**IOT Based Patient Health Monitoring System**

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SRS Submission Date: 19/11/2019

**Project Title:**

IOT Based Patient Health Monitoring System

**Functional Requirements:**

1. **Web panel**

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| **1** | **Title:** | **Add new Doctor** |
| Description: | | Admin can add doctor details into database |
| Input: | | Click on add doctor button and then input doctor name, father name, address, qualification, phone number, date, specialization. |
| Output: | | Display doctor successfully added message. |
| Pre-condition: | | Open All doctor list page . |
| Post-condition: | | Information should save in to the database and generate id. |
| Action: | | Input all values in required field and click “**Add new doctor”** button. |
| Destination: | | All doctor list page. |

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| **2** | **Title:** | **Delete doctor** |
| Description: | | Admin can delete doctor by clicking on delete button |
| Input: | | Click on delete doctor button. |
| Output: | | Display doctor successfully deleted message. |
| Pre-condition: | | Open see doctor page. |
| Post-condition: | | Information should delete from database. |
| Action: | | Click on see doctor page and then click on “**delete doctor”** button. |
| Destination: | | All list of doctor page. |

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| **3** | **Title:** | **See All doctors and search** |
| Description: | | Admin can search and see all doctor list and details by click on button |
| Input: | | Click on see all doctor button and search doctor by typing doctor name in textbox |
| Output: | | Display doctor list on page and search result display on screen. |
| Pre-condition: | | Open doctor list page. |
| Post-condition: | | All doctor list should retrieved from the database and display on page and |
| Action: | | Click on **“see all doctor”** button and search. |
| Destination: | | same page. |

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| **4** | **Title:** | **See Doctor Details** |
| Description: | | Admin can see doctor details. e.g. personal details and assigned patient list by clicking on see doctor button. |
| Input: | | Click on see doctor details button. |
| Output: | | Display doctor details on next page. |
| Pre-condition: | | Open all doctor list page. |
| Post-condition: | | Doctor details page open. |
| Action: | | Click on see doctor details page. |
| Destination: | | Doctor details page. |

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| **5** | **Title:** | **See all patients categorized by disease or doctor** |
| Description: | | Admin can see patient list filter on disease or doctor |
| Input: | | Click on see all patient button |
| Output: | | Display patients category wise. |
| Pre-condition: | | Open all patient list page. |
| Post-condition: | | Patient must filter by category wise. |
| Action: | | Click on filter button. |
| Destination: | | Same page. |

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| **6** | **Title:** | **Delete Patient** |
| Description: | | Admin can delete patient by clicking on delete button |
| Input: | | Click on delete patient button. |
| Output: | | Display patient successfully deleted message. |
| Pre-condition: | | Open see patient page. |
| Post-condition: | | Information should delete from database. |
| Action: | | Click on see patient page and then click on “**delete patient”** button. |
| Destination: | | All list of patient page. |

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| **7** | **Title:** | **Add new Patient** |
| Description: | | Admin can add patient details into database |
| Input: | | Click on add patient button and then input patient name, father name, address, phone number, date, disease, device id. |
| Output: | | Display patient successfully added message. |
| Pre-condition: | | Open All patient list page . |
| Post-condition: | | Information should save in to the database and generate id. |
| Action: | | Input all values in required field and click “**Add new patient”** button. |
| Destination: | | All patient list page. |

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| **8** | **Title:** | **Assign doctor to patient** |
| Description: | | Admin can assign doctor to patient by clicking a assign doctor button and select doctor and click add button. |
| Input: | | Select doctor |
| Output: | | Display doctor details that assign to patient on patient details page. |
| Pre-condition: | | Open patient details page. |
| Post-condition: | | Doctor must assigned to patient |
| Action: | | Perform all action mention in Input and click “**Add ”** button. |
| Destination: | | Patient details page. |

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| **9** | **Title:** | **Emergency Alert Notification** |
| Description: | | Admin get alert if patient health is critical. |
| Input: | | No input |
| Output: | | Pop up notification display on screen. |
| Pre-condition: | | Admin must login on web panel. |
| Post-condition: | | Alert notification is must display on web panel. |
| Action: | | Click on notification and see patient health status and location. |
| Destination: | | Patient details page |

