System Requirements Statement (SRS) –

VaccAlert – Child Vaccination Management System

1. Introduction 3

2. Functional Requirements 4

2.1 Parent Module 5

2.2 Hospital Module 11

2.3 admin Module 17

2.4 message acknoeledgement Module 21

2.5 Use Case Diagram.............................................................................................................................22

THIS DOCUMENT CONTAINS 20 NUMBERED PAGES

# Introduction

This document explains the **system requirements and scope** for developing the **VaccAlert – Child Vaccination Management System**.

VaccAlert is divided into three main parts: the **Parent module**, the **Hospital module**, and the **Admin module**. These modules work together to ensure smooth management and monitoring of childhood vaccination records, schedules, and appointment processes.

This document describes the **system requirements** for each part of the application, including form-level input expectations, field validations, backend REST API interactions, and frontend behavior on success or failure.

# Functional Requirements

The VaccAlert System has three modules which are divided into various processes as described below:

|  |  |  |
| --- | --- | --- |
| **No** | **BRS requirement ID** | **Description** |
| **2.1** | **Parent Module** | |
| **2.1.1** | **F1** | **Register – Create a new account as a parent.** |
| **2.1.2** | **F2** | **Login – Secure login to access parent dashboard.** |
| **2.1.3** | **F3** | **Manage Child Records – Register, view, and update the child’s vaccination data.** |
| **2.1.4** | **F4** | **Register Child – Add a new child profile under the parent account.** |
| **2.1.5** | **F5** | **View Child Records – Display existing vaccination records of the child.** |
| **2.1.6** | **F6** | **Update Child Records – Edit previously entered child details.** |
| **2.1.7** | **F7** | **View Vaccination Schedule – View upcoming and past vaccination dates.** |
| **2.1.8** | **F8** | **View Vaccination Details – Get complete info about vaccines (age, benefits, side effects).** |
| **2.1.9** | **F9** | **Book/Cancel Appointment – Schedule or cancel vaccination slots.** |
| **2.1.10** | **F10** | **View Reminder – Get alerts or notifications before scheduled dates.** |
| **2.1.11** | **F11** | **View Reports – Summary of child’s vaccination history.** |
| **2.2** | **Hospital Module** | |
| **2.2.1** | **F12** | **Request for Register – Request admin approval for hospital account.** |
| **2.2.2** | **F13** | **Login – Secure login for hospital staff.** |
| **2.2.3** | **F14** | **View Vaccine Availability – Show current vaccine stock and status.** |
| **2.2.4** | **F15** | **View Appointments – View all parent-booked vaccination appointments.** |
| **2.2.5** | **F16** | **Record Vaccinations – Mark administered vaccinations for children.** |
| **2.2.6** | **F17** | **Update Vaccination Availability – Manually update available vaccine stock.** |
| **2.2.7** | **F18** | **Manage Vaccine Data – Add or update vaccine info (name, description, side effects).** |
| **2.2.8** | **F19** | **Update Time Slots – Set/edit hospital time slots for vaccination appointments.** |
| **2.3 Admin Module** | | |
| **2.3.1** | **F20** | **Login – Secure backend access for admin users.** |
| **2.3.2** | **F21** | **View User – View, approve, or deactivate parents and hospitals.** |
| **2.3.3** | **F22** | **Generate Reports – Create system-level reports (vaccination stats, user logs).** |
| **2.3.4** | **F23** | **Authenticate Hospital – Verify and validate hospital credentials before approval.** |
| **2.3.5** | **F24** | **Approve Hospital Requests – Accept or reject registration requests from hospitals.** |

## Parent Module

## ****2.1.1 Register****

VaccAlert compels account creation for parents before accessing any child-related functionalities. The process is divided into:

### ****1. Login Information****

* Fields:
  1. **UserID** (text input)
  2. **Password** (password field)
  3. **First Name** (text field)
  4. **Last Name** (text field)
  5. **Email Address** (email field)
  6. **User Type** (dropdown – preloaded with "Parent" only)
* **Validations**:
  1. All fields are **required**.
  2. **UserID** must be **unique** and not case-sensitive.
  3. **Password** must:
     + Be **8 to 16 characters**
     + Include at least **1 capital letter**, **1 small letter**, **1 digit**, and **1 special character**
  4. Password and Re-enter Password must match.
* **Backend Processing**:
  1. User info is posted to a registration REST API.
  2. Password is **encrypted** before saving.
  3. User Type = “Parent” is assigned automatically.
* **UI Update**:
  1. **Success**: Show confirmation message and redirect to login.
  2. **Failure**: Display field-specific errors or general message.

