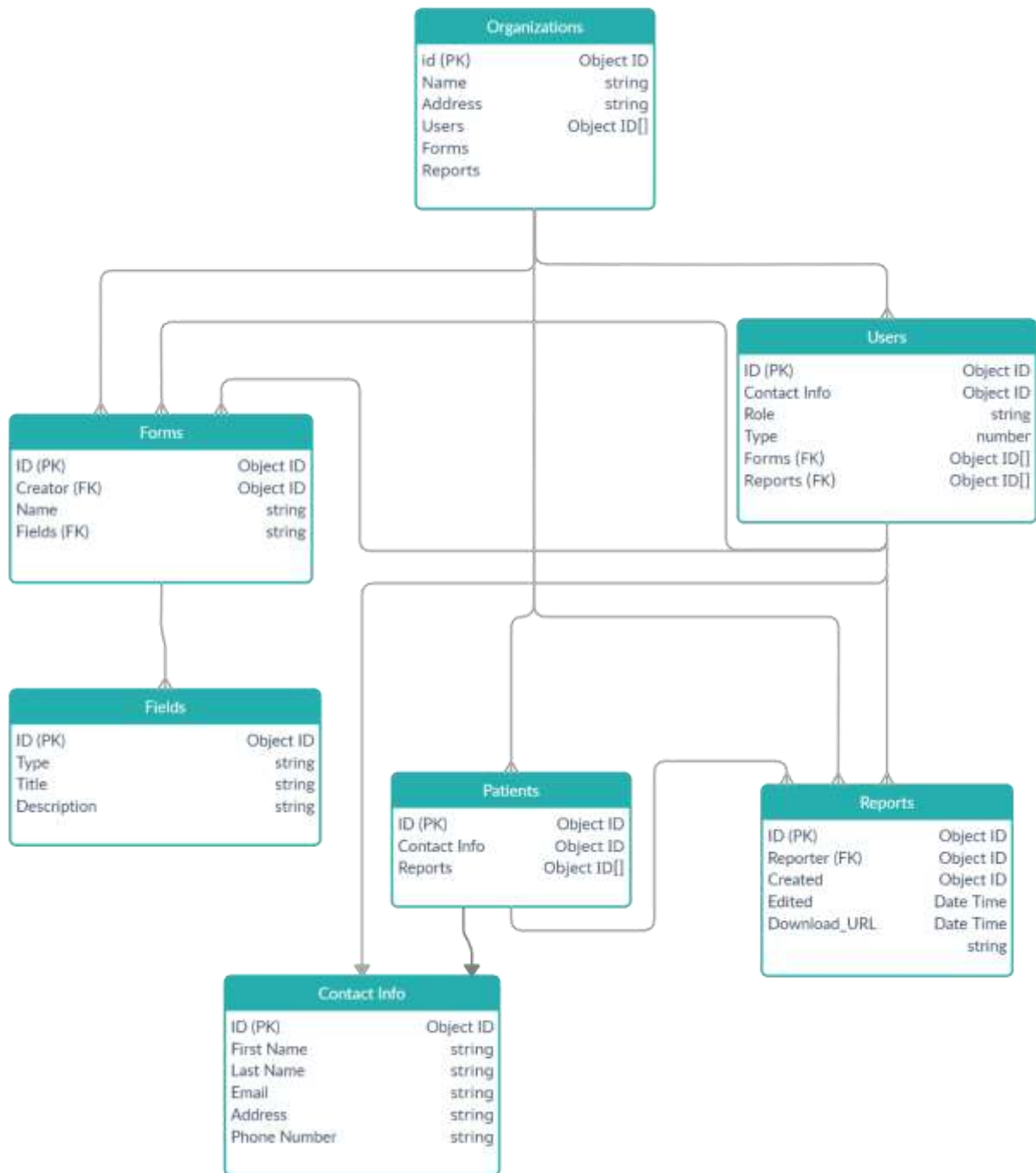


b. The Life Cycle of the System



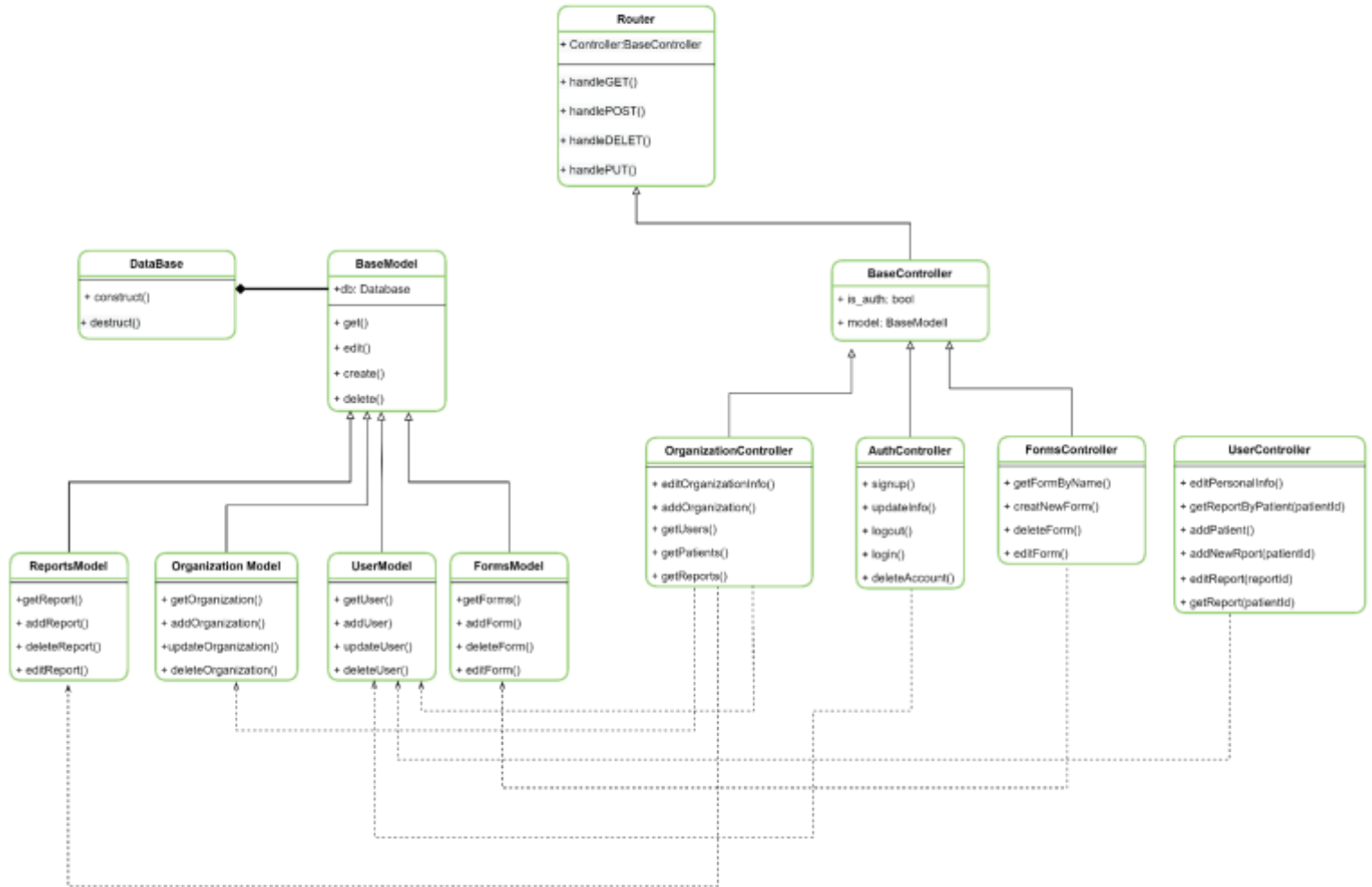
