ERP System for Non-Governmental Organization

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Abstract—**This paper emphasizes on the details about a web-based Enterprise resource planning (ERP) system for Non-Governmental Organizations (NGO). The details about its need, functionality and scope are described in this paper. The NGO ERP System is aimed to provide central platform through which the NGOs can perform administrative tasks, manage records and improve their working environment. It also reduces the workload, cost and time through proper management and execution of the administrative tasks. The key components of this system includes biometric attendance system, inventory system, finance reports and employee record management.**

Keywords- **management system, NGO management application, records, inventory system, project management, financial reporting.**

I. INTRODUCTION

NON-Governmental Organizations (NGOs) have a significant role in the development of the society because they play a vital role in the interest of general public. Presently, there is large number of NGOs which are operating in urban and rural areas of Pakistan in different fields. Most of the organizations have branches located at remote areas so, considering that there are many problems faced by those NGOs regarding managing their office work, communicate with other branches and maintaining records. However a system is required which should be capable of reducing the communication gap by linking branches with the head office of the organization through providing a central platform as the workplace for the organization. It is very key requirement at the present time to introduce a system from which the administrative tasks could be managed including other related work being practiced in NGOs.

At the present time, internet is widely used in organizations and it has many benefits for non-governmental organizations at the same time [1]. From the personal use of computers to the large systems for the organizations, almost every work in done with the involvement of digital devices. To process business processes manually is a challenging and complex task for human beings but as the technology has been advanced and it helps us to overcome these problems. For a developing country like Pakistan, the growth in IT industry and adaption of computer systems is important for all sectors. There are certain problems in the country like illiteracy, child labor, unemployment, honor killings, droughts and other. There are the various NGOs working for these causes in order to tackle these problems being faced by the people. So an advance system is required which can play an effective role by supporting the proper flow of work process

in the NGOs. A type of system which can boost the performance and provide better management to NGOS and it can help the organizations to improve the working process and standardize the workspace. To process the work manually and get the quicker and accurate results is big challenge faced by the employees of any organization. But if manual system is upgraded to digitalized system then it will increase the work efficiency and save time. The proposed system is able to help organizations in order to improve performance and reduce the workload.

Many NGOs does not have any mechanism to electronically store data that could be reused or accessed for the future usage. The most important part of any organization is managing financial processes and as far as NGOs are considered, the relationship between donors and NGOs must be developed by establishing proper framework with transparent management of records [2]. This research aims to introduce the NGO ERP system for the organization in order to avoid extensive paper work, communication gap, distributed working mechanism, improper record management, reports generation complexities and storage problems. The proposed system is targeted to develop a web-application for the NGOs through which the organizations can manage and control its workspace, employees and branches. The generation of reports including expense reports, finance reports, project reports and salary slips can be done with the help of the proposed system. The functionalities provided by the system are inventory system, employee's record management, biometric attendance system, human resources management, project management, task assigning and other options. There are many web based ERP systems present for NGOs but most of them are having issues which are mentioned in the Literature Review sections of the paper. Almost existing ERP systems which are available on Internet are developed for general business organization, not specifically for the usage of NGOs.

II. LITERATURE REVIEW

As the number & work importance of the NGOs has been increased by time. Hence there are solutions which are provided to increase their work efficiency. For that purpose, there are many desktop applications present for NGO management.

Microsoft's Office 365 software for NGOs provides various functionalities like web conferencing, file sharing, plus professional email and other tools. It is a low cost software used for the management of NGOs around the world [3]. Sage ERP X3 is another software used for the NGO management and other office work [4]. The main objective behind this software is to provide a single platform where different functionalities can be performed. It provides

functionalities of HR & Payroll, Finance, Projects, Purchasing and others. This software provides multi-legislation, multi-language and multicurrency system to the NGOs around the globe. In Pakistan, one of the most popular and active NGO Edhi Foundation is having an online website for their organization. It contains all the information about their work, online donations, activities, contact details and other information. The existing systems for the NGOs are mostly desktop applications and we don't have any popular or efficient online application for the NGOs. The NGO ERP system being developed by us is aimed to provide all the functionalities required byan NGO in order to perform its activities related to management and other office in a single web application. Another problem which is being faced in current practices is unavailability of all modules and functionalities in a single centralized system. ESOLPK software house based in Pakistan provides line of applications for the NGOs and related processes [5]. However the problem occurs is having separate applications and upgrades for each process of a same organization and it obviously increases limitations and cost. In order to establish a framework for the management of NGOs, there are certain general procedures and standards of other for-profit organization which can be flexible enough to be executed in NGOs as well [6]. The existing systems and current practices of the organizations are being focused in our research so that the issues could be addressed.

