Software Requirements Specification

Enterprise Resource Planning System(ERP)

For

Stadia Engineering Works Consultant

Version 1.0-draft

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ABSTRACT

In today's fast growing of internet users and fast-changing business environment in Ethiopia, it's extremely important to be able to respond to client needs in the most effective and timely manner.Online Shopping is a lifestyle e-commerce web application, which retails various fashion and lifestyle products.The primary goal of an e-commerce site is to sell goods online. This project with developing an e-commerce website and mobile application for Online Product Sale. It provides the user with a catalog of different product available for purchase in the store, viewing various products available enables registered users to purchase desired products process payment by using Cash on Delivery(Pay Later) or Mobile Banking. In order to facilitate online purchase a shopping cart is provided to the user and delivery which is fulfilled by the express system.

Nowadays, many different kinds of delivery companies in Ethiopia transport their own kinds of parcels and offer their own services, which have caused a lot waste of resource. In addition , the volume of parcels in all cities that need to be delivered has been grown dramatically. To cope with these problems, Guya-Express System in the country which can offer service to all kinds of customers in the city including manufactures, department stores, restaurants, individual people and so forth will be designed. This system use combining computer network technology, wireless communication and cloud computing. With this system. the whole package delivery process including classification of packages, vehicle scheduling, path planning, transportation monitoring can be intellectualized as well as managed automatically, and the use of both material resources and manpower resources can be reduced accordingly.

This document will discuss each of the underlying technologies to create and implement and e-commerce and express under the name Guya E-commerce and Guya Express respectively and for architectural implementation we will be using Microservices Architecture.

Contents

List of Tables

List of Figures

Acronyms and Abbreviations

SRS   Software Requirement Specification

ERP   Enterprise Resource Planning

LB   Load balancing

HQ   Headquarters

HR   Human Resources

UML   Unified Modeling Language

Chapter 1

Introduction

ERP is one of the most widely implemented business software systems in a wide variety of industries and organizations. ERP is the acronym of Enterprise Resource Planning. ERP is just not only a software. ERP definition refers to both; ERP software and business strategies that implement ERP systems.

Our Addsoft implementation utilizes Human Resource Management System , Recruitment System, Attendance System, Leave (time off) System, Payroll System , Performance Management (Appraisal) System and Asset Management to improve the performance of any organizations for

- Resource Planning

- Management Control

- Operational Control

1.1 Problem Definition

Many organisations and businesses have declared ERP system a waste or a burden; there is a mixture of suspicion, scepticism, disappointment and confusion, flagging ERP projects have snarled internal processes in companies.

1.2 Purpose

1.3 Open ERP(Odoo)

Odoo is a comprehensive business applications including Sales, CRM, Project management, Warehouse management, Manufacturing, Financial management, and Human Resources etc. It is an all-in-one management software that offers a range of business applications that can form a complete suite of enterprise management applications targeting companies of all sizes. Odoo offers a community version and a commercial version. The community version is the open source free version while the enterprise version are charged at a certain cost and provides more features and services.

Odoo was published first under the name of OpenERP and TinyERP, where ERP stands for Enterprise Resource Planning. An ERP is a generic software that is flexible to any modification and customize and fulfills generic needs. Odoo is a modular system where its services are represented as modules, and the ones that are necessary come installed with the ERP and can be adapted to the workforce and growth of the company that uses the system. Odoo has a powerful process engine which allows the allocation of validation modes, tasks and deadlines. According to the ERP's official website, Odoo has 5525 module; production management, logistic, human resources, accounting, management control, payroll, customer relationship management or CRM, marketing, inventory management, documents management, etc. Odoo is used by many organizations such as Hyundai, Auchan, Sodexo, Danone, Veolia, and many others. Odoo is represented in 120 countries by more than 550 partners, and it is used by almost 2,000,000 users.

Odoo is known for a number of features such as:

- Social networking

- Website creation using CMS

- Employee assessment and evaluation

- Recruitment process

These and other features are exploited by the users to make the management of their business as organized and smooth as possible.

1.3.1 Why choose Odoo

Why do so many users choose Odoo management software? According to the users' feedback, these have been the predominant reasons:

- **Low cost of ownership and no lock-in:** cost of installing, configuring and running an ERP system is expensive. There is no license fee to run Odoo Community version, so users can save the cost for implementation and customization. And because it is open source software, user can download Odoo free of charge, test it and use it.

