

VAXERA

Shielding Lives with Innovation



contact@VAXEra.com

OUR PLAN :

- 1. project Idea
- 2. Problem Statement & Current System Review
- 3. Competitor Study
- 4. Application Users
- 5. Functional Requirements:
Modules & Roles
- 6. Non-Functional requirements
- 7. Graphic Charter

PROJECT IDEA

Project Name: VAXEra

theme: Smart Vaccination and Biological Research Center

Objective: Develop an intelligent application for the management of vaccination and biological research, integrating IoT and Arduino technologies for real-time tracking of vaccines, patients, personnel, equipment, and laboratory experiments.



PROBLEM STATEMENT & CURRENT SYSTEM REVIEW

PROBLEM STATEMENT

- Current methods rely on paper systems or local databases.
- Low traceability, inefficient management, and lack of technological integration.



ANALYSIS OF EXISTING SYSTEMS

- Traditional non-automated management.
- No real-time tracking.
- Risks of human error and data loss

COMPETITOR STUDY



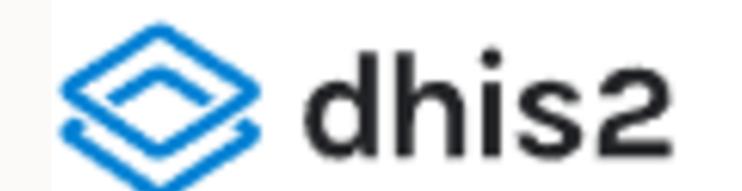
No native IoT/Arduino integration.

Not specialized in real-time vaccine tracking or biomedical equipment monitoring.



Focused on logistics, not patient histories or laboratory research.

No smart stock alerting via sensors or embedded hardware integration.



Geared toward public health reporting, not clinical or lab-specific equipment monitoring.

Lacks Arduino integration and real-time stock tracking features.

APPLICATION USERS

- **Vaccine Management** : Pharmacist,Administrator
- **Patient Management** : Doctor, Medical Secretary
- **Personnel Management** : HR Manager, Doctor
- **Laboratory Management** : Researcher,
Technician
- **Equipment Management** : Equipment Manager,
Technician

FUNCTIONAL REQUIREMENTS: MODULES & ROLES



FUNCTIONAL NEEDS OVERVIEW

The app will include 5 modules, each featuring:

**CRUD
Operations**

**Real-time
Scenarios with
Arduino**

**Role-based
functionalities**

Vaccine Management

Users: Pharmacists, Admin

- Track stock, expiry, suppliers
- Alerts for expiry & low stock
- Filter by type and expiration date
- Vaccine lot tracking

Patient Management

Users: Doctors, Medical Secretaries

- Vaccination history & alerts
- Appointment scheduling
- Medical history management
- Vaccination certificates generation

Staff Management

Users: HR Managers, Doctors

- Manage roles, schedules, certifications
- Assign consultations
- Generate activity reports

Lab Management

Users: Researchers, Lab Technicians

- Manage experiments and samples
- Monitor protocols and results
- Publish research reports

Equipment & Infrastructure

Users: Equipment Managers, Technicians

- Inventory of medical tools
- Maintenance scheduling
- Consumables tracking
- Equipment status monitoring

ARDUINO INTEGRATION – USE CASES

01

SECURE ACCESS CONTROL:

Uses a fingerprint sensor or RFID (INPUT) to authorize access, and a servo motor (OUTPUT) to open the door if access is granted.

02

VACCINE TEMPERATURE MONITORING:

A temperature sensor (INPUT) continuously monitors the refrigerator's temperature, triggering a LED and sound alarm (OUTPUT) if the temperature exceeds a critical threshold.

03

AMBIENT HEALTH SOUND DETECTOR:

A microphone captures ambient sounds (coughing, murmurs, commotion), an AI module analyzes these noises, and a directional speaker (OUTPUT) emits voice alerts in real time to warn people in case of an abnormal situation.



NON-FUNCTIONAL REQUIREMENTS

Strong data security

Compatibility with health protocols

Real-time performance and system responsiveness

GRAPHIC CHARTER



VAXERA LOGO OVERVIEW

The VaxeRa logo combines a heart, a syringe, and a digital pulse line to symbolize the intersection of care, vaccination, and innovation.

- **Heart:** Represents compassion and healthcare.
- **Syringe:** Symbolizes vaccination efforts.
- **Pulse Line:** Highlights the smart, tech-driven monitoring aspect.
- **Color Palette:** Blue and green evoke trust, safety, and health innovation.





Your journey starts here
Take the first step



Username



Password

[Forgot password ?](#)

Sign in

or



You dont have an account ? [Sign up](#)



[Back to sign in](#)

Sign Up



Username



Email



Password



Confirm Password

Sign up

By signing up you agree to our [terms and conditions](#) !