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| **10** | **Title:** | **Show patient details** |
| Description: | | Admin can see patient personal information and location and heartbeat, temperature, ECG on graph. |
| Input: | | Select patient and open patient details page. |
| Output: | | Display location and heartbeat, temperature and ECG on graph. |
| Pre-condition: | | Open patient details page |
| Post-condition: | | All correct data display on screen. |
| Action: | | None |
| Destination: | | Patient details page. |

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| **11** | **Title:** | **Login** |
| Description: | | Admin can login using email address and password. |
| Input: | | Email address, password. |
| Output: | | Display user successfully logged in. |
| Pre-condition: | | Open web panel. |
| Post-condition: | | Must open dashboard page. |
| Action: | | Input all values in required field and click “**login”** button. |
| Destination: | | Dashboard page. |

1. **Patient Android App**

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| **12** | **Title:** | **Login** |
| Description: | | Patient can login using phone number and password. |
| Input: | | Phone number, password. |
| Output: | | Display user successfully logged in. |
| Pre-condition: | | Open app. |
| Post-condition: | | Must patient details page. |
| Action: | | Input all values in required field and click “**login”** button. |
| Destination: | | Patient details page. |

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| **13** | **Title:** | **Show patient details** |
| Description: | | Patient can see his personal information and heartbeat, temperature, ECG on graph. |
| Input: | | open patient details page. |
| Output: | | Display location and heartbeat, temperature and ECG on graph. |
| Pre-condition: | | Open patient details page |
| Post-condition: | | All correct data display on screen. |
| Action: | | None |
| Destination: | | Patient details page. |

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| **14** | **Title:** | **See All doctors and search** |
| Description: | | Patient can search and see all doctor list and details by click on button |
| Input: | | Click on see all doctor button and search doctor by typing doctor name in textbox |
| Output: | | Display doctor list on page and search result display on screen. |
| Pre-condition: | | Open doctor list page. |
| Post-condition: | | All doctor list should retrieved from the database and display on page and |
| Action: | | Click on **“see all doctor”** button and search. |
| Destination: | | same page. |

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| **15** | **Title:** | **Emergency Alert Notification** |
| Description: | | Patient get alert if his health is critical. |
| Input: | | No input |
| Output: | | Pop up notification display on screen. |
| Pre-condition: | | Patient must login on app. |
| Post-condition: | | Alert notification is must display on mobile. |
| Action: | | Click on notification and see his health status. |
| Destination: | | Patient details page |

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| **16** | **Title:** | **Send message to doctor** |
| Description: | | Patient can send message to doctor and take advice. |
| Input: | | Enter message |
| Output: | | Message sent successfully message display on screen. |
| Pre-condition: | | Open chat page. |
| Post-condition: | | Message must sent to required doctor. |
| Action: | | Enter message and click send button. |
| Destination: | | Same page. |

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| **17** | **Title:** | **See all medicine prescriptions list (prescribe by doctor )** |
| Description: | | Patient can see prescriptions list. |
| Input: | | Click on see all prescriptions button |
| Output: | | Display prescriptions list on page. |
| Pre-condition: | | Open all prescriptions list page. |
| Post-condition: | | Show all prescriptions related to patient. |
| Action: | | none. |
| Destination: | | Same page. |

1. **Doctor Android App**

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| **18** | **Title:** | **Login** |
| Description: | | Doctor can login using phone number and password. |
| Input: | | Phone number, password. |
| Output: | | Display user successfully logged in. |
| Pre-condition: | | Open app. |
| Post-condition: | | Must all patient page. |
| Action: | | Input all values in required field and click “**login”** button. |
| Destination: | | All patient page. |