- **Customizable:** Odoo is flexible to customize to users' needs. With so many modules, the user can choose the ones that fits with their business requirements.

- **Comprehensive and modular:** Odoo is an all-in-one business software including CRM, Website/e-Commerce, billing, accounting, manufacturing, warehouse and project management, and inventory. The main Odoo components are the OpenObject framework, about 30 core modules and more than 3000 community modules.

- **Updated technology:** Odoo is based on a technology stack which is modern and up-to-date. And with its open source community, it is actively main-

tained by a large base of developers to meet customer's needs and provide new applications.

1.4 Scope

Human Resources: Human Resources Module

- Create and manage employee profile

- Create and manage employee profile

- Create and manage Departmental hierarchy

- Create and manage contracts

- Employee dashboard

- Import and export to Excel

Recruitment: Recruitment Module

- Create job position

- Publish vacancies

- Review applications

- Manage departments

Attendance: Attendance Module

- Tap in and tap out

- Reporting Dashboard

- Import and export to Excel

- Integrate with Payroll

Leave (time off): Leave (time off) Module

- Annual and other leave type

- Maintain Leave quota

- Employee self service

- Manager approval

- Integrate with Payroll

Payroll: Payroll Module

- Salary structure

- Setup payroll component

- Contract Management

- Reporting Dashboard

- Print pay slip and email pay slip

- Protect pay slip file with password

- Integrate with another modules

Performance Management (Appraisal): Performance Management (Appraisal) Module

- Create and manage Employee appraisal

- Set evaluation scale

- Create goal

- Sort appraisal

- Generate report

Asset Management: Asset Management Module

- Maintain asset record

- Assign asset to employee

- Depreciation

- Generate report

1.5 System Requirements

1.5.1 Hardware Requirements

Odoo is an undemanding system. For 5-employee companies, a 2 CPU 2 RAM server would be enough (recommended 8 RAM), raising to 4 CPU 8 RAM for 20 employees. We would recommend splitting application and database servers for 90 employees. Load balancing (LB) of application server would be needed for a company of 250+ employees.
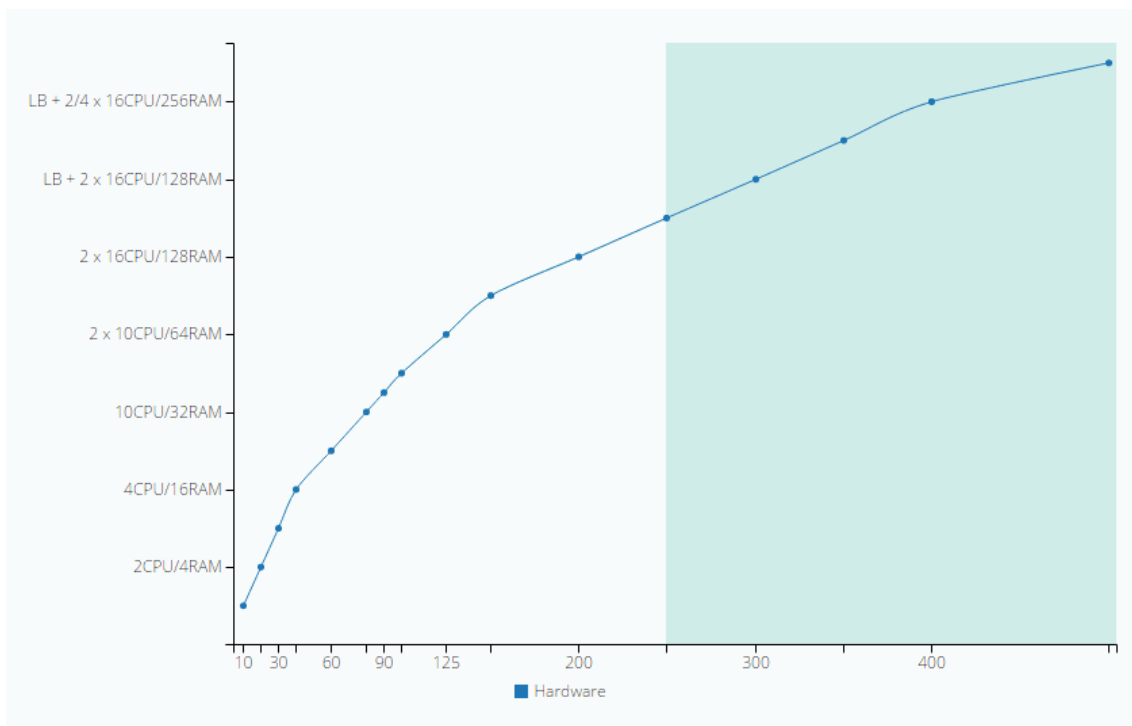

