1. Introduction

1.1 Purpose of this Document

This document outlines the functional and non-functional requirements for the QA Automation Module of the ERP Tool. The purpose of this document is to serve as a single reference point for all stakeholders including developers, testers, designers, and project managers by clearly defining the scope, features, constraints, and operational flow of the QA automation system. It ensures that the development team and end users have a common understanding of the system's objectives and expected behavior.

1.2 Scope of the Document

This document defines the scope, requirements, and structure of the **QA Automation Module**, which aims to replace the current manual and paper-based quality assurance process with a secure, digital solution integrated within the organization's ERP system.

The module automates documentation workflows, manages requisition-based inspection processes, supports version-controlled collaboration, and enables centralized storage and tracking of QA artifacts. It is designed to facilitate better communication between QA and design/development teams via comment-based interactions and ensure role-based control over data access and workflows.

The scope includes:

- Upload, review, and version tracking of **Plan Documents**
- Submission, approval, and tracking of **Inspection Requisition Forms**, with internal/external test logic
- **Comment-based collaboration** for document feedback and QA response
- Assignment and status updates of **inspection tasks**
- Upload and archival of **inspection reports and test results**
- Dashboards for tracking requisition status, review comments, and document history
- **Role-based access control** with secure operations and activity logs

1.3 Overview

The **QA Automation Module** is a secure, web-based application integrated within the organization's ERP platform. It supports the full QA lifecycle from the submission of Plan Documents to the final inspection of products and storage of test reports.

The system replaces fragmented manual practices such as Excel tracking, paper-based requisitions, and physical report storage with a centralized digital workflow. It allows design teams to initiate test requisitions after plan approval, enables QA teams to inspect submitted units (internally or externally), and manages digital documentation through approval workflows, version control, and structured communication using comments.

By automating these critical QA functions, the module ensures visibility, traceability, security, and efficiency ultimately improving turnaround time and product quality while enabling regulatory readiness and collaboration across teams.

2. General Description

The **QA Automation Module** is a key component of the ERP system designed to digitalize and streamline the quality assurance workflow. It replaces manual processes such as Excel-based tracking and paper records with a secure, centralized platform that ensures traceability, accuracy, and efficiency.

2.1 Product Functions

The system enables:

- Uploading and review of **Plan Documents** and detailed **Requisition Forms**
- **Version control** with change history and timestamps
- **Comment-based collaboration** between QA and design/development teams
- **Inspection task management**, including internal test scheduling and team assignment
- **Requisition review process** with accept/reject status, comments, and authentication from the QA admin
- Capture of requisition details such as project name, part number, test type, venue, test date, and reference documents

- External test handling, including support for attaching external request letters
- Exportable and printable test documentation with QA admin verification
- Real-time dashboards for the design team to track request statuses, QA comments, and submission history
- **Secure, role-based access** for different stakeholders

2.2 User Characteristics

Users include:

- **Design/Development teams**: Submit documents and requisitions, view dashboard and feedback
- **QA/Test Engineers and Admins**: Review documents, handle inspections.
- **Admin's additional characteristics**:approve or reject requests, add internal test details, Monitor process status, access data logs and reports

The system is designed for ease of use with minimal training, featuring a clean and intuitive interface for all roles.

2.3 Features & Benefits

- **Digitizes QA workflows** for faster and error-free processing
- Tracks **complete requisition and inspection lifecycle**
- Ensures **transparent communication** via contextual comments and status logs
- Supports **external and internal testing** documentation with proper authorization
- Provides **centralized storage** of all QA records with export/print capabilities
- Enforces **security and auditability** with role-based access and activity logs

2.4 Importance

This module is crucial for modernizing QA practices within the organization. It enhances coordination between design and QA teams, reduces turnaround times, and ensures data

integrity. By automating inspections and requisition handling, the tool helps deliver higher quality products and supports process transparency and regulatory compliance.

3. Functional Requirements

This section outlines the core functions of the QA Automation Module, describing the expected behavior of the system, and how each functional unit contributes to the automation of the QA process. Each requirement includes the data involved, its source, and the expected system response.

3.1 Document Upload and Version Control

Function:
Allow design/development teams to upload Plan Documents and Requisition Forms into the system with version tracking.

Inputs:

- PDF or DOCX files from authenticated users
- Project metadata (project name, reference no., submission date, etc.)

Processing:

- Files are validated, assigned version numbers, and stored with timestamps
- System automatically logs changes when updated versions are submitted

Outputs:

- Versioned document entries visible to authorized users
- Notification to QA team for review

Validations:

- File format must be .pdf or .docx
- Mandatory fields (e.g., project name, ref no.) must be filled

3.2 Document Review and Feedback Workflow

Function:
Enable QA team to review submitted documents and provide approval, rejection, and comments.

Inputs:

- Reference ID of document
- Comments and status (Approved / Rejected / Needs Revision)

Processing:

- System logs reviewer details, status, timestamp
- Stores feedback as version-specific comments

Outputs:

- Status updates to the design team dashboard
- Comment log for historical tracking

3.3 Test Requisition Submission and Tracking

Function:
Allow design teams to submit inspection requests post-document approval.

Inputs:

- Requisition form data (part no., LRU, SL no., type of test, venue, schedule, attached references,etc.)

Processing:

- System checks for Plan Document approval status before submission
- Accepts or rejects based on form completeness and previous document linkage
- QA admin reviews and adds internal test plans or rejects with reasons

Outputs:

- Requisition request status: Pending / Approved / Rejected
- Notification to QA team
- Trackable status for design team

Valid Range:

- Test types
- Schedule date: Must be ≥ current date

3.4 Task Assignment and Inspection Management

Function:
Enable QA team to assign inspection tasks, update statuses, and upload results.

