

**Software Requirement Document**

**One Portal – V1**

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# About LVPEI

LVPEI, is a renowned eye care organization based in India, established with the vision of providing high-quality eye care. LVPEI has become a leader in the field of ophthalmology, known for its comprehensive eye care services, research, and education.

LVPEI operates through a network of hospitals, clinics, and vision centers across various locations in India. It offers a wide range of services, including diagnostic evaluations, treatment for various eye conditions, surgeries, and rehabilitation programs. The institute is committed to providing accessible and affordable eye care services to underserved populations through its outreach programs.

In addition to its clinical services, LVPEI is actively involved in research and innovation in the field of ophthalmology. The institute conducts cutting-edge research to develop new treatment techniques, technologies, and solutions for eye diseases and disorders. LVPEI also focuses on training and education, offering various programs for ophthalmologists, optometrists, and allied eye care professionals.

LVPEI's commitment to excellence has earned it recognition and accolades both nationally and internationally. The institute has received several awards for its contributions to eye care and community service. LVPEI continues to strive towards its goal of eliminating avoidable blindness and ensuring comprehensive eye care for all.

# Purpose and Scope

                        The One Portal project is dedicated to developing a unified platform designed to simplify the management of various elements, including devices, customer information, and more. This platform will seamlessly integrate with LVPEI's OM and Pupil-X applications. Specifically, it will serve as the Clinician-Facing interface, enabling clinicians to access and review reports using customer login credentials.

# Document Overview

This document serves as a comprehensive guide to the software requirements for JARVIS (One Portal). It is organized to encompass a wide range of functionalities, such as device management, customer/tenant management, product integrations, user access, user management, and more. Each section provides in-depth insights into these functionalities, offering a clear and detailed understanding of the system's intended objectives and capabilities.

# Goals and Objectives

The goal of the JARVIS (One Portal) product appears to be creating a unified and versatile platform that serves multiple purposes within an organization or healthcare setting. Here are some potential goals or objectives for this product:

Streamlined Management

Simplify the management of various aspects of the organization, including devices, customer/tenant information, and other resources, to enhance operational efficiency.

Integration

Seamlessly integrate with existing software applications, such as LVPEI's OM and Pupil-X applications, to provide a cohesive and interconnected ecosystem.

Enhanced User Access

Provide a user-friendly interface that grants easy access to authorized users, ensuring efficient and secure utilization of the platform.

Reporting and Analytics

Enable clinicians and administrators to generate and analyze reports based on user login credentials, facilitating data-driven decision-making.

Scalability

Design the product to accommodate growth and changing needs, making it adaptable to evolving requirements and expanding organizations.

Improved Customer/Tenant Management

Enhance the ability to manage customer/tenant records, appointments, billing, and related information to improve the quality of service.

Efficient Device Management

Optimize device management processes, potentially including monitoring, maintenance, and utilization tracking, to ensure the reliability of medical equipment.

Cost Reduction

Streamline operations to reduce costs associated with manual processes, errors, or redundant tasks.

Compliance and Security

Ensure that the platform complies with relevant regulations and maintains high-security standards, especially when dealing with sensitive healthcare data.

User Training and Support

Provide training resources and customer support to ensure users can effectively utilize the platform and resolve any issues promptly.

# Functional Requirements

## Tenant Management

### Tenant Registration and Onboarding

To ensure the "One Portal" system provides a personalized and segregated experience for every customer, the platform offers a comprehensive tenant registration and onboarding module:

### Unique Tenant Identification

Each hospital or healthcare provider will be assigned a distinct identifier within the system to ensure data segregation and confidentiality.

### Information Capture

Essential details about the tenant, such as hospital name, address, contact information, and associated medical professionals, will be documented during registration.

### Onboarding Workflow

A structured, step-by-step guided process will be available to simplify the onboarding experience. This ensures all necessary data points are captured and the initial system configurations match the tenant's requirements.

## comments: need more information

## User Management

### User Registration and Profiles

"One Portal" provides a comprehensive user registration process tailored to cater to varying user roles within the system.

### Registration Form

Users will fill out a detailed form capturing essential details like name, email, designation, and associated medical entity.

