Software Requirements Specification (SRS) Document

Project Name : Doctor Assist for EMRI Ambulance

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Brief problem statement

For every 25 patients, 1 doctor is assigned to them. The website should assist the doctors in case of critical cases and as and when the EMT assistant needs Doctor's help. Create a web app for a doctor which shows the vitals of the patients. It should also have a document query which will help the doctor to find some medicine or procedure from a document uploaded on to the system by the admin. It should also have a live chat functionality with the EMT assistant with the patient.

System requirements

We will be using React and GraphQL for our implementation. Mongodb is being used as a database framework.

Users profile

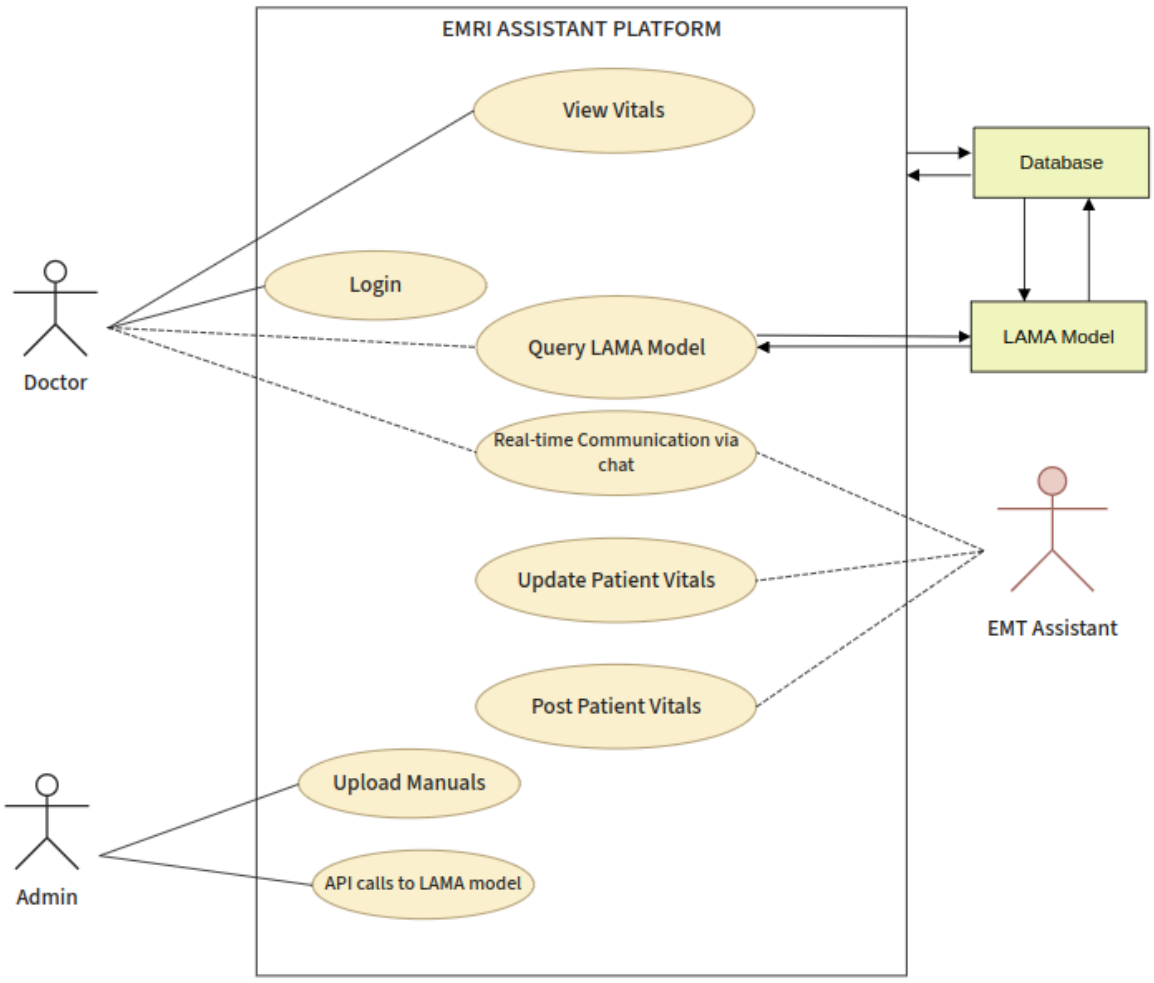
The platform will be mainly used by doctors which will show them the vitals of their patients and assist the doctor in case they want to get some information for example, they want to know which medicine the EMT assistant has to give to the patient for some symptom. They can also have live chat with the EMT assistant to tell them what steps to follow to help the patient.