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| **19** | **Title:** | **See All Patient and search** |
| Description: | | Doctor can search and see all patient list and details by click on button |
| Input: | | Click on see all patient button and search patient by typing patient name in textbox |
| Output: | | Display patient list on page and search result display on screen. |
| Pre-condition: | | Open doctor list page. |
| Post-condition: | | All patient list should retrieve from the database and display on page and |
| Action: | | Click on **“see all patient”** button and search. |
| Destination: | | same page. |

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| **20** | **Title:** | **Emergency Alert Notification** |
| Description: | | Doctor get alert if patient health is critical. |
| Input: | | No input |
| Output: | | Pop up notification display on screen. |
| Pre-condition: | | Doctor must login on app. |
| Post-condition: | | Alert notification is must display on mobile. |
| Action: | | Click on notification and see his health status. |
| Destination: | | Patient details page |

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| **21** | **Title:** | **Show patient details** |
| Description: | | Doctor can see patient personal information, location and heartbeat, temperature, ECG on graph. |
| Input: | | open patient details page. |
| Output: | | Display location and heartbeat, temperature and ECG on graph. |
| Pre-condition: | | Open patient details page |
| Post-condition: | | All correct data display on screen. |
| Action: | | None |
| Destination: | | Patient details page. |

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| **22** | **Title:** | **Send message to Patient** |
| Description: | | Doctor can send message to patient and give advice. |
| Input: | | Enter message |
| Output: | | Message sent successfully message display on screen. |
| Pre-condition: | | Open chat page. |
| Post-condition: | | Message must sent to required patient. |
| Action: | | Enter message and click send button. |
| Destination: | | Same page. |

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| **23** | **Title:** | **See medicine prescriptions list patient wise** |
| Description: | | Doctor can see prescriptions list patient wise. |
| Input: | | Click on see prescriptions button and select patient |
| Output: | | Display selected patient prescriptions list on page. |
| Pre-condition: | | Open prescriptions list page. |
| Post-condition: | | Show all prescriptions related to selected patient. |
| Action: | | none. |
| Destination: | | Prescription list page. |

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| **24** | **Title:** | **Add medicine prescription for patient** |
| Description: | | Doctor can add medicine prescription for patient. |
| Input: | | Symptoms, disease, and medicine |
| Output: | | Display successful message on screen. |
| Pre-condition: | | Open prescriptions list page. |
| Post-condition: | | Prescription data added into database. |
| Action: | | Click on add button |
| Destination: | | Prescription list page. |

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| **25** | **Title:** | **Show Profile** |
| Description: | | Doctor can see his personal information |
| Input: | | open profile page. |
| Output: | | Display profile data. |
| Pre-condition: | | Open profile page |
| Post-condition: | | All correct profile data display on screen. |
| Action: | | None |
| Destination: | | Profile page. |

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| **26** | **Title:** | **Add patient to Doctor patients list** |
| Description: | | Doctor can add patient to his patient list by clicking a add patient button and select patient and click add button. |
| Input: | | Select patient |
| Output: | | Display patient list that assign to doctor on patient list page. |
| Pre-condition: | | Open patient list page. |
| Post-condition: | | Doctor must assigned to patient |
| Action: | | Perform all action mention in Input and click “**Add ”** button. |
| Destination: | | Patient list page. |

1. **IOT Based gadget**

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| **27** | **Title:** | **Send Health Data** |
| Description: | | IOT device send data to server and saved into database |
| Input: | | ECG, temperature, heart beat and device id |
| Output: | | None |
| Pre-condition: | | Device is on . |
| Post-condition: | | Information should save in to the database. |
| Action: | | None |
| Destination: | | none. |

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| --- | --- | --- |
| **28** | **Title:** | **Send Emergency Alert Notification** |
| Description: | | Device send alert if patient health is critical. |
| Input: | | No input |
| Output: | | none. |
| Pre-condition: | | Device is on. |
| Post-condition: | | Alert notification is must display on mobile and web panel. |
| Action: | | none. |
| Destination: | | None |

**Non Functional Requirements:**

1. **Usability**

Our System is very simple and easy to use. Estimate time required to learn doctor role is 4 to 5 minutes. Estimate time required to learn device functionality for patient is 4 to 5 minutes.

