



ER-Assist

Smart Virtual Assistant for Paramedics

Software Requirements Specification

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1. Overview

This section will briefly describe the main goal of Cake master application.

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

2. Problem Description and Motivation

The following section will describe the system analysis and design diagrams

Nowadays:

- Medical team members spend lot of time documenting treatments manually
- If the team member can document while treating patients, so he has to memorize the treatment details and write it later , so there is risk of omitting important details from the report

3. Project Goals

The following section will describe the system analysis and design diagrams

Our goal is to:

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

4. The Approach

The following section will demonstrate the system data flow architecture.

Our system will consist of a mobile app and a website.

The system will provide the user with virtual assistant.

The user will be able to create treatment reports on medical operations while using voice commands to select the appreciate report type and filling in the report fields also by voice commands.

Once the user has completed the report documentation, the system will save the report on the user's phone or send it to cloud database or later use.

5. Scenarios

Following are some examples of potential users and different usage scenarios

a. Joe Carter

32 y/o, living in Houston Texas,
Working as the forefront of the
medical emergency response team.
Joe is Married to Marry and father of
two girls.

Scenario – Joe got called for an
approximately 27-year-old male
motorcyclist who has been involved
in a motor vehicle collision on a
county highway. The patient is
reported to be unconscious. When
Joe and his team arrived, they found the male with a severely angulated
right leg with a decreased level of consciousness and signs of increasing
ICP and possible cerebral herniation. Paramedics should prepare the
patient for handoff to the air ambulance which is on the way. Joe opens
the ER-Assist app on his phone and with voice command tell it to open the
first response report and start filling the fields one by one and give
detailed information about the patient condition and the treatment he
give to the patient.



Meredith Grey

40 y/o, living in Seattle Washington.
Meredith Grey is the daughter of
world-renowned surgeon Ellis Grey.
Having grown up in a hospital,
Meredith shows immense natural
talent.

Scenario – An injured 19-year-old
college student is brought to the ER
following an automobile accident.
Meredith instruct her assistant to
open the ER-Assis app in her phone
and having it read the report being
made by the paramedics on the
accident site so that she knows what
treatment he already got and what
medicines they gave him on site.



6. Functional Requirements

The following section will document the functional requirements of the system.

Actor: Non-registered user	Action/Page: Registration	
<p>Requirement: non-registered user should be able to create account to sign in to the application.</p> <p>Application state:</p> <ul style="list-style-type: none"> - Device is connected to the internet <p>Content:</p> <ul style="list-style-type: none"> - Display link “Don’t have account?” on the Registration screen; - The link opens “Create account” screen; - Display standard signup form; - Display “Choose user type” dropdown which includes: <ul style="list-style-type: none"> ▪ Reporter ▪ Organization manager - For Reporter show form which includes: <ul style="list-style-type: none"> ▪ Organization name drop down ▪ Personal details (first name, last name, age, role) - For Organization manager show form which includes: <ul style="list-style-type: none"> ▪ Organization info form (name, location/address, phone, mail) ▪ Personal details (first name, last name, age, role) - After filling all required fields allow user to press create account button; - Direct user to login page; 		
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Priority: M		

Actor: registered user	Action/Page: Home page	
<p>Requirement: Registered user should be able to see the main page of the application.</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in <p>Content:</p> <ul style="list-style-type: none"> - Display the main page of the application which have the following structure: <ul style="list-style-type: none"> ▪ App logo at the top ▪ Clickable username at the top right corner (watch/update user info) ▪ Action list according to the user type (manager/reporter) ▪ Search bar at the top of for searching reports 		
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Actor: registered user	Action/Page: Search report
<p>Requirement: Registered user should be able to search filled patient reports.</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked the search bar at the top of the screen <p>Content:</p> <ul style="list-style-type: none"> - Display search page with the following search filters: <ul style="list-style-type: none"> ▪ Search by patient id ▪ Search by patient name ▪ Search by report type - After filling the search box and selecting search filter , display clickable results To enter the appreciate report 	
Priority: M	

Actor: registered user	Action/Page: Edit profile page
<p>Requirement: Registered user should be able to edit his profile info.</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked his username at the top of the page <p>Content:</p> <ul style="list-style-type: none"> - Display the current user info - Display edit button for each field <ul style="list-style-type: none"> ▪ Clicking the button will open text input field to edit the field value 	
Priority: M	

