# HUMAN RESOURCE MANAGEMENT SOLUTIONS USING ODOO

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**Abstract - Human resource management is the strategic and coherent approach to the management of an organization's most valued assets - the people working individually and collectively contribute to the achievement of the objectives of the business. HRM is the acronym for the term "Human Resource Management". Human Resource Management is the organizational function that deals with issues related such as compensation, hiring, employee performance management, organization development, safety, wellness, benefits, employee motivation, communication, administration, and training. HRM is a discipline and a basic HR activity and process in the information technology field, whereas the programming of data processing systems evolved into standardized routines and packages of enterprise resource planning (ERP) software of Odoo. On the whole, these ERP systems have their origin in software that integrates information from different applications into one universal database. The financial and human resource modules through one database are the most important distinction to the individually and proprietary developed predecessors, which makes this software application more rigid and flexible.**

*Key Words*: **Human Resource Management, Open Enterprise Resource Planning, customer friendly investments, Odoo, Enterprise Resource Planning.**

## 1. INTRODUCTION

Human Resource Management (HRM) is a process designed to maximize employee performance to meet the employer's strategic goals and objectives. HRM focuses on the management of people within companies, emphasizing on policies and systems of the organization. HRM is the process of recruiting employees, selecting employees, providing proper orientation and induction, imparting proper training, and developing skills. HRM also includes employee assessments like performance appraisal, facilitating proper compensation and benefits, encouragement, maintaining a proper relationship between labor and trade unions, and taking care of employee safety, welfare and health by complying with labor laws of the state or country concerned. The scope of HRM is very wide. It consists of all the functions under the banner of human resource management. The functions are as follows., 1) Human Resource Planning: a process by which a company identifies how many positions are vacant and whether the company has excess staff or shortage of staff and subsequently deals with this need of excess or shortage 2) Job Design Analysis: a process of noticing and regulating in detail the particular job duties and requirements and the relative importance of these duties for a

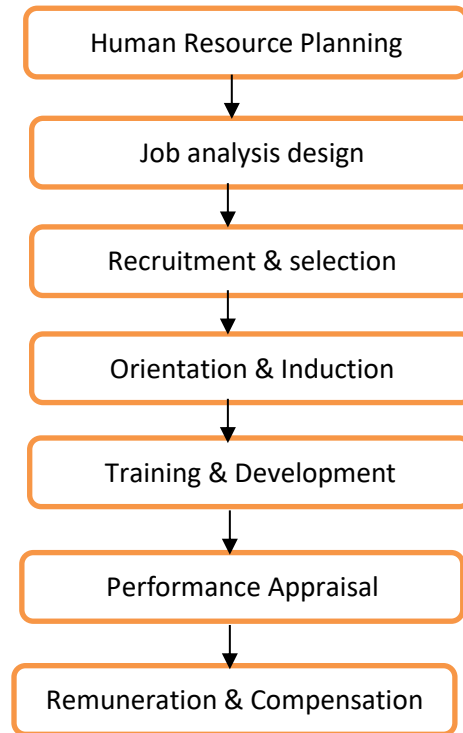given job and gives elaborate description about each job in the company



**Fig - 1:** Human resource management structure

3) Recruitment & Selection: Concerning the information collected from job analysis, the company prepares advertisements and publishes them on various social media platforms. This is known as recruitment. Several applications are received after the advertisement is presented, interviews are conducted and the deserving employees are selected 4) Orientation & Induction: After the employees are selected, an induction or orientation program is organized. The employees are updated about the background of the company as well as the culture, values, and work ethics of the company and they are also introduced to the other employees 5) Training & Development: Employees have to undergo a training program, which assists them to put up a better performance on the job. Sometimes, training is also conducted for currently working experienced staff to help them improve their skills further known as refresher training 6) Performance Appraisal: After the employees have been recruited for around 1 year of service, a performance appraisal is organized to check their performance. Based on these appraisals, future promotions, incentives, and increments in salary 7) Remuneration & Compensation:  various rules and regulations regarding compensation and related aspects are taken care and is the duty of the HR department to look into remuneration and compensation planning.

