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PSU LINGAYEN VIRTUAL MAPPING WALK-THROUGH

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Abstract *- PSU Lingayen Virtual Mapping Walk-Through aimed to guide the new students to search and find the buildings and rooms easily in Pangasinan State University Lingayen Campus if they are not familiar with. This study aimed to design and develop a System "PSU Lingayen Virtual Mapping Walk Through. The study attained the following: (1) To identify the problems encountered in searching/locating the rooms in PSU Lingayen Campus; and (2) To identify the features of the developed PSU Lingayen Virtual Mapping Walk-Through. The developers used RAD model for the development of the study.*

The problems encountered by the new students and visitors in manual way of finding buildings and rooms are: Tiring and consuming in manual process, and uncertainly in giving directions and the exact location. The features of the proposed PSU Lingayen Virtual Mapping Walk-Through are: 3D view and Walk-Through.

Keywords *– PSU Lingayen, Virtual Mapping, Walk-through*

I. INTRODUCTION

Technology is a modern phenomenon that has dramatically changed the daily lives of individuals and businesses throughout the world. It has also an essential part of our lives today and few can imagine living without. Technology makes our work and tasks easier and hassle free, by the help of it people can communicate easier halfway across the globe in the real time. (Rodriguez, M. 2011)

Modern Technology has become so entrenched in the idea of a modern society that two are nearly inseparable. Developing countries try to get better utilities, more vehicles, faster computers, as well as Internet and cell phone providers because that`s what makes a modern society. Modern technology must be implemented in order to accomplish the feats required of a modern society. (n.a, 2018)

The latest technology changed a lot from what we saw in the last decade or in the past century. New machines and gadgets are invented to make jobs easier like never before. That is why majority of the people today could not live without using any gadgets because it is considered as one of the basic needs in today`s life. (n.a, 2017)

One of the biggest benefits of modern technology is that human longevity and health have improved because of its application. As understanding of the body and its functions improved, and as new tools to help heal it (lasers, sonograms, enhanced medication, and nonintrusive surgical tools, just to name few) are created, life lasts longer. Not only does life extend, but people can live more comfortably, and recover from wounds and diseases that even a half century ago would have been fatal. In many cases these people live full, productive lives. (Litherland, N. 2017)

Technology used on a daily basis to accomplish specific tasks or interests. Modern technology or evolved technology at times may replace previously used technology due to its increased benefits or newfound popularity. Take for example transportation technology; at onetime steam-powered trains were widely used, now they have been replaced by electric powered trains which move significantly faster, allowing for more efficient use of time and better use of natural resources. (Ramsey, K 2012)

A Kiosk is a small, stand-alone booth typically provides information and applications on education, commerce, entertainment and a variety of other topics. Kiosk are popular due to the number of advantages they provide. There are three common types of kiosk machines. The Touch screen kiosk, that stands alone device that features a touch screen interface and uses highly

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advanced programming software. Second the Internet Kiosk offers internet access to the public, and the Photo Kiosk some of the most common types of photo kiosk are instant print stations, digital order stations, movie ticketing, DVD vending building directory and public transport ticketing kiosks. (Orencia, A. 2017)

The self-service and point-of-use kiosk industry is booming. Today's kiosks are being used for everything from dispensing high-end electronics in airports and malls. (Fanton, D. 2014)

A Digital Mapping is that process by a collection of data is compiled and formatted into a virtual image. The primary function of this technology is to produce maps that give accurate representations of a particular area.

One of the problems that arisen in other study that most of the students, especially freshmen, have a hard time in locating their rooms and finding school buildings. With this problem in hand, they determine to remedy it by using a virtual map which the students can use before or during their school days.