Actor: Organization manager	Action/Page: Home page
<p>Requirement: Registered Organization manager should be able to see the main page and preform different actions .</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in <p>Content:</p> <ul style="list-style-type: none"> - Display list of actions <ul style="list-style-type: none"> ▪ Edit organization info ▪ Manage forms ▪ Manage users - Clicking on action will lead to the action page with farther options 	
Priority: M	

Actor: Organization manager	Action/Page: Edit organization info
<p>Requirement: Registered Organization manager should be able to edit the organization info.</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked the edit organization info action on main page <p>Content:</p> <ul style="list-style-type: none"> - Display the current organization info - Display edit button for each field <ul style="list-style-type: none"> ▪ Clicking the button will open text input field to edit the field value 	
Priority: M	

Actor: Organization manager	Action/Page: Manage forms
<p>Requirement: Registered Organization manager should be able to add/edit/delete forms from the organization system so the Reporters can use them.</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked the “manage forms” action on main page <p>Content:</p> <ul style="list-style-type: none"> - Display list of all the forms registered in the system ; - On each list item display edit button and delete button ; - At the bottom of the list display add new form button ; <ul style="list-style-type: none"> ▪ Clicking the edit button will lead to the form page with edit privileges ▪ Clicking the delete button will delete the current form type from the system ▪ Clicking the add new form will lead to form creation page 	
Priority: M	

Actor: Organization manager	Action/Page: Form creation
<p>Requirement: Registered Organization manager should be able to add new form types to the system.</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked the “add new form” button action on “manage forms” page <p>Content:</p> <ul style="list-style-type: none"> - Display form creation form which includes the following fields; <ul style="list-style-type: none"> ▪ Form name ▪ Form code ▪ Form filed creation (field name, field validation roles) 	
Priority: M	

Actor: Organization manager	Action/Page: Manage users
<p>Requirement: Registered Organization manager should be able to watch/delete users from the system</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked the edit “manage users” action on main page <p>Content:</p> <ul style="list-style-type: none"> - Display list of all registered users with the following details about each user: <ul style="list-style-type: none"> ▪ Full name ▪ Contact details (mail, phone, address) - On each list item display delete button ; <ul style="list-style-type: none"> ▪ Clicking the delete button will delete the user from the system 	
<p>Priority: M</p>	

Actor: Reporter	Action/Page: Home page
<p>Requirement: Registered Reporter should be able to see the main page and preform different actions .</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in <p>Content:</p> <ul style="list-style-type: none"> - Display list of actions <ul style="list-style-type: none"> ▪ My reports ▪ New report - Clicking on action will lead to the action page with farther options 	
<p>Priority: M</p>	

Actor: Reporter	Action/Page: My Reports
<p>Requirement: Registered Reporter should be able to see the forms he filled in and edit their content or delete them</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked the “my reports” action on main page <p>Content:</p> <ul style="list-style-type: none"> - Display list of all the forms that the current user filled in with the following details: <ul style="list-style-type: none"> ▪ Report name ▪ Patient id ▪ Report date - On each list item display delete button <ul style="list-style-type: none"> ▪ Clicking the delete button will delete the Report from the system - On each list item display edit button <ul style="list-style-type: none"> ▪ Clicking the edit button will open the Report in new page with option to edit each field manually 	
<p>Priority: M</p>	

Actor: Reporter	Action/Page: New report	
<p>Requirement: Registered Reporter should be able to create new report based on the available system forms.</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked the “new report” action on main page <p>Content:</p> <ul style="list-style-type: none"> - Display report creation page which includes the following action: <ul style="list-style-type: none"> ▪ Manual report creation ▪ Vocal report creation - Clicking each of the following actions will lead to report creation page 		
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Actor: Reporter	Action/Page: Manual report creation page	
<p>Requirement: Registered Reporter should be able to create new report by typing the report details manually</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked the “manual report creation” action on main page <p>Content:</p> <ul style="list-style-type: none"> - Display manual report creation page where the user can fill in the report which include the following fields: <ul style="list-style-type: none"> ▪ Repot type drop down ▪ Patient name ▪ Patient id ▪ Other form fields based on the report type that the user chose from the drop down - Display save button to save the current report to the system database 		
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Priority: M		

Actor: Reporter	Action/Page: vocal report creation page
<p>Requirement: Registered Reporter should be able to create new report by giving voice commands to the system</p> <p>Application state:</p> <ul style="list-style-type: none"> - User is registered and logged in - User clicked the “vocal report creation” action on main page <p>Content:</p> <ul style="list-style-type: none"> - The system voice assistant will ask the user questions and listen to the user answers and fill the report according to the user response - The voice assistant will ask the following questions: <ul style="list-style-type: none"> ▪ Which report type do you want to fill ▪ What is the patient name ▪ What is the Patient id ▪ Other form questions based on the report type that the user chooses - When the user give the command close report the system will show the final filled report and ask the user if he want to save the current report or edit some fields manually 	
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7. Non- Functional Requirements

The following section will document the non-functional requirements of the system.