3. Design

a. Data Design - Database Description

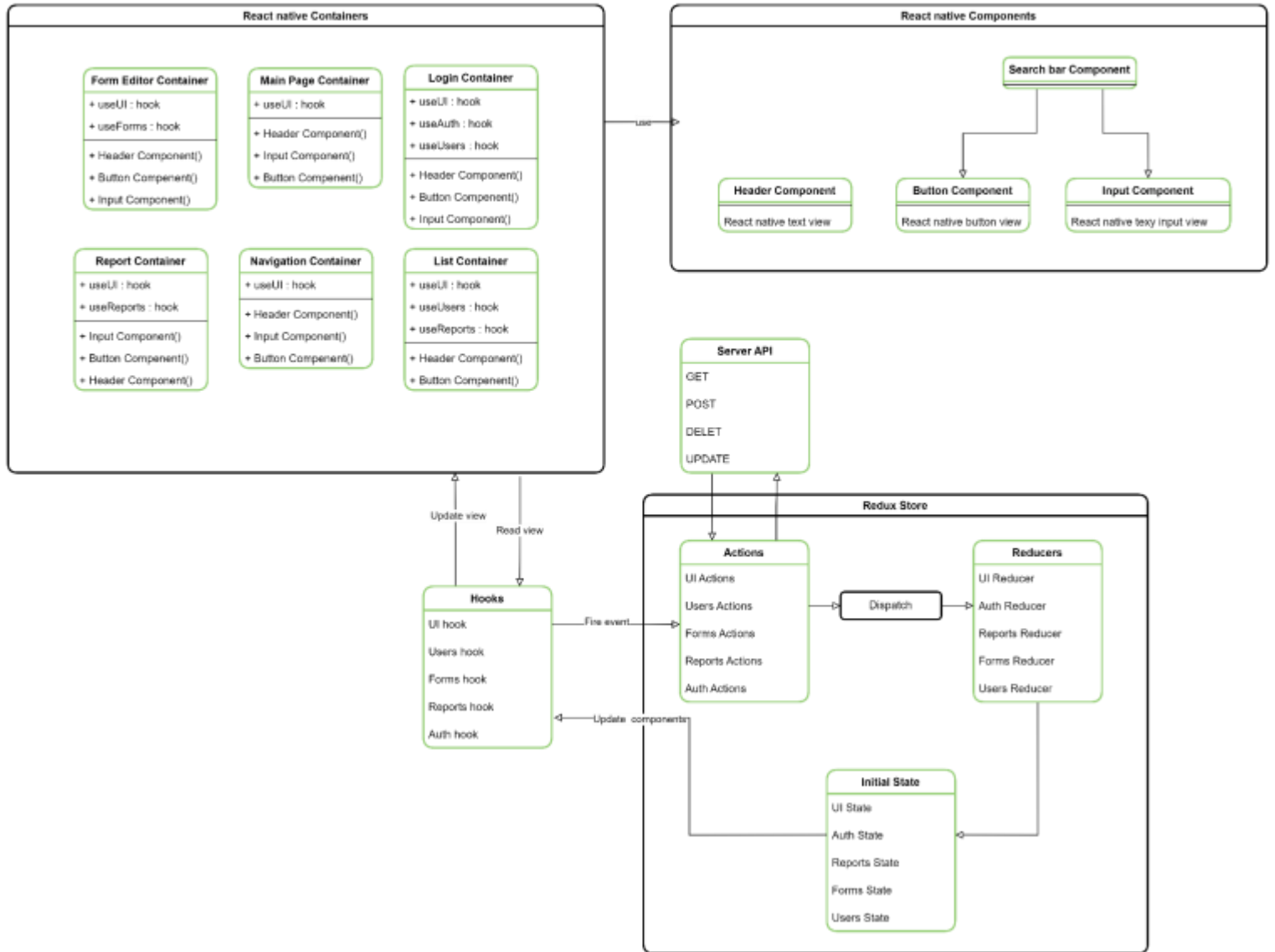