ERP systems are being used in business organizations as it promises better performance but the failure rate of of ERP implementation is also high. Problems like poor risk management, inadequate allocation of human resources over time, and vendor management are some common problems associated with the implementation of an enterprise system [7].

III.   PRELIMINARY SURVEY

In context to the research and development of NGO ERP system, the preliminary survey was conducted in the four (4) NGOs currently operating in Hyderabad Pakistan. Interviews were conducted from the employees working there about the existing systems and what extensions are required to improve their current practices. In the graph (A) given in Fig. 1, the survey is focused on how many organizations have existing connectivity with Internet in shape of website or application. In the graph (B), it is shown that on what period of time the organizations communicate with its other branches. The head office requires to monitor its branches and get updates while the branches to send updates and submit reports to the head office on daily, weekly and monthly basis. In order to know about how familiar organizations are with usage of computer and related applications, the questions as shown in graph (C) and (D) were asked to know what applications the organizations are currently using and what kind of procedures are being followed to store and access database. Graph (E) shows that what is main need of the organization and in which they are having problems.
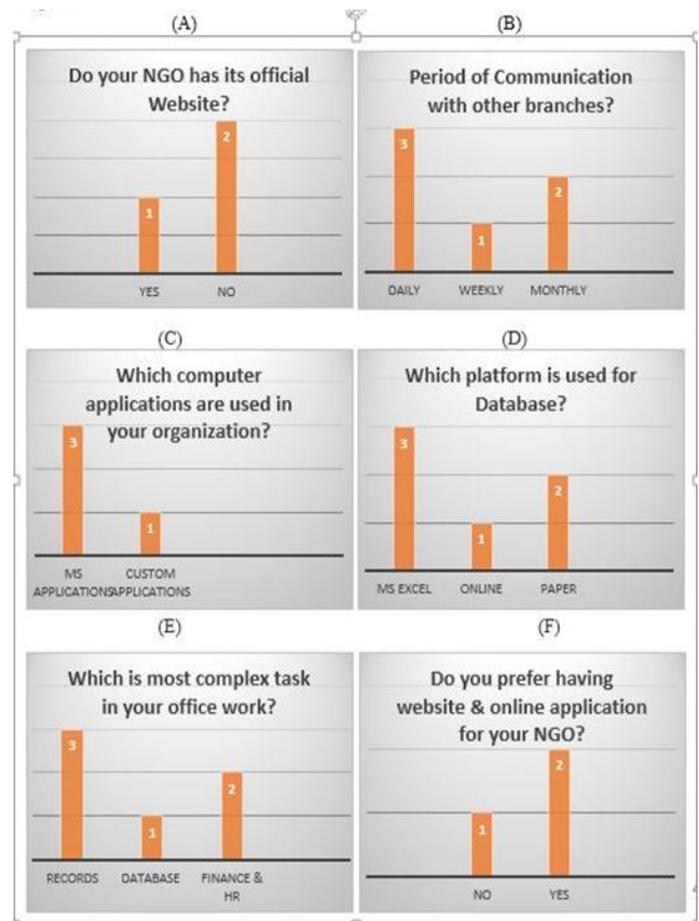

Fig. 1. Survey questions

In the last graph (F), the survey focuses on if the organizations wanted to adapt digitalization and by having their own website and application. By observing the NGOs and their current working environment, it has been observed that some of the NGOs are using paper to take attendance and the daily expense reports, employee's records and other details are generated and saved in paper files. However, computers are also being used by NGOs but only to create and save MS Word/Excel files. The data is saved manually in the Excel database and accessed from the saved files when required. It has been noticed that records saved in the papers are hard to manage, access and keep secure. On the other hand as mentioned in Literature Review, there are many software but they hardly meet the requirements of the NGOs and it gets difficult for the organizations to adapt those software.

As per the survey results and interviews, some of the flaws, limitations and challenges in existing systems are mentioned below:

- Manual work on paper which required extra human effort.
- Difficult to save and manage records saved on papers.
- Big challenge to find, update and secure the records on papers.
- Communication gap between the head office and sub-branches.
- No single and dedicated platform to communicate and share.