VAXERA : VACCIN MANAGEMENT

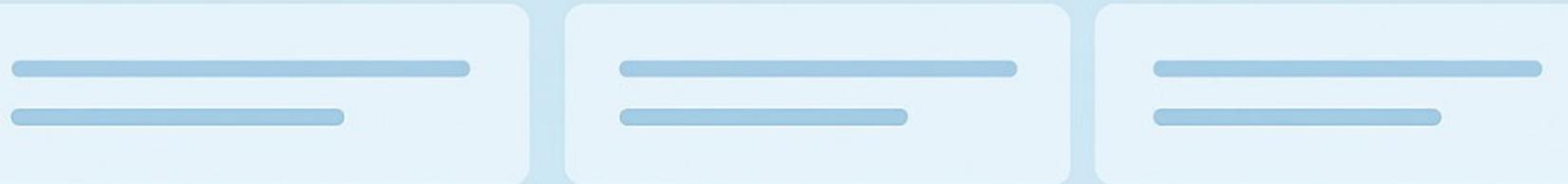
Vaccine Management



Vaccine

ID Vaccin	Expiration Date	Statistics
Expiration Date	Batch Number	Expiration Alerts
primary		Filter
Stock Quantity	Supplier	

Add Cancel



Home

Patient Management

Staff Management

Lab Management

VAXERA : PATIENT MANAGEMENT

The screenshot displays the VAXERA Patient Management application. On the left is a dark blue sidebar with white icons and text:

- Home (house icon)
- Vaccine Management (syringe icon)
- Staff Management (people icon)
- Laboratory Management (lab flask icon)

The main area has a light blue header with a syringe icon and the title "Patient Management". Below the header is a "Patient" section containing the following fields:

Patient ID	First Name
Date of Birth	Sex
Address	Phone Number
Email	Amail

On the right side of the main area are four blue rectangular buttons:

- Vaccination History (vial icon)
- Appointment Management (calendar icon)
- Reminder Alerts (alarm icon)
- Generate Certificate (certificate icon)

At the bottom of the main area are three horizontal progress bars.

At the very bottom of the page is a footer bar with three items: a blue button labeled "Save", a white button labeled "Cancel", and a blue button labeled "Print".

VAXERA : PERSONNEL MANAGEMENT

The screenshot displays the VAXERA Personnel Management application. On the left, a dark blue sidebar menu lists four main modules: Home, Patient Management, Lab Management, and Personnel Management, with the last one currently selected. The main content area has a light blue header with the title "Personnel Management". Below the header is a "Personnel" form containing the following fields:

- Personnel ID (input field)
- First Name (input field)
- Speciality (dropdown menu)
- Certifications (input field)
- Availability (input field)
- Contact (input field)
- Email (input field)
- Assignment (dropdown menu)

At the bottom of the form are two buttons: "Save" and "Cancel". To the right of the form, there is a vertical column of five blue rectangular buttons, each with an icon and text:

- Schedule Management
- Consultation Assignment
- Access Patient Records
- Generate Certificate

VAXERA : LABO MANAGEMENT

Experiments

- [Home](#)
- [Vaccine Management](#)
- [Patient Management](#)
- [Personnel Management](#)

[Publish Report](#) [Manage Samples](#) [Track Protocols](#) [Schedule Tests](#) [Monitor Results](#)

SMART VACCINATION AND BIOLOGICAL RESEARCH CENTER

Experiment Details

Experiment ID:

Experiment Name:

Description:

Protocol:

Status:

Start Date:

End Date:

Hexagonal molecular structures are visible in the background.

VAXERA : EQUIPMENT & INFRASTRUCTURE MANAGEMENT

Medical Infrastructure and Equipment Management



Medical Equipment

Equipment ID	Equipment name	Technician
Type (e.g. refrigerator, microscope)	Next maintenance date	Inventory
Condition (functional, under maintenance)	Location	Equipment Manager

Add Cancel

The screenshot shows a user interface for managing medical equipment. On the left is a sidebar with icons and labels: Home (house), Vaccine Management (syringe), Staff Management (people), and Laboratory Management (test tube). The main area has a title 'Medical Infrastructure and Equipment Management' and a sub-section 'Medical Equipment'. It contains a form with fields for Equipment ID, Equipment name, Type (e.g. refrigerator, microscope), Next maintenance date, Condition (functional, under maintenance), and Location. There are 'Add' and 'Cancel' buttons at the bottom. To the right of the form are three blue buttons labeled 'Technician', 'Inventory', and 'Equipment Manager'. An icon of a medical bed with a monitor is positioned above the technician button.

CONCLUSION



VAXEra is a leap forward in vaccination and biomedical research management, combining technology and health innovation for a safer future.