b. Structural Design - Class Diagram

SERVER ARCHITECTURE

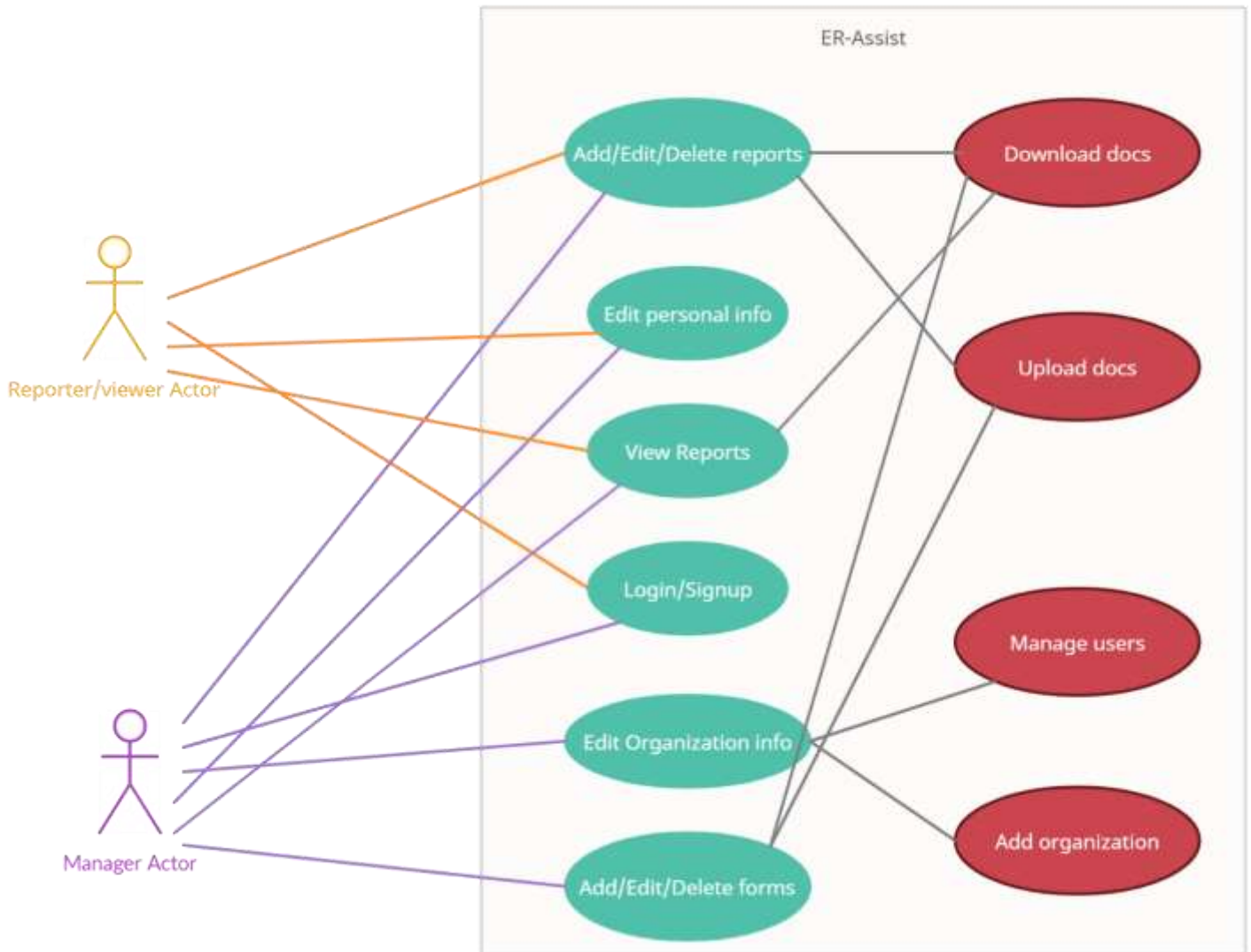