- No mechanism to monitor the sub-branches located at different areas.
- Lack of establishment of the financial reports and keep information of everything.
- The information and records about the employees is not properly saved.
- The attendance system of the employees working in different branches.
- There is no proper training of the employees in terms of improving management.

These questions were asked from 8 employees of 5 different NGOs and the results are visualized in the graphs. The graphs show how many NGOs selected the particular or multiple options. Considering the demand and need of the NGOs, we have focused the issues and modules which are resulted in the survey.

The survey is kept limited to 3 organizations existing in Hyderabad region in order to tackle the complexity issues and being more specific towards finding the highly required functionalities in non-governmental organizations. The most general issues and requirements are added and addressed in NGO ERP system with the help of the preliminary survey. It is also required to mention that the NGOs in which survey and interviews were conducted also shown their interest in adapting the system which includes the features and functionalities which are in NGO ERP system.

IV.   METHODOLOGY

The NGO ERP system is being developed to perform and meet requirements of the NGOs. In order to collect the requirements and the data through which it could be able to understand the need of NGOs and which type of functionalities are performed and required in their daily office work, the survey and interviews were conducted by in the various NGOs operating in the region.

The existing systems of the NGOs were observed and the flaws, hurdles and limitations faced by the NGOs were noticed. By collecting the requirements from all stakeholders, the concluding functionalities which are main and mutually required by most of the NGOs are included in the NGO ERP system. As the NGOs have many branches and the lack of central platform through which other branches can be linked and share data is highly demanded. The requirements and data collected is the analyzed in order to add the functionalities and other modules of the NGO ERP system. In order to understand the general standards and requirements needed to increase the performance of any organizations, the research was conducted to understand core requirements for any ERP system to avoid failure and achieve quality. The system development life cycle (SDLC) was used to develop the system as it involves planning, creating, tasting and deploying of the system. The data and information gathered from research papers and survey were used to develop the NGO ERP system and data was analyzed in order to select the best options. The statistical tests were applied to analyze the data to select more specific requirements from the data collected through survey and interviews. The measurements and calculations were also performed depending on which module is selected the most by NGOs in which survey was conducted.

The modules like database and records management were highly focused by every NGO and the employees working there. That is why modules with high requirement got special focus in the design and development processes. Direct survey and interviews from the employees of NGOs helped to collect data and analyze it deeply in order to develop NGO ERP system.

V.   EXPECTED RESULTS

With the development of NGO ERP system, it is aimed to provide the central platform to the NGOs through which they can manage the tasks related to management and records. It will help NGOs to manage their work and employees and keep data and track of everything being done within the organization. The NGO ERP system targets to provide time efficient work environment to NGOs through which the office related tasks including records management, employees' record management and financial work can be done in an efficient way. Project management is important module included in this system as periodically measuring progress functionality is important part in achieving the project management maturity [8]. It would also help NGOs to improve their communication and monitoring of sub-branches within a single organization.

The big impact of this system is the automation of administrative tasks and providing a central platform where an organization can achieve the tasks including office work, creating and saving records, manage and control employees, communicating and monitoring other branches, managing and creating reports, managing HR, Finance and Administration departments along-with other related operations. In the result, an organization can operate in more efficient and effective way to save their cost, time and working capacity.

VI.   SCOPE

The NGO ERP system is being developed for the usage of Non-governmental organizations to manage their records and perform management tasks. The targeted users of this system are the Non-governmental organizations and the most important and commonly used functionalities required by NGOs are focused in the system. It would help any organization to adapt and engage this system in their working environment as it provides general functionalities and easy usage. However the functionalities and modules are included by conducting survey from specific organizations as mentioned in Preliminary Survey. In terms of usage the system targets the requirements of few NGOs from which the survey and interviews were taken as their required modules are added into the system. This system is aimed to benefit the NGOs in terms of managing their work digitally and creating database and records for each task and department of the organization. Hence, the scope of this system is wide and adaptive for the NGOs.

VII. CONCLUSION

The NGO ERP system is being researched upon and developed to provide an online application to the organizations from which they can perform tasks related to management and controlling the flow of whole organization. The system provides the services to manage attendance, finance, human resource, inventory, expense reports, projects and database to create, save and access records. The main target of this system is to reduce complexity in workspace and efficiently use time & cost resources of the organization. The system and its modules helps the organizations to digitalize their working environment and address the issues which they are facing currently with the manual systems.

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