1. **Reliability**

Our system may 90% approx. reliable for getting real time location and live health data

1. **Integrity**

Our System has three user admin, doctor and patient. Admin can do everything on web panel.

1. **Performance**

Our System depends on high internet connection. If internet is slow then we cannot get properly real time location and health data of patient.

1. **Security**

Our system demands high data security requirement. If any data is change during communication it may cause large impact. So We are implementing Hashing algorithm for insuring data integrity between server and IOT device.

**External Interface Requirements:**

**Hardware:**

1. Temperature Sensor
2. Heart Beat Sensor
3. ECG Sensor
4. Raspberry pi
5. Battery
6. Button
7. GSM Module
8. GPS Module

**Database:**

1. MongoDB
2. Firebase

**Communication protocol:**

1. Hashing Algorithm

**Chapter Summary:**

In this chapter we define functional and not functional requirements. In this chapter we define our system has three user admin, patient and doctor. We are insuring data integrity by implementing Hashing algorithm. Our system performance depends on Internet speed.

**Use case (Full Dress):**

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| --- | --- |
| Use Case | **Add new Doctor** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin can add doctor details into database |
| Pre-condition: | Open All doctor list page . |
| Post-condition: | Information should save in to the database and generate id. |
| Reference: | Admin must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Admin click button ” **Add new Doctor**” on dashboard page. | 2. Add new doctor page is open. |
| 3**.** Admin will enter Doctor name, father name, address, qualification, phone number, date and click on “**Add Doctor**” button . | 4. System get all values from input field and save into database.  a. If data is saved then it show message  “Doctor Successfully Added”.  b. if data is not saved then it show error  message. |

**2.**

|  |  |
| --- | --- |
| Use Case | **Delete doctor** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin can delete doctor by clicking on delete button |
| Pre-condition: | Open see doctor page. |
| Post-condition: | Information should delete from database. |
| Reference: | Admin must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Admin click ”**See all Doctor button** ” | 2. All doctor list retrieved from database and show on page. |
| 3**.** Admin will select required doctor . | 4. Doctor details page is open and data is show on this page |
| 5. Admin click on delete button. | 6. System delete doctor from database.  a. If data is delete then it show message  “Doctor Successfully deleted”.  b. if data is not delete then it show error  message. |

**3.**

|  |  |
| --- | --- |
| Use Case | **See All Doctor and Search** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin can search and see all doctor list and details by click on button |
| Pre-condition: | Open doctor list page. |
| Post-condition: | All doctor list should retrieved from the database and display on page and |
| Reference: | User must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1. Admin can click ”**See all doctor button** ” | 2. All doctor list retrieved from database and show on page.  . |
| 3. Admin can click on “**search box**” and search for doctor | 4. Doctor detail retrieved from database and show on page |

**4.**

|  |  |
| --- | --- |
| Use Case | **See Doctor Details** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin can see doctor details. e.g. personal details and assigned patient list by clicking on see doctor button. |
| Pre-condition: | Open all doctor list page. |
| Post-condition: | Doctor details page open. |
| Reference: | Administrator must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Admin click on ”**See doctor detail**” button | 2. Selected Doctor detail retrieved from database and show on page. |

**5.**

|  |  |
| --- | --- |
| Use Case | **See all patients categorized by disease or doctor** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin can see patient list filter on disease or doctor |
| Pre-condition: | Open all patient list page. |
| Post-condition: | Patient must filter by category wise. |
| Reference: | Admin must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Admin can select category and click on ”**See all patients button** ” | 2. All patientslist retrieved according to category from database and show on page. |

**6.**

|  |  |
| --- | --- |
| Use Case | **Delete Patient** |
| Primary Actors | Administrator, Observer |
| Secondary Actor | None |
| Purpose | Admin can delete patient by clicking on delete button |
| Pre-condition: | Open see patient page. |
| Post-condition: | Information should delete from database. |
| Reference: | Administrator must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Admin click ”**See all patients** **button** ” | 2. All patient list retrieved from database and show on page. |
| 3**.** Admin will select required patient. | 4. Patient details page is open and patient data is show on this page. |
| 5. Admin click on delete button. | 6. System delete Patient from database.  a. If data is delete then it show message  “Patient Successfully deleted”.  b. if data is not delete then it show error message. |