Figure 1.1: Odoo server requirements

1.5.2 Software Requirements

Postgresql v14.0: Is a powerful, open source object-relational database

Odoo community v14: Is a suite of business management software tools

Docker: Is a set of platform as a service products that use OS-level virtualization to deliver software in packages called containers

Docker compose: Is a tool for defining and running multi-container Docker applications

Python v3.7 Is a high-level, interpreted, general-purpose programming language.

Chapter 2

System Analysis

2.0.1 System Requirement Specification

General structure of a user story described in this document:

{User story name}: As a {role}, I want {goal}, so that {benefit} ({priority}).

2.0.2 Functional Requirements

The following sections describe the data required and the functional requirements that shall be performed in the new ERP System for both the HQ and field-based staffs. These functional requirements include the on-going System maintenance and the creation and management reports for all areas.

- The System shall have a common database core which allows integration of data and transactions between all financial, operational, production, and customer service functions within the ERP System.

- The System shall have a graphic user interface (GUI) implemented as a Web-based interface

- The System shall be able to export selected records into either pdf or table file format

- The System shall have administrator ERP System and user security functionality to include:

  - Setting Up a New User

  - Updating an Existing User

  - Restricting User Access to Certain Roles

- The System shall have the ability for generated reports to be savable and exportable to numerous devices and mediums including printers

- The System shall produce Fixed Asset Depreciation Schedules

2.0.3 Non-functional Requirements

Reliability Reliability is the probability that the System will be able to process work correctly and completely without being aborted.

The proposed ERP System has varying degrees of impact on areas of Stadia should parts of the System fail. If the Core Systems functional areas of the System fail (becomes unusable) for a period of time the impact on Stadia would be as follows:

Length of Time of Outage	Impact to Stadia
One Hour	Some Impact to TODO
One Day	Medium to Large Impact TODO
One Week	Very Large to Catastrophic Impact.

Table 2.1: Impact of reliablity on Stadia

The minimum acceptable level of reliability for the core system Reporting aspect of the System would be no more than five (5) days (one work week).

Recoverability Recoverability is the ability to restore function and data in the event of a failure.

- In the event the ERP application is completely unavailable to users (down) because of a System failure, it should be restored within 2 hours after the failure is detected. This timeframe assumes that a locally controllable event (such as a hardware issue) has caused the outage. If the application software is at issue and requires Contractor intervention, then the expected restoration time shall follow expected levels that shall be stated in the Service Level Agreement.

- In the event that the operational database is corrupted, the database must be capable of being restored to its condition no more than 2 hours before the corruption occurred and must be restored to its most recent point in time prior to the corruption (1 day before). (Once a Contractor is selected a final data recovery strategy shall be determined).

The core system will perform periodic backups of all databases and will store these backups off-site. At a minimum daily incremental changes to the database shall be captured and stored and on a weekly basis and a full database backup should be performed. Daily backups shall be retained for at least six weeks (approximately one monthly close cycle) and weekly backups should be retained for at least fourteen weeks (one quarterly close cycle).

In the event that the entire data center is destroyed, the following steps shall be required:

- New Application and Database Servers would need to be located and installed

- Operating Systems shall need to be set up on the Servers(i.e Linux Server)

- Applications the ERP core System (Odoo) shall need to be installed on the Servers

- The last off-site back up of the ERP application database shall be restored to the Servers

System Availability   System availability is the time when the application must be available for use. Required System availability is used in determining when maintenance may be performed.

The System must be available from 2:00 AM – 11:00 PM GMT+3 Monday – Saturday (National Holiday and Service Reduction Days not included). Any scheduled down time for maintenance shall be not be scheduled around these core hours.

Fault Tolerance   Not Applicable refer to Odoo Guideline

Performance   The current preference is that accessing any transactional screen and updating data fields should take no more than 3 seconds.

System performance should be measured using up to 10 to 300 concurrent users(based on Stadia's number of employee)

Capacity   The ERP System shall have the capacity to handle the types of volumes described below:

- TODO number of employee creation per month

- TODO reports per month

Data Mapping and Conversion   The following tables describe the data in the current system. he file structures and data in the current system are housed in Postgressql tables but are not truly relational in design.

