EVALUATION ON THE USABILITY OF HR COMPENSATION SYSTEM IN SMARTPHONES

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The purpose of this study is to further the research on the usability of smartphone applications particularly in the area of HR Compensation System. HR Compensation, without automation, has always been tedious and time consuming to perform especially in large organizations. The first phase of the project involves doing a pre-survey to evaluate if there is a need to develop an HR Compensation Smartphone application and if there is, get the necessary features for creating the initial user interface design. The second and third phases involve building up a better user interface design based on feedbacks from user surveys. The final phase involves creating a fully-operational prototype based on the output from the second and third phases. With thorough evaluation, we will eliminate the assumption that HR Compensation System has no significant value or usability in smartphones. This will also allow for more consideration on other HR Systems like Recruiting subsystem, Work force planning subsystem and others to be direct future areas of research and implementation.

General Terms: compensation, compensation management system, smartphone application, database sync, synchronize, automation

Additional Keywords and Phrases: mobile, payroll, benefits, human resource, human capital management, recruiting, work force

1. INTRODUCTION

1.1 Background of the Study

HR Compensation tasks posed a lot of effort for companies and HR employees in particular because they were very time consuming due to the large number of processes needed to complete a single employee payroll computation. Manual HR Compensation systems suffered more than automated ones in a lot of scenarios due to high volume of employees but the problem this research would delve into is not only for manual HR Compensation systems but also for automated HR Compensation systems.

It is worthwhile to explore this research because automating HR Compensation systems were a daunting task and that is why there hasn't been significant improvement to fully implement HR Compensation systems into smartphone devices.

There hasn't been big significant improvements regarding HR Compensation systems used in smartphone devices and that is why this research needs to be conducted. This research, however, will focus more on developing and evaluating the usability of HR Compensation interface systems using smartphones.

To enable companies to gear towards a maintainable growing workforce, there is a need to improve employee accessibility of some employee information like checking payslips or salary details. Most employees now own a smartphone which they use to check information especially when they are mobile hence the need to implement it in smartphones.

Conducting the evaluation on the usability of HR Compensation UI systems in smartphones would further prove as a basis on how well the system will be utilized by people and may also serve as a starting point to break the barrier of obstacles that would hinder HR Compensation systems from being successful or usable in the market.

1.2 Technology Application Context

A. .NET Framework - is a technology that supports building and running the next generation of applications and XML Web services. The .NET Framework is designed to fulfill the following objectives: (1) to provide a consistent object-oriented programming environment whether object code is stored and executed locally, executed locally but Internet-distributed, or executed remotely, (2) To provide a code-execution environment that minimizes software deployment and versioning conflicts, (3) to provide a code-execution environment that promotes safe execution of code, including code created by an unknown or semi-trusted third party, (4) to make the developer experience consistent across widely varying types of applications, such as Windows-based applications and Web-based applications, (5) to make the developer experience consistent across widely varying types of applications, such as Windows-based applications and Web-based applications and (6) to make the developer experience consistent across widely varying types of applications, such as Windows-based applications and Web-based applications.

B. C# (pronounced "see sharp" or "C Sharp") - is one of many .NET programming languages. It is object-oriented and allows you to build reusable components for a wide variety of application types Microsoft introduced C# on June 26th, 2000.

C. ASP.NET MVC - is one of three ASP.NET programming models. It is a framework for building web applications using a MVC (Model View Controller) design: (1) the Model represents the application core (for instance a list of database records), (2) the View displays the data (the database records) and (3) the Controller handles the input (to the database records). Below shows the graphical representation of how the MVC communicates:

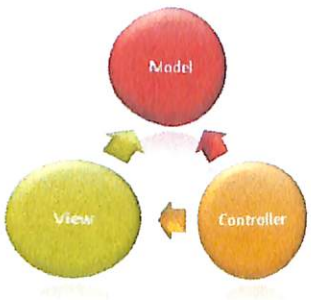

Figure 1.0.MVC graphical representation. Referenced from http://www.w3schools.com/aspnet/mvc_intro.asp.

The Model is the part of the application that handles the logic for the application data.
Often model objects retrieve data (and store data) from a database.

The View is the part of the application that handles the display of the data.
Most often views are created from the model data.

The Controller is the part of the application that handles user interaction.
Typically controllers read data from a view, control user input, and send input data to the model.

The MVC separation helps you manage complex applications, because you can focus on one aspect a time. For example, you can focus on the view without depending on the business logic. It also makes it easier to test an application.

D. SQL Server - is a relational database management system (RDBMS) from Microsoft that is designed for the enterprise environment. It runs on T-SQL (Transact -SQL), a set of programming extensions from Sybase and Microsoft that add several features to standard SQL including transaction control, exception and error handling, row processing and declared variables. Codenamed Yukon in development, SQL Server 2005 was released in November 2005. The 2005 product is said to provide enhanced flexibility, scalability, reliability and security to database applications and to make them easier to create and deploy thus reducing the complexity and tedium involved in database management. SQL Server 2005 also includes more administrative support.