**7.**

|  |  |
| --- | --- |
| Use Case | **Add new Patient** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin can add patient details into database |
| Pre-condition: | Open All patient list page . |
| Post-condition: | Information should save in to the database and generate id. |
| Reference: | Administrator must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Admin click button ” **Add new patient**” on dashboard page. | 2. Add new patient page is open. |
| 3**.** Admin will enter patient name, father name, address, , phone number, date, , device id and click on “**Add patient**” button . | 4. System get all values from input field and save into database.  a. If data is saved then it show message  “patient Successfully Added”.  b. if data is not saved then it show error  message. |

**8.**

|  |  |
| --- | --- |
| Use case | **Assign doctor to patient** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin can assign doctor to patient by clicking a assign doctor button and select doctor and click add button. |
| Pre-condition: | Open patient details page. |
| Post-condition: | Doctor must assigned to patient |
| Reference: | User must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Admin click ”**Assign Doctor button** ” | 2. All doctor list retrieved from database and show on page. |
| 3. Admin Select doctor and click add doctor button. | 4. The selected doctor are assigned to patient.  a. If doctor are assigned then it show  message “Doctor Successfully  Assigned”.  b. If soldiers are not assigned then it  show error message. |

**9.**

|  |  |
| --- | --- |
| Use case | **Emergency Alert Notification** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin get alert if patient health is critical. |
| Pre-condition: | Admin must login on web panel. |
| Post-condition: | Alert notification is must display on web panel. |
| Reference: | Admin must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
|  | 1.Alert notification is activate when patient is register and System show the Alert notification to admin if patient health is critical. |

**10.**

|  |  |
| --- | --- |
| Use Case | **Show patient details** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin can see patient personal information and location and heartbeat, temperature, ECG on graph. |
| Pre-condition: | Open patient details page |
| Post-condition: | All correct data display on screen. |
| Reference: | Admin must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Admin click ”**See all patient button** ” | 2. All patientlist retrieved from database and show on page. |
| 3. Admin select required patient. | 4. Patientdetail show on the page. |

**11.**

|  |  |
| --- | --- |
| Use case | **Login** |
| Primary Actors | Administrator |
| Secondary Actor | None |
| Purpose | Admin can login using email address and password. |
| Pre-condition: | Open web panel. |
| Post-condition: | Must open dashboard page. |
| Reference: | Admin must register. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1. Admin input email address and password for Login and click on “**Login”** Button. | 1. System verify email and password from database.   a. If email and password are valid  then it show message “Login  Successfully”.  b. If email and password are invalid  then it show “invalid phone number  and password “ message. |

**Patient Android App**

**12.**

|  |  |
| --- | --- |
| Use case | **Login** |
| Primary Actors | Patient |
| Secondary Actor | None |
| Purpose | Patient can login using phone number and password. |
| Pre-condition: | Must patient details page. |
| Post-condition: | Input all values in required field and click “**login”** button. |
| Reference: | Patient must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1. Patient input phone number and password and click on “**Login”** Button. | 2. System verify phone number and password from database  a. If phone number and password are  valid then it show message  “Login Successfully”.  b. If phone number and password are  invalid then it show “invalid phone  number and password “ message. |

**13.**

|  |  |
| --- | --- |
| Use Case | **See All Doctor and Search** |
| Primary Actors | Patient |
| Secondary Actor | None |
| Purpose | Patient can search and see all doctor list. |
| Pre-condition: | Open doctor list page. |
| Post-condition: | All doctor list should retrieve from the database and display on page and |
| Reference: | User must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1. Patient can click” See **all doctor button**” | 2. All doctor list retrieved from database and show on page.  . |
| 3. Patient can click on “**search box**” and search for doctor | 4. Doctor retrieved from database and show on page |