### ****2. Contact Details****

* Fields:
  1. **Permanent Address** (text area)
  2. **State** (dropdown – preloaded from state list API)
  3. **Phone Number** (text field)
* **Validations**:
  1. All fields are **required**.
  2. Phone number must be **10 digits**, numeric only.

### ****3. Security Question****

* Fields:
  1. **Selected Question** (dropdown – preloaded with security questions)
  2. **Answer** (text field)
* **Validations**:
  1. Both fields are **mandatory**.
  2. Answer must be stored securely and used for password recovery.

### ****Screen Flow****:

* Page 1: Login Information
* Page 2: Contact Details & Security Question

## ****2.1.2 Login****

VaccAlert requires user authentication before access to the Parent Dashboard.

* **Required Input**:
  1. **UserID** (text input)
  2. **Password** (password field)
* **Validations**:
  1. All fields are required.
  2. User must be of **type Parent**.
  3. Account must be **approved** (not suspended or deleted).
* **Backend Processing**:
  1. REST API checks UserID + Password + UserType.
  2. API responds with token and user profile if authenticated.
* **UI Update**:
  1. **Success**: Redirect to Parent Dashboard.
  2. **Failure**: Show appropriate message like “Invalid login” or “Account not approved.”

## ****2.1.3 Manage Child Records****

Parents can register one or more children to maintain vaccination tracking.

### ****Required Input****:

1. **Child Name** (text field)
2. **Date of Birth** (date picker)
3. **Gender** (radio buttons – Male, Female, Other)
4. **Blood Group** (dropdown – preloaded A+, A-, B+, etc.)
5. **Aadhar Number** (text field, optional)

* **Validations**:
  + All required fields must be filled.
  + DOB must be a **past date**.
  + Aadhar number must be **12 digits** if entered.
* **Backend Processing**:
  + REST API accepts full child data along with parent ID.
  + Data is stored securely under parent’s account.
* **UI Update**:
  + On add/update: Refresh list of children.
  + On failure: Field-specific or general error message.

## ****2.1.4 Register Child****

* Same as “Add” operation in Manage Child Records.
* Redirects to full registration form for a new child.

## ****2.1.5 View Child Records****

* Fetch and display all children linked to the logged-in parent.
* **Backend Processing**:
  + API fetches list of children for the parent.
* **UI Update**:
  + Display in card/table format with “Edit” and “View Schedule” options.

## ****2.1.6 Update Child Records****

* Opens selected child’s form in editable mode.
* **Validations**:
  + Same as in registration.
* **Backend Processing**:
  + API updates record based on child ID.

## ****2.1.7 View Vaccination Schedule****

* Based on child’s DOB, the system fetches age-specific vaccine plan.
* **Preloaded Fields**:
  + Age-vaccine mapping schedule (from backend or configuration file).
* **Backend Processing**:
  + API determines upcoming vaccines and dates.
* **UI Update**:
  + Display vaccine calendar with “Due”, “Taken”, and “Pending” indicators.

## ****2.1.8 View Vaccination Details****

* Parent clicks any vaccine to see:
  + Vaccine Name
  + Description
  + Age Range
  + Benefits
  + Side Effects
* **Backend Processing**:
  + API fetches vaccine info by ID.

## ****2.1.9 Book/Cancel Appointment****

### ****Booking Input****:

1. **Hospital Name** (dropdown – preloaded from API)
2. **Date** (date picker – filter only available dates)
3. **Time Slot** (dropdown – based on hospital availability)

* **Validations**:
  + Must select date/time.
  + Can’t book two appointments for same child & vaccine.
* **Backend Processing**:
  + API creates or deletes an appointment record.
  + Checks slot availability.
* **UI Update**:
  + **Booked**: Show success message.
  + **Canceled**: Slot removed from calendar.

## ****2.1.10 View Reminder****

* Shows alerts for:
  + Due vaccines (based on schedule)
  + Upcoming booked appointments
* **Backend**:
  + System fetches reminders based on current date and child's schedule.
* **UI**:
  + Alerts shown on dashboard with link to schedule page.