- A = Alphanumeric

- D = Date (MM/DD/YYYY)

- N = Numeric

Ref	Description	Field Type	Note	Field Length (Bytes)
1	Badge ID	A	Generated Badge Number ID	6

Table 2.2: Datat mapping and conversion

Design, Testing, Implementation, and Acceptance   The Contractor/Provider shall be responsible for:

- The design and configuration of the new ERP System based on Stadia business requirements.

- Installation of the ERP System in a test environment

- Loading the test database with sufficient data to perform the required User Acceptance Testing. This task shall be on-going until successful completion of the User Acceptance Testing. Both Stadia and Adarash will provide the User Acceptance Testing Matrix.

- Setup of the software and activation of the modules.

- Setup of the master files and tables and work with Stadia's staff to verify the data.

- Implementation of the ERP System into the final production environment.

-

Training and Documentation   The Contractor/Provider shall be responsible for:

- Training of end users and technical staff to support to the ERP System to include:

- General Manger

- System Admin(IT staff)

- Clerks

- Department heads

- Retraining for personnel as needed or requested by management

- Creating a learning team of "super users"(System Admins or IT staff) who can support others in all basic and some advanced functions

- Providing and/or creating training materials and technical documentation of the ERP System to include Quick Reference guides and an inmate self-learning module.

2.1 System Requirement Analysis

2.1.1 Actor and Use Case Identification

A use case diagram is a graphic depiction of the interactions among the elements of a system. A use case is a methodology used in the system analysis to identify, clarify, and organize system requirements in this context, the term system" refers to something being developed or operated such as a mail-order product sales and service website. Use case diagram are employed in UML (Unified Modeling Language). A standard notation for the modeling of real-world object and systems. System objectives can include planning overall requirements validating a hardware design, testing and debugging a software product under development, creating an online help reference, or performing a consumer-service oriented task. For example, use case in a product sales environment would include item ordering, catalog updating payment processing, and customer relations. A use case diagram contains four components.
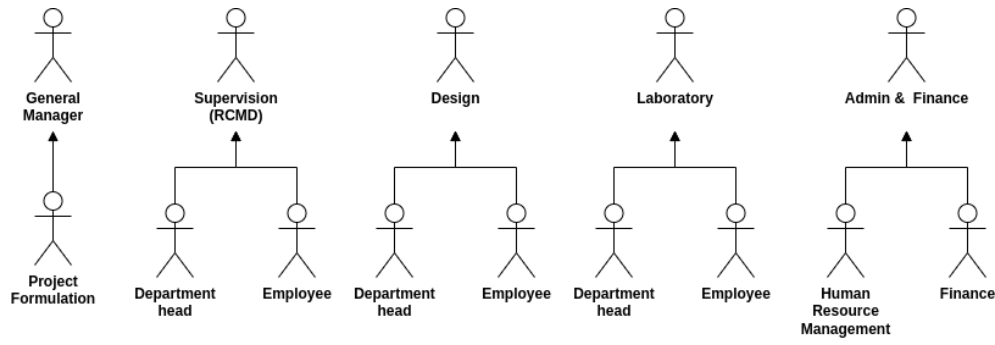
Figure 2.1: Actors involved

2.1.2 Use Case Diagram

Use case diagrams are used during the analysis process to find system requirements and to design system functionality. In this study use case diagrams are used to describe the access rights of each actor. Administrator Actors generally have a function to manage users such as creating accounts and setting access rights.

Administrator Use Case Diagram

Manager Use Case Diagram

HR Use Case Diagram

2.1.3 Activity Diagram

Recruitment Module Activity Diagram

Human Resources Activity Diagram

Attendance Activity Diagram

Leave (time off) Activity Diagram

Payroll Activity Diagram

Performance Management (Appraisal) Activity Diagram

Asset Management Activity Diagram

2.1.4 User Access Rights

No	User	Acess Level	Object	Acess Right				Information
				Read	Write	Create	Delete	
1	Administrator	Administration	ALL	✓	✓	✓	✓	Top Level
2	System Admin	System Admin	User	✓	✓	✓	✗	Second level below Administrator
			Acess Right 2	✗	✗	✗	✗	
3	Manager	Manger	Attendance	✓	✓	✗	✗	Manager
			Acess Right 2	✗	✗	✗	✗	

Chapter 3

System Design

Chapter 4

Implementation

Chapter 5

Testing

Appendices

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