CLIENT ARCHITECTURE

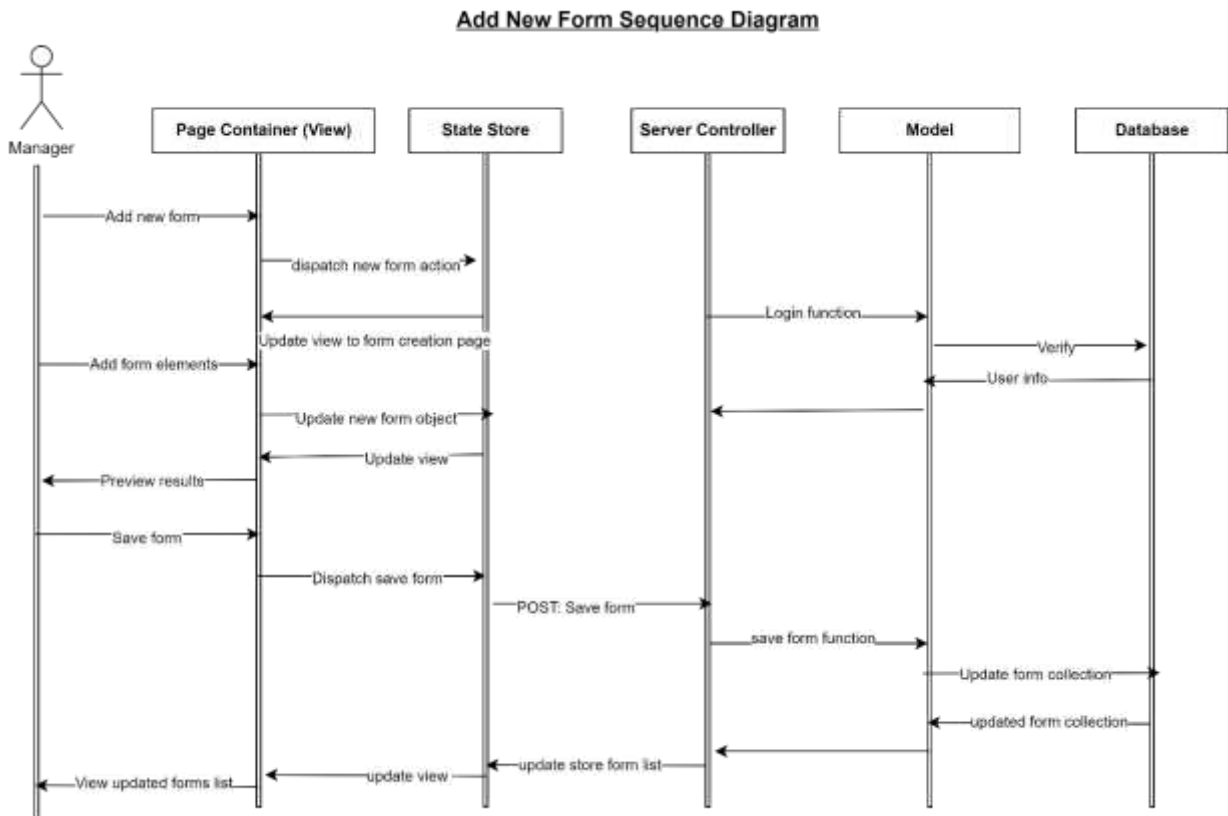
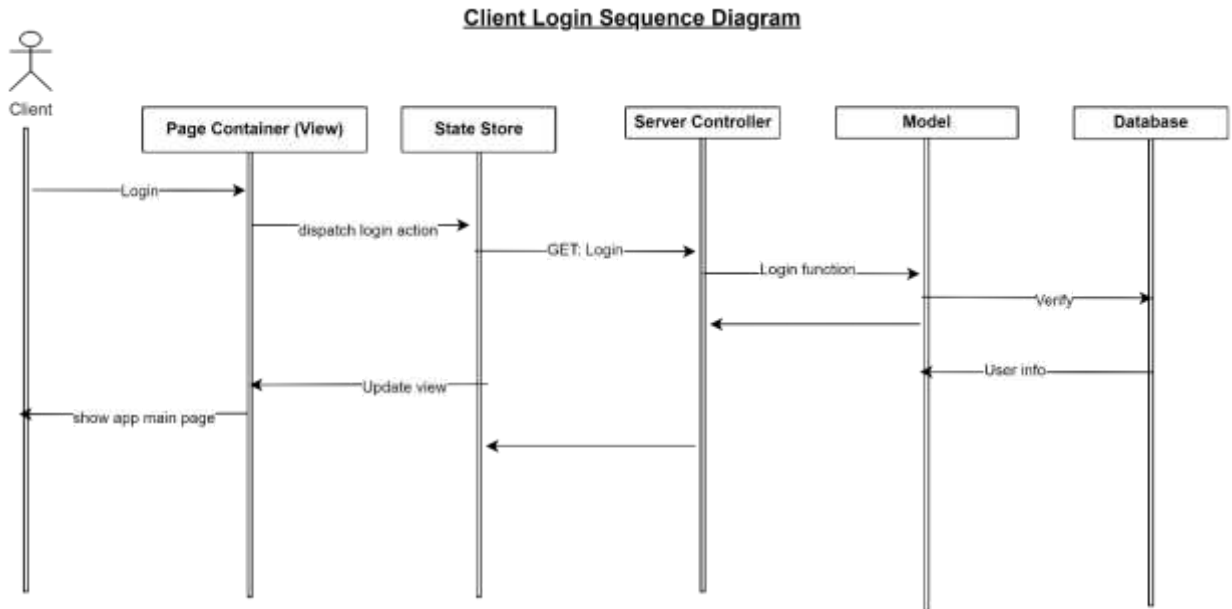