**14.**

|  |  |
| --- | --- |
| Use Case | **Show patient details** |
| Primary Actors | Patient |
| Secondary Actor | None |
| Purpose | Admin can see patient personal information and location and heartbeat, temperature, ECG on graph. |
| Pre-condition: | Open patient details page |
| Post-condition: | All correct data display on screen. |
| Reference: | Patient must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Admin click ”**See all patient button** ” | 2. All patientlist retrieved from database and show on page. |
| 3. Admin select required patient. | 4. Patientdetail show on the page. |

**15.**

|  |  |
| --- | --- |
| Use case | **Emergency Alert Notification** |
| Primary Actors | Patient |
| Secondary Actor | None |
| Purpose | Admin get alert if patient health is critical. |
| Pre-condition: | Admin must login on web panel. |
| Post-condition: | Alert notification is must display on web panel. |
| Reference: | Patient must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
|  | 1. Alert notification is activate when patient is login and System show the Alert notification to admin if patient health is critical. |

**16.**

|  |  |
| --- | --- |
| Use case | **Send message to doctor** |
| Primary Actors | Patient |
| Secondary Actor | None |
| Purpose | Patient can send message to doctor and take advice. |
| Pre-condition: | Open chat page. |
| Post-condition: | Message must sent to required doctor. |
| Reference: | Patient must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1. Patient select doctor | 2. chat page is open. |
| 3.Patient send massage to the doctor by clicking on **“Send” button.** | 4. System transfer patient’s massage to the doctor. |

**17.**

|  |  |
| --- | --- |
| Use Case | **See all medicine prescriptions list (prescribe by doctor )** |
| Primary Actors | Patient |
| Secondary Actor | None |
| Purpose | Patient can see prescriptions list. |
| Pre-condition: | Open all prescriptions list page. |
| Post-condition: | Show all prescriptions related to patient. |
| Reference: | Patient must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1. Patient click ” **See all medicine prescriptions list button** ” | 2. Patient Medicine prescriptions list retrieved from database and show on page. |

**Doctor Android App**

**18.**

|  |  |
| --- | --- |
| Use Case | **Login** |
| Primary Actors | Doctor |
| Secondary Actor | None |
| Purpose | Doctor can login using phone number and password. |
| Pre-condition: | Open app. |
| Post-condition: | Must all patient page. |
| Reference: | Doctor must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Doctor input phone number, password. And click on “**login button”.** | 2.  Get phone number and password and verify from database.  a. If data is correct then it show message  “Successfully logged in”.  b. if data is not correct then it show  “invalid phone number and password “  message |

**19.**

|  |  |
| --- | --- |
| Use Case | **Emergency Alert Notification** |
| Primary Actors | Doctor |
| Secondary Actor | None |
| Purpose | Doctor get alert if patient health is critical. |
| Pre-condition: | Doctor must login on app. |
| Post-condition: | Alert notification is must display on mobile. |
| Reference: | Doctor must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
|  | 1. Alert notification is activate when patient is login and system show the Alert notification to doctor if patient health is critical. |

**20.**

|  |  |
| --- | --- |
| Use Case | **See All Patient and Search** |
| Primary Actors | Doctor |
| Secondary Actor | None |
| Purpose | Doctor can search and see all patient list. |
| Pre-condition: | Open patient list page. |
| Post-condition: | All patient list should retrieve from the database and display on page and |
| Reference: | User must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1. Doctor can click” See **all doctor button**” | 2. All Patient list retrieved from database and show on page.  . |
| 3. Doctor can click on “**search box**” and search for patient | 4. Patient retrieved from database and show on page |

**21.**

|  |  |
| --- | --- |
| Use Case | **Show patient details** |
| Primary Actors | Doctor |
| Secondary Actor | None |
| Purpose | Doctor can see patient personal information, location and heartbeat, temperature, ECG on graph. |
| Pre-condition: | Open patient details page |
| Post-condition: | All correct data display on screen. |
| Reference: | Doctor must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Doctor click ”**See all patient button** ” | 2. All patientlist retrieved from database and show on page. |
| 3. Doctor select required patient. | 4. Patientdetail show on the page. |