## 2. OBJECTIVES

- ✓ Assisting the organization in obtaining the right number and types of employees to fulfill their strategic and operational goals.
- ✓ Creating a climate in which employees are encouraged to utilize their skills and knowledge.
- ✓ Maintaining performance standards and increasing productivity through effective job design;
- ✓ Providing adequate orientation, training, and development; performance-related feedback; and ensuring effective two-way communication.
- ✓ Establishing and maintaining a harmonious employer/employee relationship
- ✓ Creating and maintaining a safe and healthy work environment
- ✓ Developing programs to meet the economic goals, psychological, and social needs of the employees and helping the organization to retain the productive employees
- ✓ Providing an organization with well-trained and well-motivated employees
- ✓ Increasing the employee's satisfaction and self-actualization
- ✓ Developing and maintaining the quality of work life Communicating HR policies to all employees and maintaining ethical policies and behavior with all employees

## 3. SYSTEM ANALYSIS

Identification of Need: Manually it is very difficult to manage human resources. With the help of a system, it becomes easy and faster to manage the system. In this project, it is the facilities to store and manage all the information about the employee working in that company and the projects handled by the company.

Preliminary Investigation: Preliminary investigation is to evaluate project requests. The preliminary investigation should achieve the following objectives

- ✓ Clarify and understand the project request
- ✓ Determine the size of the project
- ✓ Assess the costs and benefits of alternative approaches
- ✓ Determine the feasibility study

This will enable evaluation to be made at an approximate level to ensure that the overall idea for the process ahead will be known. Usually, when the Preliminary Investigation is complete one will have a clear idea of the overview of the Project, what expectations are to be met, and whether it can be given a solution. In the case of the Human Resource Management System, the Preliminary investigation came in handy to know what the current situation was and the project was evaluated accordingly.

An important outcome of the preliminary investigation is the determination that the system requested is feasible, whether the project is practically possible, and whether the project is time-bound and can be completed or not. This will enable the user to understand whether to give a go to the Project or reject it. This can be determined only based on the feasibility study. There are three aspects in the feasibility study portion of the preliminary investigation:

- ✓ Technical Feasibility
- ✓ Economic Feasibility
- ✓ Operational Feasibility

**Technical Feasibility:**

*Software Tools:*

| Front End | Python 2.7 and above |
|---|---|
| Back End | PostgreSQL 9.3 and above |
| Scripting Language | Java Script, JQuery |
| Designing Language | HTML |
| Editor | Eclipse, Pycharm |
| Reporting Tool | Qweb |
| Documentation Tool | Microsoft Word 2021 |
| Process Model | Agile |

*User Environment*

| OS | Windows, Linux, Mac |
|---|---|
| *Hardware Environment* | |
| Processor | Intel Pentium |
| RAM Size | 2GB |
| Hard Disk | 40GB |
| *Software Environment* | |
| Back End | PostgreSQL 9.3 and above |
| Browser | Internet Explorer, Mozilla Firefox, Chrome |
| *Languages* | |
| Programming Language | Python |

**Economic Feasibility:**

More commonly known as Cost/Benefit Analysis. The process is to determine the benefits and savings that are expected from a candidate system and compare them with costs. If the benefits outweigh the costs, then a decision is made to design and implement the system. Considering the facts, it is becoming evident that the system will be economically feasible both for a developer as well as for the client's respect.

**Legal Feasibility:**

A determination of any infringement, non-observance, or liability that could result from the development of the system. But the system to be developed will be 100% legal.

## 4. TECHNOLOGY

**Python Programming Language:**

Python is a high-level, general-purpose, interpreted, and dynamic programming language. It is code readability, and its syntax allows programmers to express concepts in a few lines of code other than C++ and Java. The language provides constructs knowing to enable clear programs on both a small and large scale.

Python supports multiple programming paradigms, including object-oriented, imperative, and functional programming or procedure. It features a dynamic type of system and automatic memory management and has large and comprehensive standard libraries.

Python interpreters are available for installation on many operating systems and allow Python code execution on a wide variety of systems. Using third-party tools, such as

Py2exe or Pyinstaller, Python code can be grouped into stand-alone executable programs for some of the most popular OS, allowing the distribution of Python-based software for use in those environments without requiring the installation of a Python interpreter.

**Odoo:**

Odoo (formerly known as OpenERP and before that, TinyERP) is an open-source enterprise management application. Targeting any size of the company, the application suite includes billing, accounting, manufacturing, purchasing, warehouse management, and project management.

