EVAREWIEW

Project Analysis Report

Batuhan İşcan
Yiğit Özarslan
Ozan Özkök

Project Repository Link: https://github.com/PelinalWS/CMPE_491

Document Revision History

Version	Date	Ammendment
1.0	18.11.2024	Initial Document

1. Introduction

This document was devised to thoroughly explain the details of the EVAReview project. The project's aim is to streamline surgical planning for a repair method for aneurysms and possibly other operations in the future by providing an easy to use web application, boasting a patient record system with a customisable data overlay. Using deep learning, the application will be able to make suggestions and provide comprehensive support throughout the planning processes.

2. Current System

Currently, the feasibility of a surgery is discerned by using software that reconstructs the vessels' arrangement from the cross-sections and the known frame intervals from the CT scan. This is then inspected by the respective person and involves the collaboration of looking at the data, which increases the number of dependencies to multiple separate applications. The varying levels of expertise between the user base also falls onto the users to solve.

3. Proposed System

3.1. Overview

The proposed system aims to alleviate the standard workload of some procedures by performing them in their stead. Allowing users to customize the patient information's layout and filtering them, saving the setting as a template to change between different views of data. The users will also be able to draw and take notes if they want to show a specific point to their colleagues, being able to quickly toggle between the adjusted and unadjusted view to view the system with less clutter.

There will also be an in-built messaging system along with the ability to be able to share specific views with the other users through their account handles. The user that creates the page for a patient will be able to share their access to their team by adding them to the specific planned operation, either one by one or by setting a team preset previously.

The AI decision support tool will give numbers for a predicted success percentage and give brief explanations of the ways leading to that outcome.

3.2. Functional Requirements

Requirement ID	Requirement Description
FR1	User signup and login
FR2	User authentication
FR3	Add contacts by user handles
FR4	Customization for info display
FR5	Saves for customized information layouts
FR6	Note taking and drawing on page with togglable visibility
FR7	Note sharing
FR8	Allow levels of access to contacts to view a patient
FR9	Communication panel
FR10	Message sending between contacts
FR11	AI suggestions
FR12	Secure patient medical history
FR13	Automatic changelog
FR14	Version reversal from changelog

3.3. Nonfunctional Requirements

Requirement ID	Requirement Description
NR1	High availability uptime
NR2	Reliable database connection
NR3	Encrypted sensitive data

3.4. System models

3.4.1. Scenarios

3.4.2. Use case model

The only planned actor for the application will be the users and since the patients are not designed to be the users, the use cases are intended to focus on the requirements of healthcare employees.

UC-1: Signup
UC-2: Login
UC-3: Add contact
UC-4: View profile
UC-5: Customize information view
UC-6: Save information view/layout as a template
UC-7: Note taking
UC-8: Drawing
UC-9: Note/drawing deletion
UC-10: Note/drawing visibility toggling
UC-11: Note/drawing sharing
UC-12: Access sharing for the specific surgery or for the whole patient page
UC-13: Message sending
UC-14: Patient creation
UC-15: Patient removal
UC-16: Patient info entry
UC-17: Patient info edit
UC-18: Changelog viewing
UC-19: Revert/recovery to an older version

3.4.3. Object and class model

Briefly:
These info will be kept in a relational database
Doctor -> has id and user handle, password etc.
-> has patients
-> has contacts
-> has pages for their patients
->
Patient-> has medical history -> allergies etc
-> has planned surgery
-> has past surgeries
Surgery-> doctors who partake in the surgery
-> patient

-> description

4. Glossary

CT: Computer Tomography

5. References