E. Telerik's Kendo UI – provide jQuery-based user interface widgets that give developers the ability to create standard themes and even better interfaces on smartphones from their powerful toolset. It is also mobile-friendly, responsive and has built-in customizable themes.

F. WCF (Windows Communication Foundation) - is a framework for building service-oriented applications. Using WCF, you can send data as asynchronous messages from one service endpoint to another. A service endpoint can be part of a continuously available service hosted by IIS, or it can be a service hosted in an application.

1.3 Problem Statement

Locally in Mindanao, HR Compensation software is not that very popular because we cannot find big companies that have transformed their existing HR Compensation to include mobile technology. Most of the existing HR Compensation systems still use a paper based payslip. Employees do not experience a 24/7 access to information related to their salaries. Employees usually own a smartphone, thus creating a mobile application that will allow them to view their salaries will be beneficial.

Currently, companies are still looking into how they could optimize their HR processes and most especially in the HR Compensation area. Although the technology trend is already capable to perform the technical implementations, there still needs to have a study to really prove that implementing HR Compensation in smartphones is feasible. In light of these problems, we will ask these research questions:

1.) What is the extent of need in innovating the HR Compensation Management System to include smartphone devices?
2.) What kind of interface will work for the users of the HR Compensation Management System?
3.) How effective is the proposed HR Compensation Management System interface?
4.) What is the level of satisfaction of the users who use the HR Compensation Management System interface?

1.4 Objectives

Following are the aims and objectives of this research project:

1.) To understand the need for innovation of HR Compensation systems in selected companies.
2.) To understand the level of usability on each of the proposed HR Compensation System user interfaces in smartphones.
3.) To develop a user interface (UI) using the usability principles of the HR Compensation System in smartphones.
4.) To determine the effectiveness of the HR Compensation System interface in smartphone devices for implementation

1.5 Significance of the Study

HR Compensation system will help companies worldwide in efficiently managing their human resource operations particularly in Compensation systems.

This study will help to determine the effectiveness of using a Smartphone HR application in businesses by making it easier for them to manage their HR operations. HR Compensation System smartphone app will help the organizations to meet and exceed their individualized Payroll and Benefits needs.

This study also focuses on the effects of the smartphone app on managing the sub-modules of a HR Compensation System: Payroll, Merit Increase and Attendance on the smartphone. This technology will streamline the HR processes and will effectively reduce administrative burdens.

Furthermore, this will help organizations to reduce their HR administrative and compliance costs. If the usability of this smartphone app becomes high, then it will enable the organizations to compete more effectively for their global talent. Moreover, the improved service with ease and time saving access to data for employees and managers will make this process easy to run for the organization.

The following will also benefit the study:

A. Employees – access to up-to-date payslip information and historical figures.
B. Payroll Masters and Administrators – conveniently able to create, show and hide fields for displaying data to employees' compensation screen.
C. Company – employee satisfaction through the use of HR Compensation App in smartphones.

1.6 Scope and Limitations

The study limits itself to the following:

1.) Human Resource Information System has a very huge scope and it shall be known that the study will only delve on the following Compensation Subsystem interface modules: Payroll and Benefits.
2.) Accessing the most current information about employee salaries and current data on the external market could be a very big task. So for this study, salary surveys shall be dated by as much as two to three years.
3.) It is often time-consuming to track and capture salary information for all individuals in the company. Therefore, the scope of the Compensation solution will only include being able to access, collect and summarize the latest wage and benefits data for both internal and external labor markets.

4.) Smartphones category include both "smarter" mobile phone (smartphones) and tablet devices. For this study, we will concentrate on the smartphone interface designs only.
5.) Creating new fields in database synchronization tool could be applied to different targeted tables but displaying the new fields in the mobile app, although it be can be done, is currently limited only for viewing inside the Personal Information.
6.) Employee's password is currently limited to the default generated password. "Modify Password" function can be added later on if it is the project is fully implemented.
7.) The smartphone application also is currently limited to android phones because other phones have a styling issue. Although it could still be viewed, it is not advisable because the study is basically involved in the user interface design.

1.7 Definition of Terms

1. UI – User interface; Visual part of computer application or operating system through which a user interacts with a computer or a software.

2. HR – Human Resources; A department within an organization that deals with the people who work for that organization.

3. OHS – Occupational Health & Safety; It is concerned with protecting the safety, health and welfare of people engaged in work or employment. The enjoyment of these standards at the highest levels is a basic human right that should be accessible by each and every worker.

4. ICT - Information and Communication Technologies; refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT) but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums.

5. Compensation - can be defined as all of the rewards earned by employees in return for their service or work done.

2. REVIEW OF RELATED LITERATURE

The smartphone HR technology market is growing rapidly, hence there are new solutions emerging all the time. One such solution is the "HR Compensation App". This is a software application that can be installed on smartphone devices which can enable staff to review their pay statements, view total amount earned, deductions from paychecks, benefits, attendance, etc. The application also enables managers to view employee list and pay statements among others. However, the survival of smartphone applications often depends on their usability.