The source code for the Open Object framework and core ERP (enterprise resource planning) modules are created by Belgium-based Odoo S.A. Additionally, an active global community and a network of 500 official partners customized programming, support, and other services are provided. The main Odoo components are the OpenObject framework, which has more than 100 official modules, and more than 5000 community modules.

Odoo has received many awards including Trends Gazelle and BOSSIE Awards three years in a row.

## 5. SYSTEM STUDY

**Position:**

**Problem Statement:**

| The Problem of | Very difficult to process salary for employees using excel. |
|---|---|
| Affects | The Human Resource Manager |
| The impact of which is | Automate Payroll |
| A successful solution would be | Computerizing the pay structure |

**Product Positioning**

| For | The Employees of company |
|---|---|
| Who | Needs to monitor and maintain the employee details |
| Web Application that | Computerizes the payroll and enables the generation of the reports |
| Unlike | The existing manual system |
| This application | Produces timely and accurate reports and reduces manual work of generating reports and tracing the employee information. |

**Stakeholder & user description:**

**Stakeholder Summary**

| Description | Responsibility |
|---|---|
| The HR of a company | Managing all the employee details and automate the payroll based on the salary structure for each month. |

**User summary**

| Description | Responsibility |
|---|---|
| Employee | Utilizes the system for viewing employee profile and request for leave. |
| HR | Managing all the information update and feeds to the system for the easy access of the employees |

**Identified use cases:**

- ✓ Employee Management
- ✓ Timesheet Management
- ✓ Employee Performance Management
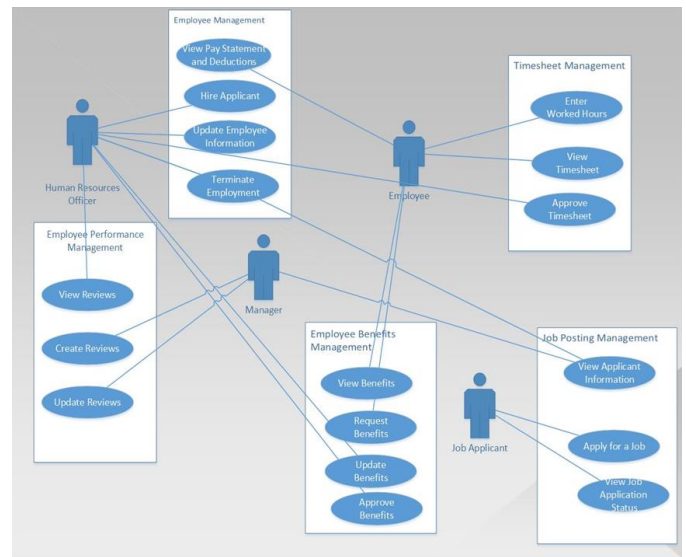- ✓ Employee Benefits Management

- ✓ Job Posting Management



**Fig - 2:** Use case diagram

**Use case 1-**

Use case Name: Manage Employee Details

Description: This use case should manage the Employee Details.

Actors: Human Resource Manager

Precondition: The Details should be received from the Employee

**Normal flow: Add Employee Details**

| Actor's Action | System Response |
|---|---|
| The user selects the Employee Registration | Displays the Employee details to the user |
| Selects the option add to add new Received Material Details | Displays add, edit interface with required fields |
| The user enters the required information | The system validates and verifies the information finally stores the information in the specified table |

**Alternative Flow:**

| Actor's Action | System Response |
|---|---|
| Selects the option edit to modify Employee Details | Displays the already entered Employee Details information along with the required fields |
| The user re-enters the required information | The system validates and specifies the information of the user |
| Choose the option save to modify the information | The system validates the information in the specified table |

**Delete the employee details:**

| Actor's Action | System Response |
|---|---|
| Selects the option delete to delete the registered Employee details | The system asks for conformation to delete the selected record |
| The user accepts to delete the record | The system deletes the record in the specified table |

**Post Condition:**

The system stored the information in the specified table and all the entered data will be displayed to the user.

## 6. SYSTEM DESIGN

**Database Access Response Time:** The system provides access to the database with no more than 10 seconds.

**Easy Navigation:** AIM has the facility of easy navigation. It allows the user to navigate from one module to another module without closing the current page.

