

School of Computing and Mathematics

PRCO303SL

Final Stage Computing Project

BSc (Hons) Software Engineering

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Human Resource Information System

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# 1. Introduction

## **1.1 About us**

The Project is a Human Recourse information system which is a system that is developed for the human resource managers to provide them with information and at the same time make the task of human resource managers easier and make them more effective in the business. This HRIS system is not specified to a business but can be used by any business to manage their employees, to do their HR tasks and make their human resource department effective.

## **1.2 Introduction**

The management of the human factor of an organization has been one of the main goals of a business and to do so human resource managers are hired and they have the task of training employees, performance management, organization development, safety, wellness, benefits, employee motivation and more. These tasks can be time consuming and hard to manage so the Human Recourse Information systems or also known as HRIS systems were introduced to the human resource managers. A research done by (Hussain, Wallace and Cornelius, 2020) states that the HRIS systems are used by human resource professionals to make strategic decisions no matter the size of the business and says that this has added value to the company and increased the status of the human resource profession. These HRIS systems are used to make the task of human resource managers easier and manageable. In addition, some HRIS systems have automated some of the tasks done by the human resource managers so that they could be more effective and focus on decision making for the betterment of the business.

# 2. Business case

## **2.1 Business needs**

There are several factors that affect the business it may be in a positive way or else a negative way but what decides this outcome depends on how the business manages these factors. The employees of the business are one of the main factors that can have a huge impact on the organization, so the business needs to manage it in a proper manner. According to (Balyuk, 2020) Management of employees is important because the company is made up of people with different ages, customs and profiles and managing them is crucial to the success of the business and she also states that if they are managed in a proper manner it could provide benefits like good working environment, employee development, Increased productivity and motivation and finally business objective alignment. So, what the business needs is a user friendly HRIS system that has the functionalities required for management of employees and reduce the mundane tasks of human resource managers. A good HRIS does not just help the business and HR managers it also helps the employees working in the organization making them more motivated and provide them a good working environment and this will have a positive impact on the business and may result in business growth or it becoming more successful.

### **2.1.1 Identification of the problem**

The problem this project is attempting to solve is the management of employees in a business and to make tasks easier for human resource managers by automating them by developing a HRIS system. so that they can be more efficient in the decision-making process. There are multiple HRIS systems in the market but the problem with those systems are either too complicated for user or there are less functionalities so with this project I will attempt to solve this problem by providing a user friendly HRIS system with the functionalities that are required by the HR managers.

### **2.1.2 Analysis of the problem**

To identify what are the main issues that a HR manager have, the task that could be automated and to determine what information would help the human resource managers to make decisions a questionnaire was done. The target people of the questionnaire was the HR managers, students or anyone who has seen or used HRIS systems, I received fifty plus response from all the target people providing me with information on how happy they are with current HRIS systems, what functionalities a HRIS system should have, the problems they face as HR managers and more. These responses were not one sided but one main thing that all recipients agreed was that Human resources information management systems will improve the effectiveness of Human resource managers and benefit employees. In addition, provide a good performance culture in the business.

## **2.2 Business objectives**

The business may have multiple goals but one of the main goals of the business would be to have an effective human resource management department that manages employees to provide a good performance culture within the business. And To achieve this business goal the following business objectives should be accomplished.

* Automate some of the tasks done by employees to make them more efficient
* Provide human resource managers with analytic data to make important decisions for the betterment of the business
* To manage staff more efficiently and in an easy way
* To have a good communication between management and employees
* To motivate employees and provide a good working environment
* To ensure that organization resources are used efficiently
* To have accurate data within the organization

# 3. Project Objectives

At the end of this project, my goal is to provide a working user-friendly human resources information system that has the functionalities required to help the human resource managers and the objectives of this project are:

1. Identify what are the functionalities that the human managers need to manage task easily.
2. Identify what are the tasks done human resource managers that could be automated.
3. To provide a way to improve the communication between the employees and the management.
4. Create a good working environment for the employees with less arguments and fights within the organization.
5. To make the decision-making process of human resource managers easier using analytic data.
6. To keep the employees up to date on what is happening in the business and when it is happening.
7. To provide a way to manage employees effectively within the business.
8. To Provide self-service capabilities for employees in the business.