The platform will also be used by the administrator who will upload documents for queries on the app and also upload doctor information to the database.

Feature requirements (described using use cases)

No.	Use Case Name	Description	Release
1.	Authentication	Facilitate the authentication of doctors to the platform based on username/password.	R1
2.	View list of patients	Doctors have a sidebar accessible using which they can navigate through the list of patients present in each ambulance, each having a brief description of vitals and their problems.	R1
3.	View patient vitals	Doctors can view the vitals of the patient selected (such as blood pressure, heart rate, body temperature etc), these would be posted by the EMT assistant present in the ambulance.	R1
4.	Criticality Judgment	Based on the vitals of a patient, updated dynamically in real-time, judgment on the condition of patient is passed on and the list of patients dynamically changes to view more severe patients on the top of the list.	R2
5.	Doctor performing a query	Doctors can chat with a LAMA model, which would be trained on files, and ask the model to reply with whatever they might need to know (like medicine to be taken). The responses captured may be forwarded (with an option of editing) to the EMT Assistant.	R2
6.	Doctor assisting the EMT assistant	EMT Assistants can chat(Text/Voice) with the doctors for assistance. The doctor can guide the assistance on steps to be taken next.	R1
7.	Audio Capture	Doctors have the option to record audio and send it to the assistant in the chat page.	R2
8.	Upload Manuals	An administrator may be given a page to upload manuals for the LAMA model.	R2

Use case diagram



Use case description

Use Case Number:	UC-01
Use Case Name:	Authentication
Overview:	The entered details by the doctor's has to be valid and thai authentication will be done by verifying the details from the Database.
Actors:	Doctor, Database
Pre condition:	1. The authentication system must be initialized and operational. 2. The doctor must have previously registered with the system and must possess valid login credentials 3. The system must have a stable network connection to verify the doctor's credentials.
Flow:	Main (success) Flow: 1. Doctor enters the login credentials (username and password). 2. The username is searched in the database and if it exists then the password for the same is matched with the input password. 3. If the password is correctly matched then the main webpage is loaded.
	Alternate Flows: An error message of incorrect or invalid username/password is displayed and the user will be allowed to enter the credentials again.
Post Condition:	The main webpage having the details of the patients of all the ambulances associated with that doctor is loaded.

Use Case Number:	UC-02
Use Case Name:	View list of patients details
Overview:	Once the doctor has logged in, a web page must appear with the left most sidebar having the list of patients associated with the 25 ambulances of the doctor.
Actors:	Doctor, Database
Pre condition:	The doctor must be logged in and the details of the patient must be uploaded by the EMT assistant.
Flow:	Main (success) Flow: 1. For all the patients in the 25 ambulances, their health problems, age, age-type (old/young),gender,ambulance number and the time at which the patient was entered into the ambulance must be displayed.

	2. There must be a color for each case of patient (Red/Orange/Green) based upon the criticality, red being the most critical, orange being moderate and green being the minor case 3. The details of the patients must be displayed in a sorted order of criticality with red being displayed first and green at the last. 4. This sidebar must have its own scroll bar for scrolling and viewing the details of all the patients. 5. This must have a drop down option upon clicking on a patient. The drop down will contain LOC,Criticality,past history,signs & symptoms,ERCP advice and events during transport information.
	Alternate Flows: None
Post Condition:	When any patient information is clicked then the details of the patient must appear in the drop down and the vitas must be displayed on the bar adjoining it.

Use Case Number:	UC-03
Use Case Name:	View patient vitals
Overview:	The vitals that are recorded by the EMT assistant must be displayed in this section.
Actors:	Doctor, Database
Pre condition:	One patient must be clicked from the leftmost sidebar whose details are to be viewed and the details for that patient must have been uploaded by the EMT assistant.
Flow:	Main (success) Flow: When a patient is clicked from the left most side bar, the vitals of the patient must be displayed. The vitals are the following :- 1. Body Temperature (in F) 2. Blood Pressure (Systolic and Diastolic in mm/Hg) 3. Pulse (in Rate/min) 4. Rhythm (Regular/Irregular) 5. Volume (Thready, Normal) 6. Respiration (in Rate/min) 7. Adventitious Sounds (Creps, Rhonchi, Normal) 8. Reaction to light (Brisk,Sluggish,Non reacting) 9. Left Air Entry (Yes/No) 10. Right Air Entry (Yes/No) 11. RBS (in mg/dl) 12. Spo2 13. Pupil Size (Normal,Constricted,Dilated) 14. Condition (Critical/Normal) 15. Skin Colour (Pink/Dusky/Cyanotic)
	Alternate Flows: None
Post Condition:	None