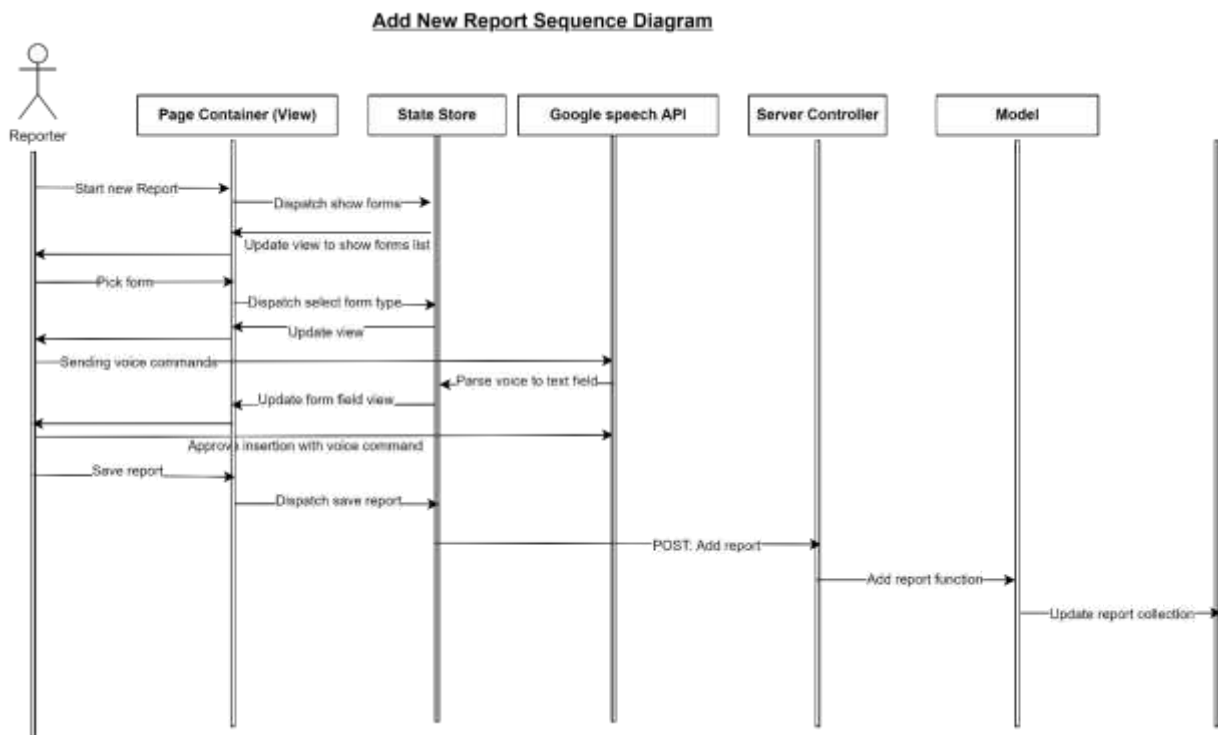
c. Interactions Design

i. Use Cases

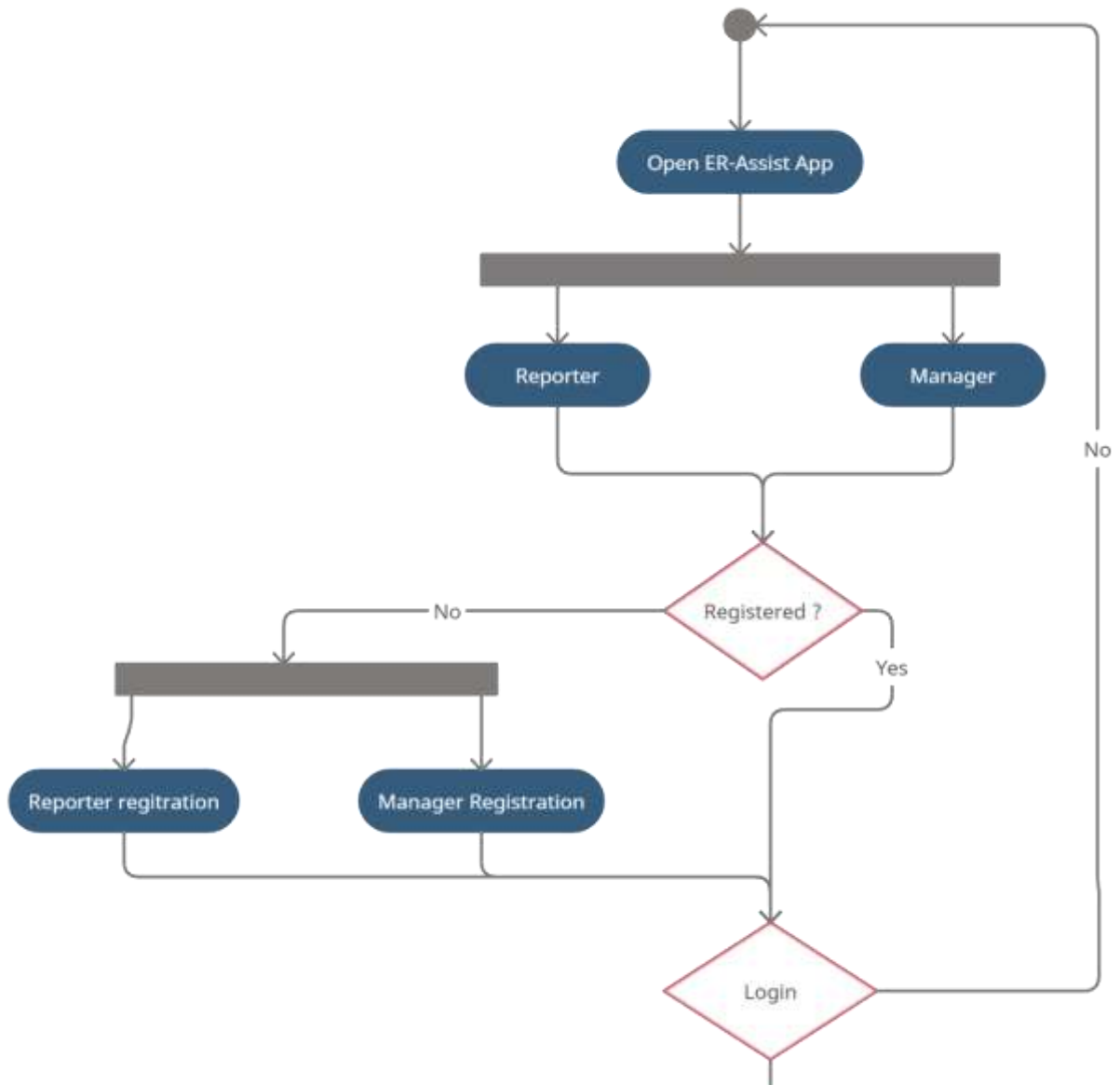


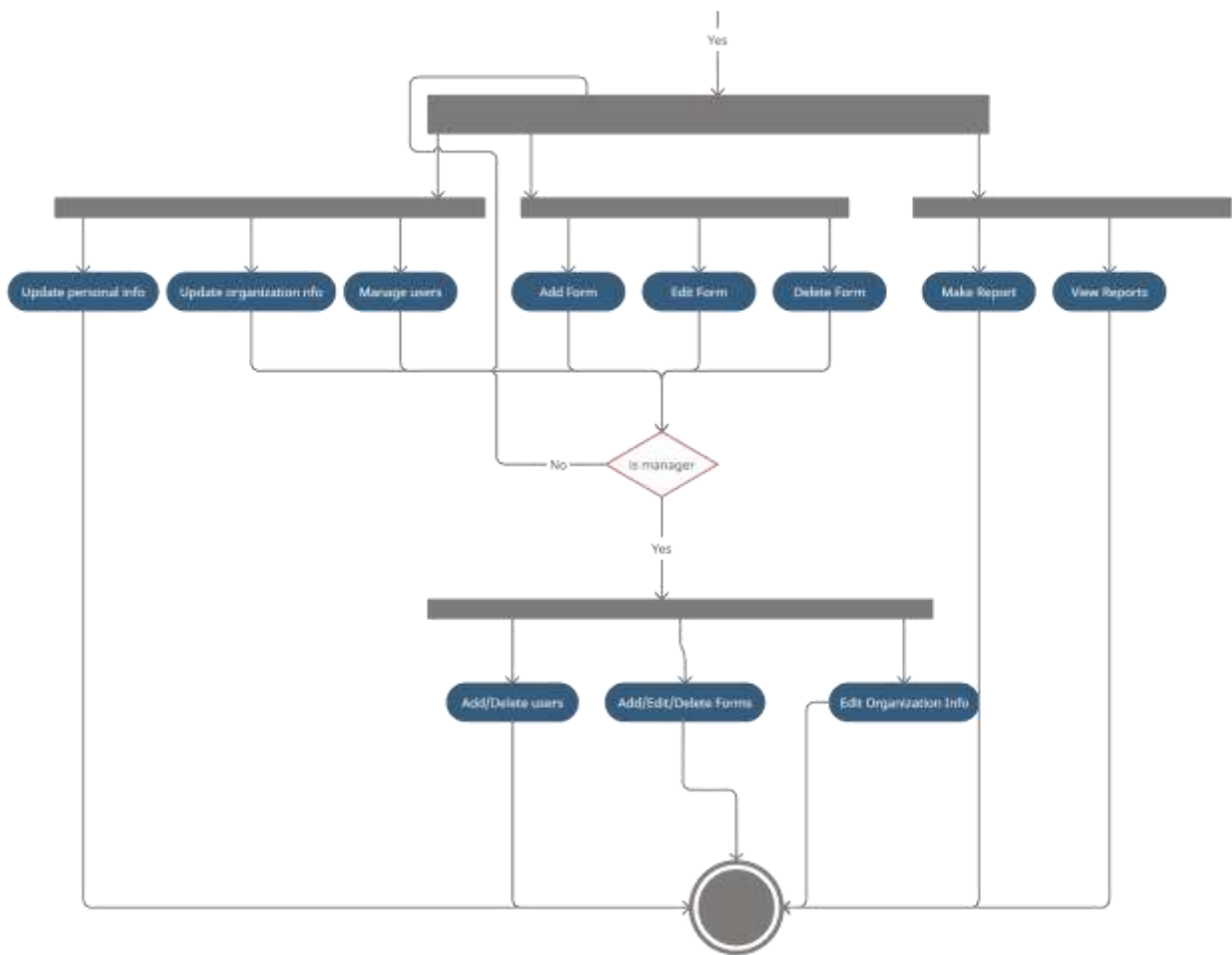
ii. Sequence Diagram





iii. Activity Diagram / State / Processes



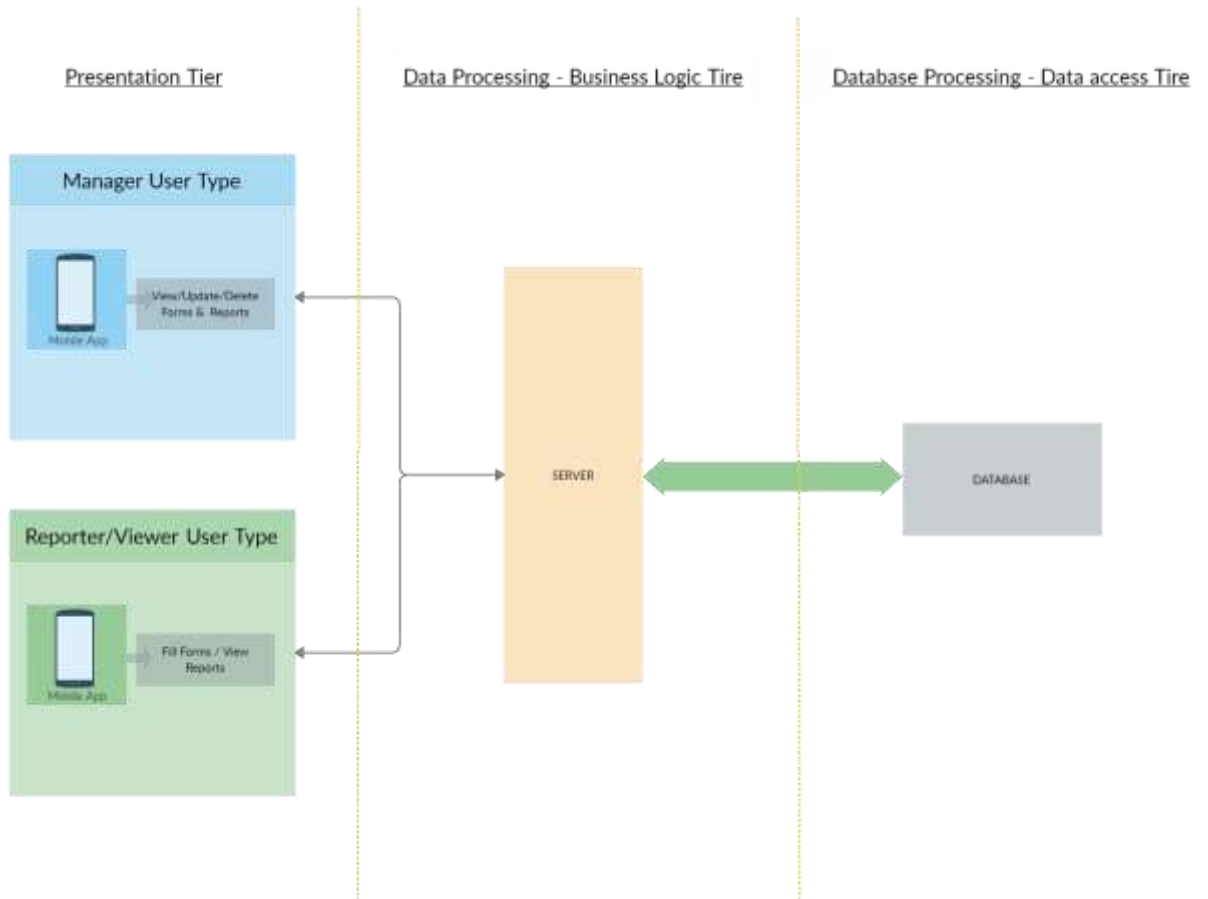


d. Description of Algorithmic Components