## ****2.1.11 View Reports****

* Generate report for each child showing:
  + Completed Vaccines
  + Missed/Upcoming Vaccines
  + Appointment History
* **Backend**:
  + REST API compiles data and returns in structured format.
* **UI Update**:
  + Show tabular summary.
  + Option to export as PDF.

## Hospital Module

Hospitals are healthcare institutions responsible for administering child vaccinations. The hospital module in VaccAlert allows hospital staff to manage vaccination appointments, update vaccine availability, and maintain vaccination records. This module requires admin authentication before usage.

## ****2.2.1 Request for Register****

* A hospital must request registration before logging into the system. This request is reviewed and approved by the Admin.

### ****Required Input****:

1. Hospital Name (text field)
2. Hospital Email (email field)
3. Address (text area)
4. Contact Number (text field)
5. State (dropdown – preloaded)
6. License Number (text field)
7. Password (password field + confirm password)

### ****Validation****:

* All fields are mandatory.
* Email and license must be **unique**.
* Password must:
  + Be 8–16 characters long
  + Include uppercase, lowercase, digit, and special character
* Phone number must be 10 digits.

### ****Backend Processing****:

* REST API receives and stores hospital registration request.
* Sends notification to admin for approval.

### ****UI Update****:

* On success: “Registration request submitted. Awaiting admin approval.”
* On failure: Error message (e.g., “Email already in use”).

## ****2.2.2 Login Process****

* Only approved hospitals can log in to manage records and appointments.

### ****Required Input****:

1. Email/UserID (text field)
2. Password (password field)

### ****Validation****:

* UserID and password must match.
* Hospital must be approved by the Admin.

### ****Backend Processing****:

* REST API authenticates credentials and user type = Hospital.
* Returns session token and hospital info on success.

### ****UI Update****:

* On success: Redirect to Hospital Dashboard.
* On failure: “Invalid credentials” or “Approval pending.”

## ****2.2.3 View Vaccine Availability****

* Allows hospitals to check their current vaccine stock.

### ****Preloaded Fields****:

* Vaccine list from backend
* Each vaccine’s stock count

### ****Backend Processing****:

* REST API fetches available vaccines and quantities.

### ****UI Update****:

* Show table of:
  + Vaccine Name
  + Available Quantity
  + Expiry Date (optional)

## ****2.2.4 View Appointments****

* Shows the list of upcoming vaccination appointments booked by parents.

### ****Preloaded Fields****:

* Date range filters (Today, This Week, Custom)
* Filter by vaccine or child name

### ****Backend Processing****:

* API fetches hospital-specific appointments.

### ****UI Update****:

* Show list with:
  + Child Name
  + Vaccine
  + Time Slot
  + Status (Scheduled, Completed)

## ****2.2.5 Record Vaccinations****

* Used to mark a child’s scheduled vaccination as completed.

### ****Required Input****:

1. Child ID (preloaded or scanned)
2. Vaccine Name (dropdown – preloaded)
3. Date of Administration (auto-filled with today, editable)
4. Comments (optional)

### ****Validation****:

* Child must have a booked appointment for that vaccine.

### ****Backend Processing****:

* API updates vaccine status for the child.

### ****UI Update****:

* On success: Vaccine status updated in schedule.
* On failure: “No matching appointment found.”

## ****2.2.6 Update Vaccine Availability****

* Allows manual updating of stock quantities for each vaccine.

### ****Required Input****:

* Vaccine Name (dropdown – preloaded)
* New Stock Count (number input)
* Expiry Date (optional – date picker)

### ****Validation****:

* Stock count must be positive integer.

### ****Backend Processing****:

* API updates vaccine inventory.

### ****UI Update****:

* On success: Table refreshes with new stock.
* On failure: “Update failed” message.

## ****2.2.7 Manage Vaccine Data****

* Allows hospital to add/update information about new or existing vaccines.

### ****Required Input****:

1. Vaccine Name (text field)
2. Description (text area)
3. Recommended Age Range (text field or dropdown)
4. Side Effects (text area)

### ****Validation****:

* All fields required.
* Name must be unique.

### ****Backend Processing****:

* API stores/updates vaccine master data.

### ****UI Update****:

* On success: “Vaccine information updated.”
* On failure: “Vaccine name already exists.”