**22.**

|  |  |
| --- | --- |
| Use case | **Send message to Patient** |
| Primary Actors | Doctor |
| Secondary Actor | None |
| Purpose | Doctor can send message to patient and give advice. |
| Pre-condition: | Open chat page. |
| Post-condition: | Message must sent to required patient. |
| Reference: | Doctor must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1. Doctor select patient | 2. chat page is open. |
| 3. Doctor send massage to the patient by clicking on **“Chat Page”.** | 4. System transfer Doctor’s massage to the patient. |

**23.**

|  |  |
| --- | --- |
| Use case | **See medicine prescriptions list patient wise** |
| Primary Actors | Doctor |
| Secondary Actor | None |
| Purpose | Doctor can see prescriptions list patient wise. |
| Pre-condition: | Open prescriptions list page. |
| Post-condition: | Show all prescriptions related to selected patient. |
| Reference: | Doctor must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1**.** Doctor click ”**See all patients** **button** ” | 2. All patient list retrieved from database and show on page. |
| 3**.** Doctor will select required patient. | 4. Patient details page is open and patient data is show on this page. |
| 5. Doctor click on **“Medicine prescriptions list”** button. | 6. Medicine prescriptions list display on the screen |

**24.**

|  |  |
| --- | --- |
| Use case | **Add medicine prescription for patient** |
| Primary Actors | Doctor |
| Secondary Actor | None |
| Purpose | Doctor can add medicine prescription for patient. |
| Pre-condition: | Open prescriptions list page. |
| Post-condition: | Prescription data added into database. |
| Reference: | Doctor must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1. Click on medicine prescription page. | 2**.** System will open medicine prescription page |
| 3. Add prescription and select patient and click on “**Add button**”. | 4.System will store data in database and show massage **“Prescription saved Successfully”**  . |

**25.**

|  |  |
| --- | --- |
| Use case | **Show Profile** |
| Primary Actors | Doctor |
| Secondary Actor | None |
| Purpose | Doctor can see his personal information |
| Pre-condition: | Open profile page |
| Post-condition: | All correct profile data display on screen. |
| Reference: | Doctor must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1.Doctor click on **“show profile button”** | 2**.** System will show doctor profile on the screen. |

**26.**

|  |  |
| --- | --- |
| Use case | **Add patient to Doctor patients list** |
| Primary Actors | Doctor |
| Secondary Actor | None |
| Purpose | Doctor can add patient to his patient list by clicking a add patient button and select patient and click add button. |
| Pre-condition: | Open patient list page. |
| Post-condition: | Doctor must assigned to patient |
| Reference: | Doctor must login. |

**Main Success Scenario**

|  |  |
| --- | --- |
| 1- Doctor click on see all patient button | .2- All old patient retrieved from database and show on page. |
| 3- Doctor can click on add patient button and | 4.All Patient retrieved from database and show on page. |
| 5-Doctor can select patient and click add button. | 6- Patient will added into doctor patient list. |

**IOT Based gadget**

**27.**

|  |  |
| --- | --- |
| Use case | **Send Health Data** |
| Primary Actors |  |
| Secondary Actor | None |
| Purpose | IOT device send data to server and saved into database |
| Pre-condition: | Device is on . |
| Post-condition: | Information should save in to the database. |
| Reference: | None |

**Main Success Scenario**

|  |  |
| --- | --- |
|  | 1-Send automatically data to server |

**28.**

|  |  |
| --- | --- |
| Use case | **Send Emergency Alert Notification** |
| Primary Actors |  |
| Secondary Actor | None |
| Purpose | Device send alert if patient health is critical. |
| Pre-condition: | Device is on. |
| Post-condition: | Alert notification is must display on mobile and web panel. |
| Reference: | None |

**Main Success Scenario**

|  |  |
| --- | --- |
|  | **1-** Device send alert if patient health is critical. |

**USE CASE Diagram:**