# 4. Initial scope

1. Identify what are the human recourses information systems in the current market and find what are the positives and negatives of these systems
2. Identify the human resource process what the human resource managers need to make decisions using questioners
3. The proposed system will allow:
   1. HR managers to get the attendance of each employee and find out the days the employee did not come
   2. HR managers to make decisions effectively by using analytic and statistic data
   3. HR managers to manage and change details about the current employees
   4. HR managers to add and remove the employees that are currently in the business
   5. HR managers to send notifications to the employee in the organization
   6. HR managers and employees to talk to each other using the chat facilities
   7. Employees to request for a holidays and other requests
   8. Employees to see how many holidays they have left for the year
   9. Employees to change some of their personal details
   10. HR managers to manage the hiring process
   11. Employees to review other employees in the same department
   12. HR managers should be able to add events to the calendar and employees can see them
   13. HR managers will be able to fill and submit different kind of forms
   14. HR managers to add bonuses and increase salary
4. A mobile application will also be developed for the employees and the human resource managers
5. The system will use machine learning and provide a suggestion to human resource managers which employee should receive the raise and when they should receive it.

# 5. Method of approach

The development process of system will take use of the incremental approach, The reason the incremental approach was chosen over the other approaches was because with the incremental approach I will be able to make changes throughout the development process after getting a respond to the each iteration and also the errors are easy to find. The incremental approach will have 3 increments. The first increment is the development Human resource manager functionalities for the web and mobile application. The second increment is the development of employee functionality for the web and mobile application. And finally, the third increment is the integration of machine learning and some of the other functionalities.

The web and mobile application will be developed using the above approach but what the technologies that will be used is not yet confirmed but these are some of the possible technologies that will be used and they are Angular, Ionic, Nodejs and firebase which is a real time database.

# 6. System Design

Diagram

Description automatically generated

Diagram 1: The use case diagram

# 7. Project plan

|  |  |  |
| --- | --- | --- |
| **Project Plan** | | |
| **Stage** | **End date** | **Products/deliverables / outcome** |
| Project Initiation | 03/11/2020 | Project initiation document |
| Research on the development area | 05/11/2020 | A clear understanding of what human resource managers need and the short comings of the current HRIS systems |
| High Level designs of the system | 10/11/2020 | Design documents that is needed for the project and graphical user interface layouts |
| Increment 1 | 01/12/2020 | Development of the functionalities for human resource managers in the web and mobile application |
| Increment 2 | 20/12/2020 | Development of the functionalities for employees in the web and mobile application |
| Increment 3 | 31/01/2021 | Integration of machine learning and some of the other functionalities |
| System testing | 12/02/2021 | Testing the entire system using the component testing method |
| completion of final report | 15/03/2021 | Final report of the project |

Table 1: Project Plan

# 8. Stage Management

## **8.1 control plan**

The PRINCE2 techniques will be used to properly control the project so that the required project goal and objectives could be achieved. The PRINCE2 techniques that will be used are the end stage reports after each increment, review of the stage with the supervisor, highlight reports, risk management, quality plan, communication plan and exception reports where they are required.

## **8.2 communication plan**

To maintain a good communication throughout the project there will be multiple supervisor meetings and these meetings will be used to discuss the progression of the project, next stage of the plan, end stage report and feedbacks meetings will be held. In addition to mentioned meetings the necessary meetings will also be held.

# 9. Initial risk list

During the development of a project there are risks that are undertaken or problems that might occur and these risks should be managed during the planning process of the project so that when the particular risk occurs then we know what has to be done. And having a risk analysis can sometimes determine the success and failure of a project. During the risk analysis of the project these were the risk that was identified for this project.

|  |  |  |
| --- | --- | --- |
| **Risk Plan** | | |
| **Risk** | **Probability of Occurrence** | **Management Strategy** |
| Schedule overrun | High | To avoid running into this issue a clear plan is made when each stage of the incremental approach should be completed, and I plan to discuss with my supervisor to let him know my progress and get his option whether I could manage the work with the current project scope. |
| Acts of God | Low | In the case of an event as such then the development of the application would not be affected because it will be backed up and so the development could continue from where I left off. |
| Technical difficulties | Moderate | To avoid the entire project been lost due to technical failures a GitHub repository will be created and maintained so that each time a change is made to the project it can be updated to the GitHub. |
| Trouble learning required development technologies | Low | To avoid this a proper research was done during the planning phase and determined whether it was capable doing the project with the suggested technologies and checked whether there is enough documentation and tutorial if I run into any issue during the project. |
| Scope creep | High | To avoid the project scope from growing after the project plan a strict project scope will be followed to avoid getting sidetracked from the initial project scope. |
| User acceptance | Low | User acceptance is one of the most important things and to make sure that human resource managers will like the product a questioner will be made to check what they need, and the systems user friendliness. In addition, I will get my supervisors opinion on the application. |