2.1 HR Compensation in desktop applications

According to a case study conducted by CGI Group Inc., in order to meet tough productivity and cost saving targets, the cities of Helsinki and Vantaa in Finland decided to reduce the use of paper and re-design hierarchical and overlapping processes. The cities wanted user-friendly solutions that would meet these requirements and make the everyday life easier in each level of the organization. Electronic HR tools were to be introduced to reduce routine work.

Their study found out that consistent, role-specific HR desktops with electronic self-services were created based on the process development goals and requirements definition. Each user group was provided with more efficient access to data in different HR systems.

2.2 HR Compensation in web applications

Web applications provide you with convenience and efficiency because of its ability to be accessed wherever and whenever you want to. As described by CGI Group Inc., using the web-based services, they can log in from any computer, regardless of time and place. For instance, employees of a day care center use a private user-ID and password to access their personal data from a shared computer.

With regard to HR Compensation in web applications and with this study, Plutino (2004) found out that potential clients may base part of their decision on which company to use by evaluating the usability and functionality of its website. This study intensively evaluates the usability principles to the HR Compensation System using the principles described in Zhang and Adipat (2005).

2.3 HR Application in smartphones

As described from Humair (2011), he found out that workers would greatly benefit from the ability to access certain HR applications at any time. The greatest benefit would be in areas where information is needed or an action must be completed at a moment's notice.

While in the case of usability, Zhang and Adipat (2005) agrees with Yong Gu Ji et al (2006) that usability testing of software applications developed for mobile devices is an emerging research area, and posits that it faces a variety of challenges due to the unique features of mobile devices, limited bandwidth, unreliability of wireless networks, as well as changing context (environmental factors). Zhang and Adipat (2005) argue that the traditional guidelines and methods used in usability testing of desktop applications may not be directly applicable to a mobile environment. Therefore, it is essential to develop and adopt appropriate research methodologies that can evaluate the usability of mobile applications. Zhang and Adipat (2005) proposed a generic framework for conducting usability tests for mobile applications and provide detailed guidelines on how to conduct such usability studies using usability attributes. Usability attributes are various features that are used to measure the quality of applications based on the standard ISO 9241, human–computer interaction handbooks, and existing usability studies on mobile applications.

The literature search revealed that not many studies have been conducted on the usability of HR smartphone or mobile devices. There have been a few usability studies for mobile applications. Some focused on Wireless Application Protocol (WAP) evaluation (Chittaro & Cin, 2002; Kaasinen et al., 2000). In the field of mobile education, usability studies were conducted when mobile devices were used for collaborative learning or information access (Danesh, Inkpen, Lau, Shu, & Booth, 2001; Luchini et al., 2002). No study was found that test the usability of HR compensation application in smartphones and therefore would justify the need for this research.

2.4 HR Compensation in smartphones

Although you would barely see HR Compensation in smartphones being fully implemented due to reasons described by Humair (2011) saying that, not all HR applications should go mobile right away. Usually the ones that would be the coolest looking are, unfortunately, the ones you probably want to wait on, and some human resources applications are just too time intensive for workers or just too complex to have on a mobile device.

Yong Gu, Ji et al (2006) said that, in the last decade, the research of the usability of mobile phones has been a newly evolving area with few established methodologies and realistic practices that ensure capturing usability in evaluation. Thus, there exists growing demand to explore appropriate evaluation methodologies that evaluate the usability of mobile phones quickly as well as comprehensively. Yong Gu, Ji et al (2006) developed a task-based usability checklist based on heuristic evaluations in views of mobile phone user interface (UI) practitioners. A hierarchical structure of UI design elements and usability principles related to mobile phones were developed and then utilized to develop the checklist. To demonstrate the practical effectiveness of the proposed checklist, comparative experiments were conducted on the usability checklist and usability testing.

The majority of usability problems found by usability testing and additional problems were discovered by the proposed checklist. Yong Gu, Ji et al (2006) expected that the proposed usability checklist could be used quickly and efficiently by usability practitioners to evaluate the mobile phone UI in the middle of the mobile phone development process.

According to Zhang and Adipat (2005), there are nine generic usability attributes namely; learnability, efficiency, memorability, error, satisfaction, effectiveness, simplicity, comprehensibility and learning performance. Learnability focuses on how easily users can finish a task the first time using an application and how quickly users can improve their performance levels (i.e., ease of use). Efficiency is defined as how fast users can accomplish a task while using an application. Memorability refers to the level of ease with which users can recall how to use an application after discontinuing its use for some time. Errors can be measured by counting the number of mistakes that users make while using a mobile application. User satisfaction reflects the attitude of users toward using a mobile application. Effectiveness is defined as completeness and accuracy with which users achieve certain goals. Simplicity is the degree of comfort with which users find a way to accomplish tasks. Comprehensibility, sometimes used interchangeably with the term readability, measures how easily users can understand content presented on mobile devices. Because current mobile applications primarily deal with textual information, the presentation of information has significant effect on users' understanding of content. Learning performance measures the learning effectiveness of users in mobile education. Data was collected in laboratory experiments. Data collection methods such as observation, interview, survey questionnaire and verbal protocol were utilized in usability testing of mobile application. Understanding these 9 usability features provides a frame work for developing HR mobile usability.