### Verification Process

Email-based verification ensures that the user's email ID is genuine. This process helps in reducing fake accounts and improves data security.

### Profile Customization

After registration, users can customize their profiles, adding a profile picture, specifying their medical specialization, and setting communication preferences.

## Authentication and Authorization

Ensuring only authorized access to "One Portal" is paramount to maintain data integrity and security.

### Secure Login

Uses industry-standard encryption techniques to safeguard login credentials.

### Password Policies

Enforces strong password policies to ensure users set up passwords that are hard to breach. Includes periodic password change reminders.

### Two-Factor Authentication (2FA)

An additional layer of security where users verify their identity using a second factor, like an OTP sent to their mobile.

### Session Management

Automatic logouts after periods of inactivity, session time-outs, and session history reviews provide enhanced security.

## Role Assignments and RBAC (Role-Based Access Control)

Based on the hierarchy and needs of the system:

### Role Definition

Clearly defined roles of Super Admin, Admin, Sub-Admin, and User. Each role has specific permissions and access levels.

### Role Assignment

Super Admin can assign the 'Admin' role to specific users. Admins, when given reseller access, can create Sub-Admins or regular users within their domain.

### Permission Management

Admins can further refine access permissions for their users, ensuring that, for instance, a technician only has access to relevant sections of the platform.

## User Roles and Permissions

### Super Admin

The highest level of access in the "One Portal" system. Responsible for overarching system configurations, user management, and high-level analytics.

**System Configuration**

Can set system-wide settings, manage integrations, and oversee platform health.

**Admin Management**

Has the authority to create, manage, or revoke Admin users and grant them reseller access if needed.

**Audit & Compliance**

Can view system-wide activity logs, ensuring compliance with medical and data protection regulations.

### Admin

Admins are typically representatives of LVPEI's customers (healthcare entities). They manage their domain within the platform.

**User Management**

Can create Sub-Admins, technicians, doctors, and other roles within their domain.

**Data Management**

Oversee the data of their respective healthcare entity, ensuring accuracy and compliance.

**Reseller Access**

If granted by the Super Admin, an Admin can onboard other entities, acting as a reseller.

### User

These are end-users, like doctors, technicians, examiners, or nurses, who utilise the platform for their day-to-day activities.

* Data Access: Depending on their role, they can access patient data, medical reports, or device statistics.
* Task Management: Can schedule tasks, appointments, and manage their workflow.
* Feedback & Support: Users can raise tickets for any issues they encounter or provide feedback for platform improvement.

## Device Management

**Device Registration and Configuration**

The system will offer a comprehensive device registration process, allowing devices to be easily onboarded and configured for use within the network. This process will involve:

**Unique Device Identification**

Every device will be assigned a unique identifier to distinguish it within the system.

**Device Metadata Entry**

Basic information about the device, such as its type, manufacturer, model number, and other relevant details, will be captured during the registration process.

**Configuration Settings**

Devices can be configured based on their intended use, with settings adjusted for optimal performance.

**Compatibility Checks**

The system will perform checks to ensure the device is compatible with the network and any connected systems.

## Device Monitoring and Control

Once devices are onboarded, the system will offer tools for continuous monitoring and control:

**Real-time Monitoring**

Devices will be monitored in real-time, with metrics such as performance, battery life, and connectivity status readily available.

**Alerts and Notifications**

Any anomalies or issues with a device will trigger alerts, ensuring timely intervention.

**Remote Control**

Authorized users can remotely control devices, allowing for adjustments to settings or performing actions like restarts.

**Performance Analytics**

The system will analyze device performance over time, offering insights into usage patterns, potential maintenance needs, and overall device health.

## LVPEI Apps Integration with One Portal

To provide an effortless and unified way to access data from LVPEI's eye testing products, the system will deeply connect with the OM and Pupil-X applications. This connection will allow hospitals and healthcare providers to access reports from a single location using customer login credentials.5.1 Integration with OM Application

**Authentication and Authorization**

Role-Based Access: Access to OM data within the One Portal will be governed by predefined roles, ensuring that only authorized personnel can view or modify the data.

**Data Integration**

Real-Time Data Sync: As tests are performed using the OM application, results and metrics are instantly available within the One Portal.