## ****2.2.8 Update Time Slots****

* Hospitals define the available time slots for appointments.

### ****Required Input****:

1. Date (date picker)
2. Time Slot (dropdown or custom range)
3. Maximum Appointments (number input)

### ****Validation****:

* Max must be a positive number.
* Time slot must not overlap with existing ones.

### ****Backend Processing****:

* API stores slot availability for booking purposes.

### ****UI Update****:

* On success: New slots shown in appointment calendar.
* On failure: “Slot conflict” message.

## Admin Module

The **Admin Module** in VaccAlert is designed for system administrators who manage hospital approvals, monitor user activity, and maintain backend data such as vaccine information and reporting. Admin users are pre-configured and cannot be created from the front end.

## ****2.3.1 Login Process****

* Admin users are required to log in securely to access the system's administrative backend.

### ****Required Input****:

1. **UserID or Email** (text field)
2. **Password** (password field)

### ****Validation****:

* Both fields are mandatory.
* Password must match an existing Admin user.
* Role must be **Admin**.

### ****Backend Processing****:

* REST API verifies admin credentials.
* If valid, API returns admin token and profile data.

### ****UI Update****:

* **Success**: Redirect to Admin Dashboard
* **Failure**: “Invalid credentials” or “Unauthorized access”

## ****2.3.2 View User****

* Admin can view and manage both **Parent** and **Hospital** users.

### ****Preloaded Fields****:

* User list fetched from the database:
  + Name
  + Email/UserID
  + User Type (Parent or Hospital)
  + Status (Active/Inactive/Pending)

### ****Actions Available****:

* Activate/Deactivate Parent
* Approve/Suspend Hospital
* Filter by User Type or Status

### ****Backend Processing****:

* REST API fetches all users with filters.
* API updates status if Admin performs enable/disable.

### ****UI Update****:

* Table reloads after each action.
* Confirmation dialog shown for each update.

## ****2.3.3 Generate Reports****

* Admin can generate system-level reports on:
  + Registered users
  + Completed vaccinations
  + Appointment statistics
  + Vaccine stock summary

### ****Required Input****:

* Date range (date pickers)
* Report type (dropdown)

### ****Backend Processing****:

* REST API compiles requested report and returns in JSON/PDF format.

### ****UI Update****:

* Table or chart view of results.
* Option to **download report** as PDF/CSV.

## ****2.3.4 Authenticate Hospital****

* Admin manually verifies the details submitted by hospitals during the **Request for Registration** process.

### ****Preloaded Fields****:

* Hospital request list (status: “Pending”)

### ****Actions Available****:

* View Details
* Approve or Reject

### ****Backend Processing****:

* REST API fetches hospital data.
* On approval, status is updated and hospital is notified.

### ****UI Update****:

* Hospital entry updated in table (status: “Approved” or “Rejected”).
* Alert sent to hospital on success.

## ****2.3.5 Approve Hospital Requests****

* Part of authentication flow; enables final decision by admin after validation.

### ****Required Input****:

* No new inputs — action is taken from pending request view.

### ****Validation****:

* Must review submitted license and contact info.

### ****Backend Processing****:

* Changes hospital’s account status in backend DB.

### ****UI Update****:

* Updated view showing status and timestamp.
* Confirmation message: “Hospital Approved” or “Request Rejected.”

#### 2.5 Use Case Diagram

## ****2.5.1 Parent Module – Use Case Description****

The **Parent** user can manage their child’s vaccination lifecycle.

**Major Use Cases**:

* Register/Login
* Manage Child Records
* View Schedule & Vaccine Info
* Book/Cancel Appointments
* View Reminders & Reports

This module ensures parents can track and manage their child’s vaccination smoothly.

## ****2.5.2 Hospital Module – Use Case Description****

**Hospitals** manage appointments and vaccination operations.

**Major Use cases**:

* Request for Register & Login
* View Appointments
* Record Vaccinations
* Manage Vaccine Data & Availability
* Update Time Slots

This module supports daily vaccination workflows at healthcare centers.

## ****2.5.3 Admin Module – Use Case Description****

The **Admin** oversees the system and manages users.

**Major Use Cases**:

* Login
* View Users
* Authenticate & Approve Hospitals
* Generate Reports

Admins ensure system reliability, user verification, and reporting.

