# Requirement Specification Document (RSD)

## 1. Project Title

Serverless Attendance System Using Face Recognition

## 2. Problem Statement

Organizations still rely on manual or RFID-based attendance systems which are prone to errors, buddy-punching, and lack real-time analytics. There is a need for a cost-effective, secure, and automated attendance solution.

## 3. Objectives

- Automate attendance logging using face recognition.  
- Eliminate manual errors and improve accuracy.  
- Use a serverless cloud architecture to minimize cost.  
- Provide analytics for attendance patterns.

## 4. Functional Requirements

1. System should capture employee images through a web interface.  
2. Captured images must be securely uploaded to AWS S3.  
3. System must detect and identify faces using AWS Rekognition.  
4. If a match is found, log the employee ID and timestamp into DynamoDB.  
5. Generate daily and weekly attendance reports.  
6. Provide a login feature for admins using AWS Cognito.

## 5. Non-Functional Requirements

- Scalability: Handle 100+ users without performance drop.  
- Security: Use IAM, encryption, and Cognito authentication.  
- Cost-Efficiency: Use serverless services to minimize running costs.  
- Reliability: 99% uptime using AWS managed services.  
- Performance: Attendance logging in less than 3 seconds.

## 6. Technology Stack

Frontend: HTML, CSS, JavaScript (AWS SDK)  
Backend: AWS Lambda (Python)  
Face Recognition: AWS Rekognition  
Storage: Amazon S3  
Database: Amazon DynamoDB  
Authentication: AWS Cognito  
Deployment: S3 Static Hosting / CloudFront

## 7. Project Deliverables

1. Technical Design Document (TDD)  
2. AWS Architecture Diagram  
3. Working System (Deployed on AWS)  
4. GitHub Repository (Source Code)  
5. Demo Video Presentation  
6. Cost Sheet (AWS Pricing Analysis)

## 8. Assumptions

- Employees have registered images stored in the system.  
- Users have internet access for web interface.  
- AWS Free Tier is available during development.

## 9. Constraints

- Limited to AWS services.  
- No mobile app (only web UI).  
- Face recognition accuracy depends on image quality.