Privacy Requirements:

- Personal info of the registered user won't be visible to other users except for the doctor who read the report and the organization manager
- Report will only be visible by the user who created them or by the doctor who treat the patient

Security Requirements:

- Personal details, login name & password, must be remain confidential.

Efficiency Requirements:

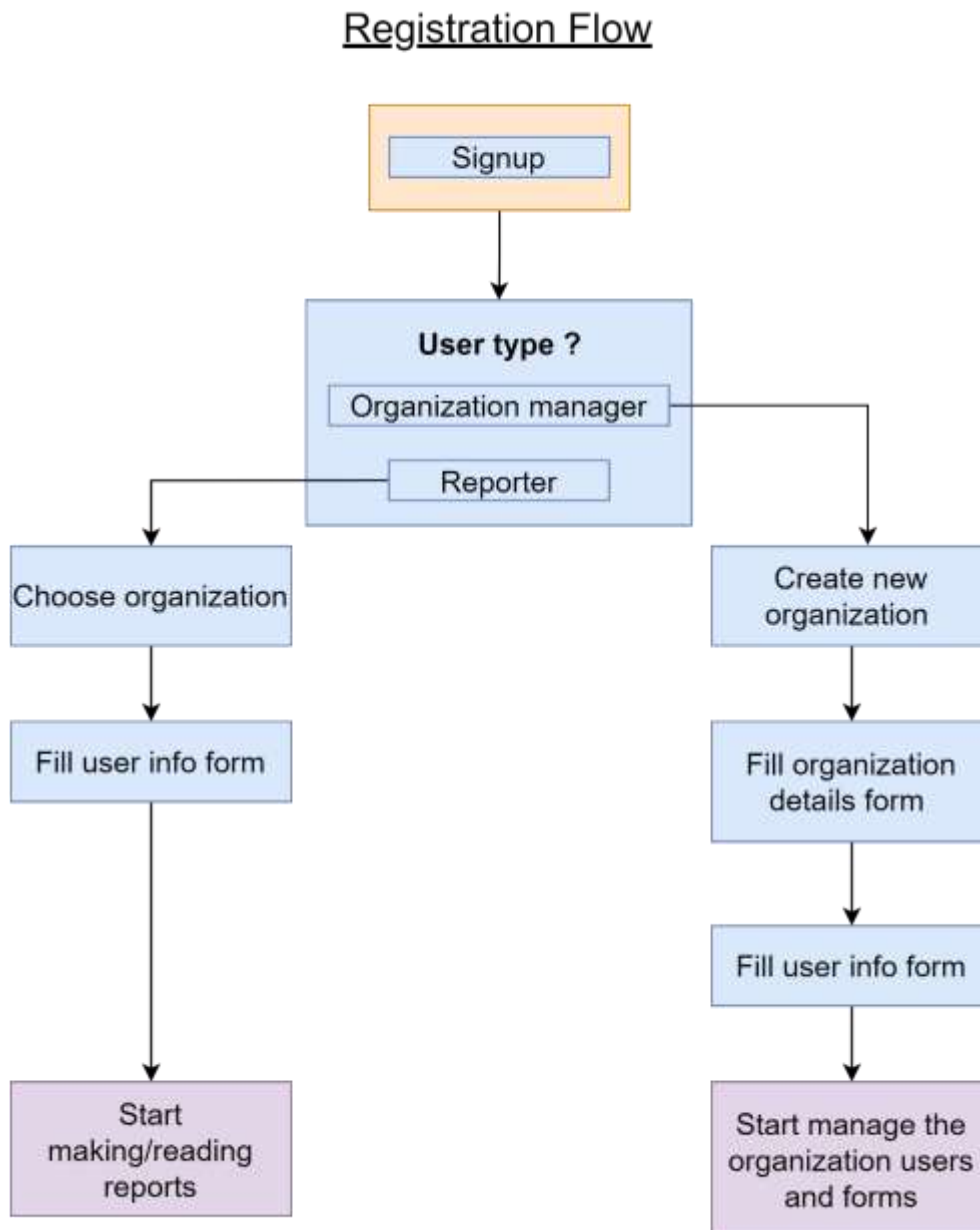
- The application shall be easy to use and intuitive
- The application shall have a user-friendly interface