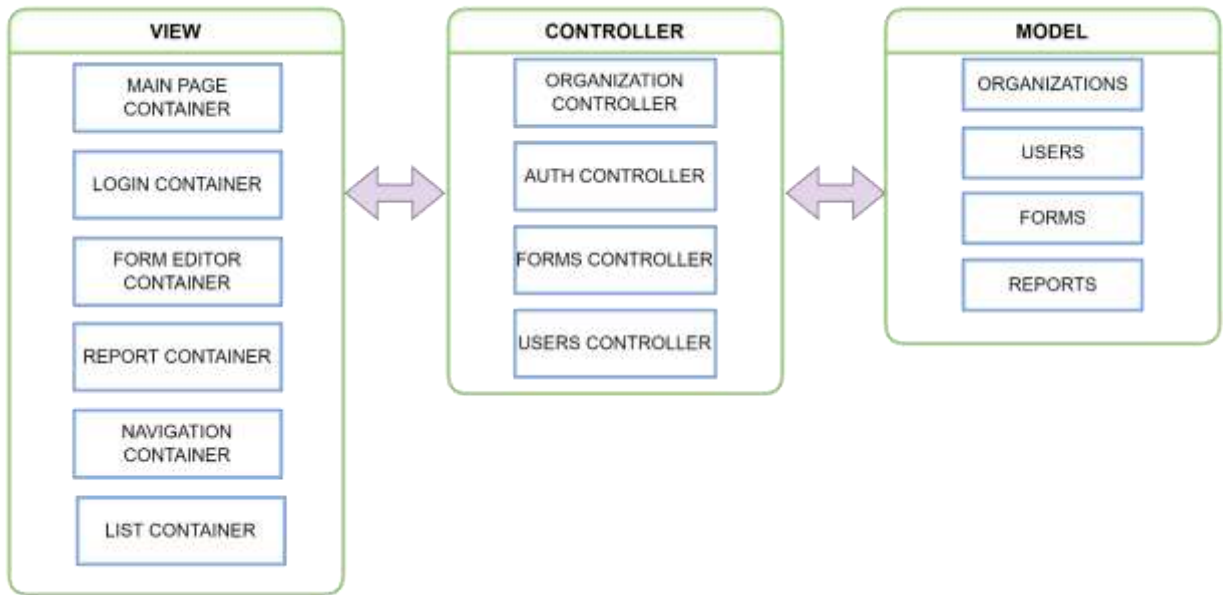
The application will use an external speech recognition algorithm (google speech API) in order to understand voice commands from the user

e. Software Architecture Pattern

- i. N-tier: Three Tire Architecture.



ii. MVC- Model, View, Controller structure



4. Verification

a. Validation and Evaluation Plan

For future improvement and evaluation, the system will test whether the voice recognition API is sufficient and no manual form editing is needed.

b. Testing Platform

perform unit tests on backend critical endpoints – authentication, data filtering. Same in the frontend side, the test will focus on proper functionality of the components and proper usage of external APIs being used.

5. Project Management

a. Schedule / Gantt



b. Team Roles – final

Ofer Elfassi – documents and project leader

Dekel Ben-David – backend development leader

Guitit Amar – frontend development leader