Use Case Number:	UC-04
Use Case Name:	Criticality Judgment
Overview:	Based on the vitals of a patient, updated dynamically in real-time by EMT Assistant, it judges the condition of the patient and the list of patients dynamically changes to view more severe patients on the top of the list. Also the color- red/orange/green will be dynamically displayed in patient details
Actors:	Doctor, EMT Assistant, Database
Pre condition:	1. EMTs must be available and equipped to measure and transmit patient vitals in real-time. 2. There should be a stable and reliable communication network between the EMTs and the doctors to transmit vital data without delay. 3. The vitals transmitted by the EMT must be valid and accurately measured.
Flow:	Main (success) Flow: 1. Firstly, EMT Assistants of all ambulances which are having patients measure the patient's vital signs and transmit it to the Doctor in real-time. 2. Then according to the threshold values for each vitals, the criticality of the patient will be determined dynamically. 3. Based on criticality, the respective color coding of red for critical,orange for moderate and green for minor is displayed in patient details and this will be updated in real-time.
	Alternate Flows: Each time the Doctor gets any new vital details of any patient ,the judgment system will update the criticality of respective patients.
Post Condition:	1. The judgment system provides the doctor with the criticality assessment of the patient based on the transmitted vitals. 2. It will prioritize patients based on their criticality level to ensure timely medical attention by ensuring most critical patients at top and minors at bottom.

Use Case Number:	UC-05
Use Case Name:	Doctor performing a query
Overview:	The doctors can chat with the LAMA model which is trained on the documents uploaded by the admin and get results based on the prompts the doctors give (like what medicine to give)
Actors:	Doctors, LAMA Model
Pre condition:	1. The doctor should be able to enter prompts into the textbox given to chat with the LAMA model. 2. The doctor enters relevant prompts related to medical sciences. 3. Doctor has good internet connectivity.
Flow:	Main (success) Flow: 1. The doctor enters the prompt and sends it to the LAMA model. 2. The LAMA model searches the prompt through it and checks within its data about the information regarding the prompt. 3. LAMA model displays in the chat all the relevant data it finds about the prompt and sends it to the doctor.
	Alternate Flows: None
Post Condition:	None

Use Case Number:	UC-06
Use Case Name:	Doctor assisting the EMT assistant
Overview:	The doctor will suggest medication and other tasks such as dressing etc. to the EMT assistant.
Actors:	Doctor, EMT Assistant
Pre condition:	The Doctor has to click on the chat option available.
Flow:	Main (success) Flow: Whenever the doctor clicks on the chat option, a chat box is opened where the doctor can chat with the EMT assistant. The EMT assistant can ask the doctor for medication and also inform about the condition and changes happened in the condition of the patient.

	Alternate Flows: None
Post Condition:	When the message is sent, the EMT assistant will get the message on his app.

Use Case Number:	UC-07
Use Case Name:	Audio Capture
Overview:	The doctor should be able to record audio and send it to the EMT assistant
Actors:	Doctor, EMT Assistant
Pre condition:	Doctor is authenticated
Flow:	Main (success) Flow: 1. Doctor clicks on the mic-icon and is prompted to audio capture. 2. The captured audio is sent to the chat page.
	Alternate Flows: N/A.
Post Condition:	The EMT assistant should be able to hear the captured audio sent by the doctor, it should also appear on the chat page.

Use Case Number:	UC-08
Use Case Name:	Upload manuals
Overview:	The admin has the functionality to add manuals, using which the LAMA model may give advice/suggestions on scenarios to the doctor based on the vitals
Actors:	Admin, Database
Pre condition:	Admin has direct access to the database to upload the document.
Flow:	Main (success) Flow: 3. Access the upload dashboard 4. Upload the document
	Alternate Flows: Direct post to API incase of failure of Step 2.
Post Condition:	The LAMA model fetches instructions from this new document on the future queries made by the doctor.