**Transaction Response Time:** This system must be able to complete 80% of all transactions within 2 minutes.

## Process Flow

The design document of this project expresses this functionality of the software in the way of diagrammatic and structural representation. The diagrammatic representation is context diagrams and data flow diagrams. The context diagram represents the complete overview of the project. Data flow diagrams are drawn in various levels that describe the flow of the data objects used in this project. User interface diagrams show the functionality of each user interface used in this project.

## Data Flow Diagram

The Data Flow Diagram (DFD) is the graphical representation of the processes and the flow of data among them. A data flow diagram illustrates the processes, data stores, external entities, and the connecting data flows in a system. It is a common practice to draw a context-level Data Flow Diagram first which shows the interaction between the system and outside entities. This context-level DFD is then "exploded" into a detailed DFD.
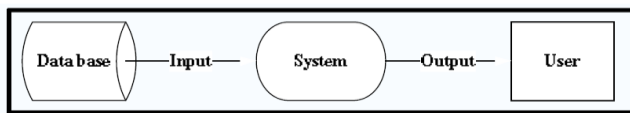


**Fig 3 –** Dataflow diagram

There are four components in Data Flow Diagram as follows,

- ✓ **External Entities/ Terminators**: represent where information comes from and where it goes which are represented by rectangles.
- ✓ **Processes**: represented by an ellipse (circle), which modifies the input to generate the output.
- ✓ **Data Stores** represent a place in the process where data rests. This is represented by an **open-ended rectangle or a cylinder** symbol.
- ✓ **Data Flows:** represented by **arrows**, and how data moves between terminators, processes, and data stores
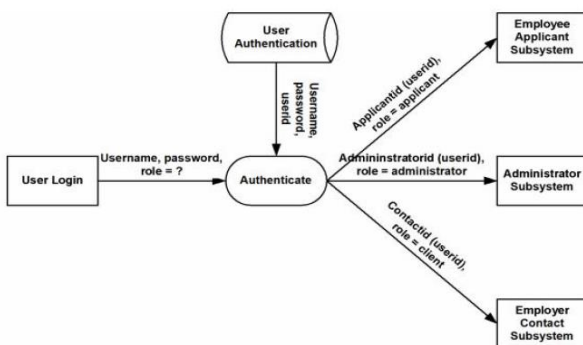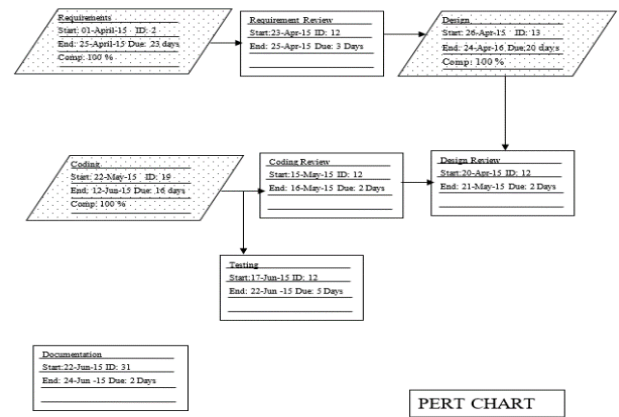


**Fig 4 –** User authentication



**Fig 5 –** PERT chart

## 7. CONCLUSIONS

In this modern work, an authenticated system for handling employee details of an organization was designed and well-protected. Only the admin users can handle the details of the Employee and Payroll from their recruitment to till their exit. The user has the facility to log out after the work is completed wherein the session expires to ensure that the links used for the navigation are not used again to have a peek into the date that is available in the system. Even if the user is idle for some time the user is logged out automatically to ensure that no unauthorized persons gain access to the system. Also, the use of PostgreSQL 9.2 plays a vital role in the security measures, which simplify protection against attacks originating from the network. This in turn contributes to an increased level of privacy, integrity, and accessibility of the system and the data.

## FUTURE SCOPE OF THE WORK

The Human Resource Payroll Management System focuses on managing the Employee Registration, Attendance, and Payroll of the company. The modules that run on the HRPMS are:

- ❖ Login
- ❖ Registration
- ❖ Time and Attendance
- ❖ Payment and Payroll processing

The end users of the HRPMS are the Payroll Admin, Heads of Departments, and Accountants. However, only authorized staff with valid usernames and passwords are capable of using the system.

## REFERENCES

1. http://www.odoo.com
2. http://www.python.org
3. http://www.google.co.in