Accessibility Requirements:

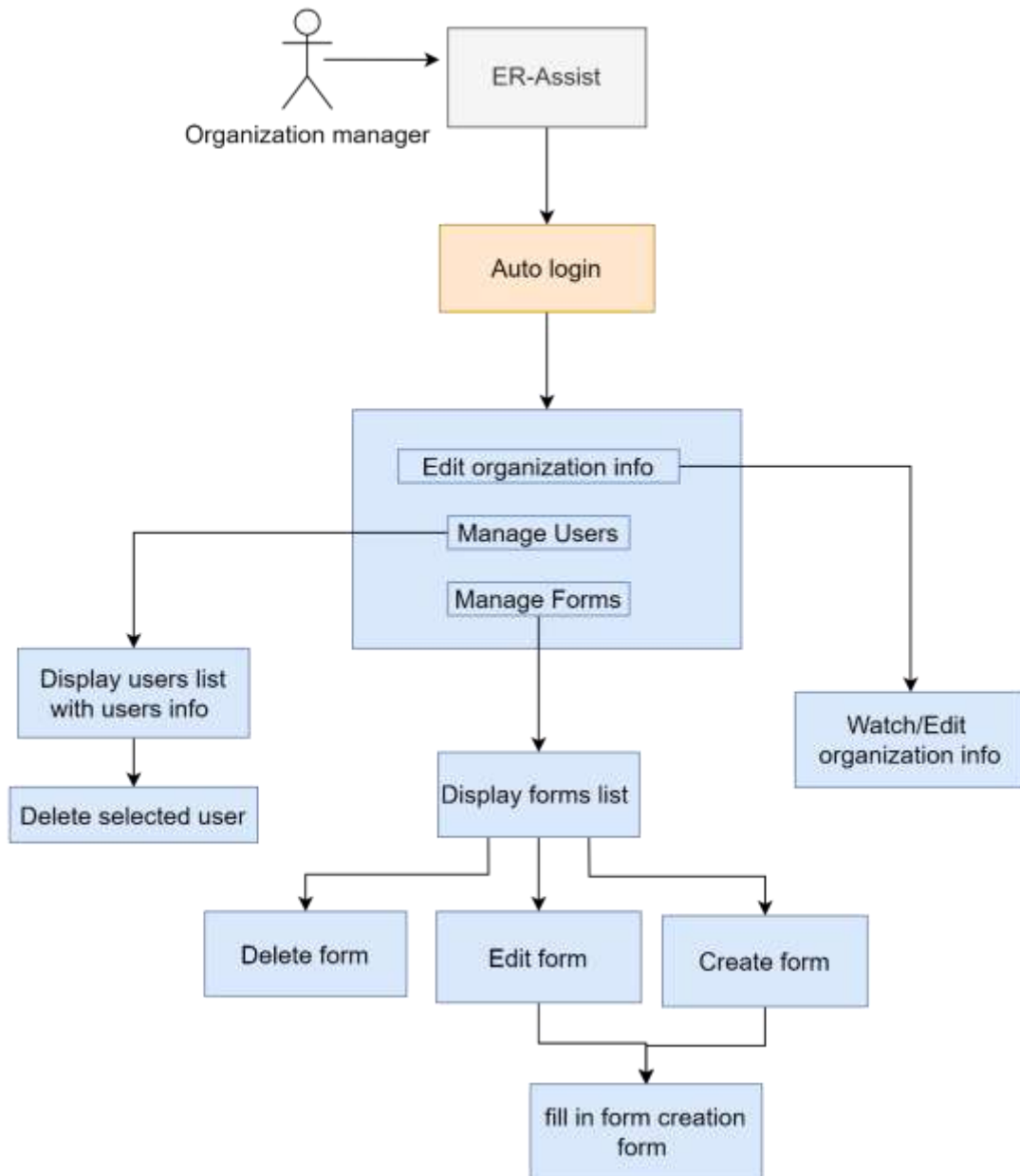
- The application should work in offline mode, without internet connection for manual reports creation

8. System Flows

This section will demonstrate the system operation in form of system flow diagrams



Manager user type Flow



Reporter user type Flow