Table 2: Risk Management Plan

# 10. Initial quality plans

During the development of a project quality is one of the essentials things that should be considered because it is one of the main things that a customer looks for in a product and due to poor quality, the customer may even reject the entire application. So, to ensure that this project provides a good quality HRIS system the following quality checks will be done and these strategies will be used to do these checks, So if these quality checks are done in a proper way then the quality of the system can be ensured.

|  |  |
| --- | --- |
| **Quality Plan** | |
| **Quality check** | **Strategy** |
| Major deliverables | To ensure that the major deliverables are met a plan is made on the work process so it is not rushed this will also ensure that the system has the functionalities mentioned and nothing will be missed. |
| Quality control activities throughout the project | To ensure the quality I will get a review from my supervisor after each increment of the project and during the testing period of the system |
| Sub system usability and validation | This will be done after each increment to ensure quality is maintained in the project |
| Quality assurance activities | To ensure that the quality of the application is maintained I will get the review of the quality from my supervisor after each stage. |
| Feasibility study | A feasibility study will be done on the project to ensure that the project is worth the time and effort and to show how it will benefit the business. |
| System validation and user acceptance | To ensure that the human resource managers accept the product and is also helpful to them a questioner was conducted of what they need and what they want from a human resource information system. So, it could be delivered to them. In addition, I will also get the option of my supervisor. |

Table 3: Quality Management Plan

# References

* Hussain, Z., Wallace, J. and Cornelius, N., 2020. The use and impact of human resource information systems on human resource management professionals. *Information & Management*, [online] 44(1), pp.74-89. Available at: <https://www-sciencedirect-com.plymouth.idm.oclc.org/science/article/pii/S0378720606001157>

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* Balyuk, A., 2020. *7 Benefits Of Managing People In The Company - Epicflow*. [online] Epicflow. Available at: <https://www.epicflow.com/blog/7-benefits-of-managing-people-in-the-company/> [Accessed 28 October 2020].

# Appendix

### **1. Questioner**

Graphical user interface, text, application

Description automatically generated

Image 1: Of Questioner

Graphical user interface, text, application

Description automatically generated

Image 2: Of Questioner

Graphical user interface, text, application, chat or text message

Description automatically generated

Image 3: Of Questioner

Graphical user interface, text, application, chat or text message

Description automatically generated

Image 4: Of Questioner

Graphical user interface, text, application, chat or text message

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Image 5: Of Questioner

### **2. Supervisor Meetings**

**Final Year Project – Supervisory meeting minutes**

Meeting No: 01

Date : 16 October 2020

Project Title : HRIS System

Name of the Student : Nidula Nuran Wijesuriya

Students ID : 10674049

Name of the Supervisor : Dr. Rasika Ranaweera

**Items discussed:**

In this meeting I suggested the Human resource Information system and the functionalities it will have along with what technologies I am planning to use. In addition, I was advised on some of the things I was going to implement and provided me with suggestions on the HRIS system. We also discussed the things that should be there in the project proposal.

**Items to be completed before the next supervisory meeting:**

I was asked to complete the project proposal and submit it to the DLE and start on the project initiation document

……………………….

Supervisor (Signature & Date)

**Final Year Project – Supervisory meeting minutes**

Meeting No: 02

Date : 23 October 2020

Project Title : HRIS System

Name of the Student : Nidula Nuran Wijesuriya

Students ID : 10674049

Name of the Supervisor : Dr. Rasika Ranaweera

**Items discussed:**

During this meeting we discussed about the project initiation document and the things it should contain and discussed on the things that I could add to improve it such as the questioner. We also discussed my decision of changing from desktop to a web and mobile application

**Items to be completed before the next supervisory meeting:**

I was advised to complete the project initiation document

……………………….

Supervisor (Signature & Date)