**Functionality Access Control**

**Module-based Access**

Not all users need access to all features. Access to specific functionalities, like advanced analytics or patient history, can be controlled based on roles.

**Configurable Views**

Depending on the tenant's preference, they can customize which data points and functionalities are accessible and to whom.

**Data Segregation**

Ensure that tenants can only view data relevant to their patients and tests.

### Integration with Pupil-X Application

Pupil-X, another critical eye testing product of LVPEI, will also be integrated into the One Portal, offering a similar depth of data access.

**Authentication and Authorization**

Data Privacy: Role-based access controls will ensure patient data's confidentiality and integrity.

Data Integration

**Instant Data Availability:** Pupil-X application will have their results instantly reflected within the One Portal.

**Functionality Access Control**

Granular Access: Depending on user roles, specific functionalities within the Pupil-X module can be made accessible or restricted.

### Integration with OM Application

OM, another critical eye testing product of LVPEI, will also be integrated into the One Portal, offering a similar depth of data access.

**Authentication and Authorization**

**Seamless Transition**

Data Privacy: Role-based access controls will ensure patient data's confidentiality and integrity.

Data Integration

**Instant Data Availability**

OM application will have their results instantly reflected within the One Portal.

Functionality Access Control

**Granular Access**

Depending on user roles, specific functionalities within the OM module can be made accessible or restricted.

## Patient Report Management

Patient data is at the heart of any medical system, and in a platform as comprehensive as "One Portal", ensuring swift and accurate access to this data is of paramount importance. The following functionalities cater to this requirement:

#### Search Patient

The ability to rapidly and accurately locate a patient's data is crucial for healthcare efficiency:

#### Multi-Parameter Search

Users can initiate searches using various parameters:

#### Medical Record Number (MRN)

A unique identifier assigned to each patient, ensuring precise matches.

#### Patient Name

Useful for broader searches, with the system providing potential matches.

#### Mobile Number

An alternative search method, especially useful if patients have registered appointments or consultations using their mobile numbers.

#### Tenant-Based Filtering

Search results are refined based on the logged-in tenant. For instance, a user from Hospital A will primarily see results relevant to patients registered at Hospital A, ensuring data relevance and security.

#### Auto-Suggestion

As users type into the search bar, the system provides auto-suggestions, speeding up the search process and aiding in instances where the exact spelling or number might be uncertain.

## View Case Sheet/Report

Once a patient is located, the next step is to access their medical records and reports:

StructuredData Presentation

Patient data is organised systematically, breaking down into sections like personal details, medical history, recent tests, and more.

Access Control

The data presented is sensitive, and "One Portal" implements strict access controls. Only authorized personnel, based on their roles and permissions within the tenant hospital, can view detailed reports or case sheets.

Interactive Reports

Where applicable, reports might be interactive. For instance, a visual test result might allow users to zoom in, adjust brightness/contrast, or even annotate directly on the report.

Download & Share

Authorized users can download reports for offline usage or share them securely with other medical professionals for collaborative diagnosis or treatment planning.

## Report/Image/Video Access

For medical entities, the seamless access, retrieval, and management of patient reports, images, and videos is paramount. LVPEI's "One Portal" is designed to make this process efficient and secure:

**Centralized Repository**

"One Portal" will feature a centralized digital repository where all patient reports, diagnostic images, and relevant videos are stored. This repository ensures high-speed access while adhering to the strictest data protection standards.

**Advanced Search Capabilities**

Users can effortlessly search for specific patient records using multiple criteria, such as patient name, medical record number (MRN), date of the test, or type of report. This ensures that healthcare professionals can quickly retrieve the necessary information when it's needed most.

**Secure Access Control**

Given the sensitive nature of medical data, strict access controls will be in place. Only authorized personnel, based on their roles and permissions, can view or download reports, images, or videos. This ensures patient confidentiality and regulatory compliance.

**Multi-format Support**

The system will support various formats commonly used in medical imaging and documentation. Whether it's a DICOM image from an MRI or a PDF of a patient's case report, "One Portal" ensures compatibility and easy viewing.

**Cloud Integration**

For tenants who prefer cloud storage solutions or have existing data on cloud platforms, "One Portal" offers seamless integration. This ensures that regardless of where the data is stored, it's easily accessible through the platform.