Inputs:

- Test ID (linked to requisition)
- Status update (Not Started / Initiated / Completed)
- Inspection result files (PDF,docx)

Processing:

- Task assigned to specific tester(s)
- Progress tracked with time stamps
- Result files linked to the original requisition

Outputs:

- Inspection dashboard update
- Final inspection report logged

3.5 Comment-Based Communication

Function:
Allow QA and design teams to exchange feedback or clarification via contextual commenting.

Inputs:

- Comment text
- Associated document or task ID

Processing:

- Stored with metadata (user, date, type)
- Viewable only by users with permission for that document/task

Outputs:

- Real-time update in document/task thread
- Notification alert to relevant user(s)

3.6 Report Generation and Archival

Function:
Store and retrieve structured test reports and inspection outcomes.

Inputs:

- Final test report files
- Metadata (project, date, tester, location)

Processing:

- Files validated and stored by project/module
- Tagged with searchable parameters

Outputs:

- Downloadable/exportable reports (PDF, Docx)

3.7 Role-Based Access Control (RBAC)

Function:
Restrict operations based on user roles (Design, QA, Admin)

Inputs:

- User login credentials

Processing:

- Authentication and role mapping
- Permission enforcement for each operation

Outputs:

- Access granted or denied based on role and activity type
- Audit logs updated

3.8 Audit Trail and Activity Logs

Function:
Maintain logs for all major actions (upload, review, inspection, comments)

Inputs:

- User actions

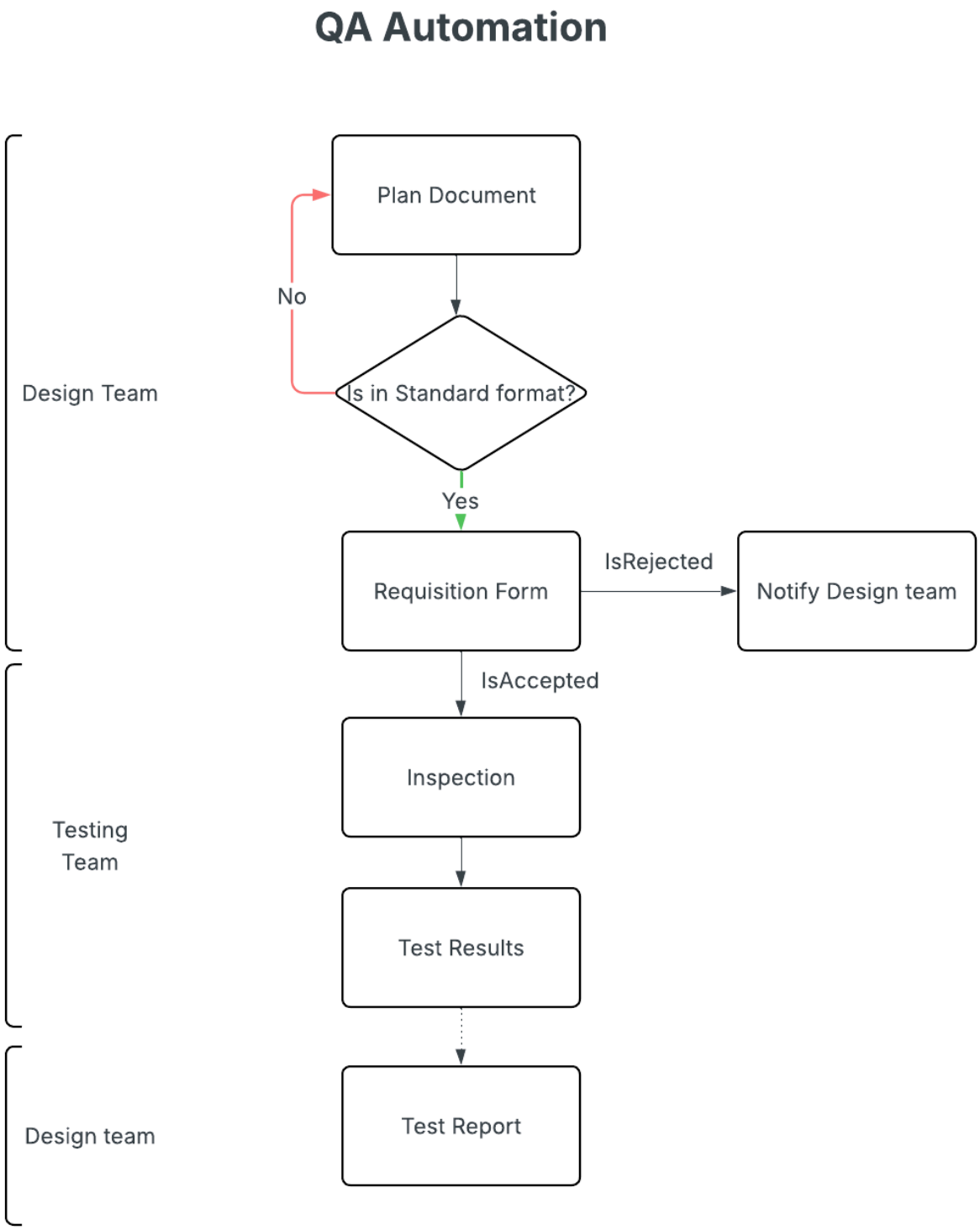
Processing:

- Logged with timestamps, user identity, and action description

Outputs:

- Viewable logs for Admin
- Exportable for audit purposes

System Workflow – Flowchart



Sequence Diagram – Document Review & Inspection