**Annotations and Notes**

Healthcare professionals can add notes or annotations directly to reports or images. This is especially useful for highlighting specific areas in an image or adding supplementary information to a report.

## Data Collection and Analysis

The foundation of any analytics module is the data it gathers. For LVPEI's products:

**Continuous Data Capture**

"One Portal" continuously gathers data from integrated devices and SaaS products. This includes usage metrics, test results, operational durations, and more.

**Device-Specific Metrics**

Each device or SaaS product, like OM or Pupil-X, has unique metrics that the system captures. For instance, for OM, it might capture the number of tests conducted, test durations, pass/fail rates, etc.

**Analytical Tools**

The system employs advanced analytical tools to process this raw data, converting it into actionable insights. These might include trend analysis, peak usage times, or performance bottlenecks.

## Location Configuration

Given the possibility of a hospital having multiple branches or locations, the system offers:

**Multiple Location Entry**

Hospitals can register various branches, enabling each location to have its set of data and configurations.

**Location-specific Setting**

Each location can have its settings, from operational hours to the types of services offered.

**Map Integration**

Visual mapping allows for easy navigation to registered locations and provides the foundation for location-based analytics and reporting.

## Branding Customization

To offer a personalized experience:

**Custom Themes**

Tenants can customise the system's appearance based on their branding, including logos.

**Reports**

Produce reports incorporating the hospital's branding, ensuring consistency across all communications.

## Service Integrations and Configurations

## Error Logging and Reporting

To ensure optimal performance and swift issue resolution:

**Automatic Error Detection**

The system monitors for anomalies or malfunctions in real-time. Any deviation from expected performance triggers an automatic error log.

**Detailed Error Logs**

These logs capture specifics like the time of the error, the device or module involved, the nature of the error, and potential impact.

**Reporting Tools**

Administrators or relevant personnel receive instant notifications on critical errors. Moreover, they can generate detailed error reports, helping in root cause analysis and future prevention.

## Test Time Logging and Analysis

Understanding the time taken for various tests across devices and modules is crucial for efficiency and planning:

**Timestamps**

Every test conducted on devices like OM or Pupil-X gets timestamped, capturing start and end times.

**Aggregate Analysis**

"One Portal" aggregates this data to provide insights like average test durations, longest test times, and more.

**Optimization Recommendations**

By analyzing these test times in conjunction with success rates and other metrics, the system can offer recommendations. For example, if a specific test on Pupil-X consistently takes longer than expected, the system might suggest a review of the test procedure or device calibration.

## Notifications

In a dynamic environment like healthcare, real-time notifications can be the difference between prompt medical intervention and missed opportunities. "One Portal" is designed to keep all relevant stakeholders informed about crucial events, updates, or anomalies through its sophisticated notification system.

**Notification Mechanisms**

Ensuring that notifications reach the intended recipient in the most effective manner is paramount:

**In-App Notifications**

For users actively using "One Portal", real-time in-app notifications provide instant updates. These could be related to new patient records, device malfunctions, or task reminders.

**Email Alerts**

Important notifications are sent out as email alerts to registered email addresses. This ensures that even if a user is not actively using the platform, they're still informed about critical events.

**SMS Notifications**

Especially useful for urgent updates or reminders, SMS notifications ensure that stakeholders receive messages even when offline.

**Push Notifications**

For users with the "One Portal" mobile application, push notifications serve as a quick way to inform them about updates, appointments, or system changes.

## Dependencies and Integration

**Third-Party Services and APIs**

Provides support for third-party services, offering API documentation, and ensuring seamless data exchanges.

# Non-Functional Requirements

## Security

The system should ensure data security and access control, including role-based access.

## Performance

The system should be capable of handling a large number of devices, customers, and users without significant performance degradation.

## Scalability

The system should be designed to scale horizontally to accommodate growing user and device numbers.

## User Interface

The user interface should be user-friendly and intuitive.

## Compatibility

The "One Portal" product should be compatible with various web browsers and devices.

# Wireframes

Need to be added

# Flow Diagrams

Need to be added

# References

* Citations of any external sources, research papers, or benchmark studies referred to in the SRS.