Advantages of Digital Mapping colors and patterns are easier to apply. Since there are very little artistic skills required to reproduce maps, it becomes easier to apply patterns and colors when representing features on a map. It is easier to make changes. Maps mainly rely on symbols and only show specific features of a given area as opposed to everything in that area. Integration is easy. Maps can easily be integrated with other applications and used concurrently. This also makes it easier to read and understand maps especially when reading in relation to other applications. (n.a, 2018)

Real walking offers high immersive presence for the Virtual reality applications than alternative locomotive means such as walking in place and external locomotive gadgets, but needs to take into consideration different room sizes, wall shapes, and surrounding objects in the virtual and real world. Despite perceptual study of impossible spaces and redirected walking, there are no general methods to match a given pair of virtual and real scenes. (Li-Yi Wei,. 2016)

Today maps are produced digitally and delivered electronically. National Geographic`s Map Machine is an example of this. This is like a Kiosk that is appearing in retail outlets throughout in United States. It allows users to browse for the map they need.

Pangasinan State University is a public university. Its main campus is located in Lingayen, Pangasinan, with its satellite campuses in Alaminos, San Carlos, and Urdaneta, along with the municipalities of Asingan, Bayambang, Binmaley, Infanta, and Santa Maria. The main campus was established in 1979. It is officially accredited and recognized by the Commission on Higher Education (CHEd).

Much of mapping done today is designed for the World Wide Web or other virtual environment. Common types include static, interactive, and animated maps. These maps are constructed in a variety or raster and vector formats, depending on the capabilities needed.

In line with this, the researchers developed a system entitled "PSU Lingayen Virtual Mapping Walk-Through System" which is used for searching buildings and/or rooms in Pangasinan State University, Lingayen Campus. It will help new students and visitors to find easily the buildings and/or rooms they are searching for through the system. It includes 3D feature of buildings and rooms in Lingayen Campus and guide the students/visitors to the searched location through walking through the Campus, mini map and compass.

OBJECTIVES OF THE STUDY

This study aimed to develop a system application entitled PSU Lingayen Virtual Mapping Walk-Through with the following specific objectives:

1. To identify the problems encountered in searching/locating buildings and rooms in PSU Lingayen Campus;

2. To identify the features appropriate in the developed PSU Lingayen Virtual Mapping Walk-Through;

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MATERIALS AND METHODS

The researchers used Rapid Application Development (RAD) model for the development of the system. It is a linear sequential software development process model that emphasized on development cycle using a component based construction approach, as a method that enables a development term to create a fully functional system within a very short period of time. This was used to develop the system because of time constrains of the development schedule.

By using RAD platform, the researchers can shorten development process. This allows us to develop and push our system in much shorter time. By utilizing a Rapid Application Development method, the researchers can aggressively utilize knowledge and discoveries gleaned during the development process itself to shape the design and or alter the software direction directly.

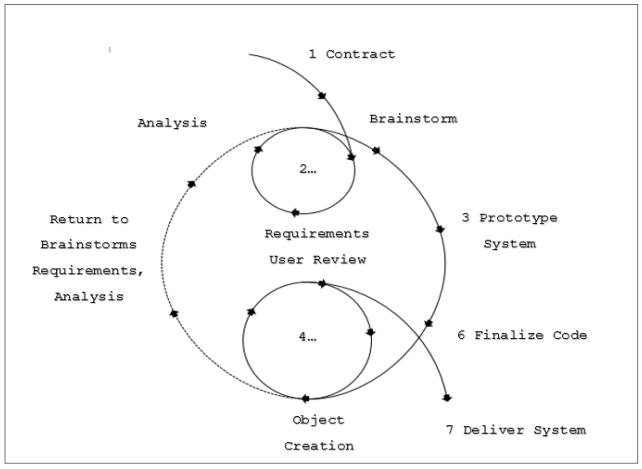

Fig. 1. The Rapid Application Development Model

RESULTS AND DISCUSSION

The following discussion presents the results or findings in the stated objectives above:

Problems encountered in current method of finding buildings and rooms in PSU Lingayen Campus

The manual process of finding the buildings and rooms is quite difficult because it can`t give the students/visitors an exact location of the buildings and/or rooms that he/she is searching for. It can be a total waste of time. Finding the buildings and rooms consume not only a big part of the time but also the energy and efforts as well. Sometimes even the security guard on duty cannot tell the exact location.

Further, it leads to uncertainly in giving directions to buildings and rooms location. The manual process of giving directions to the exact location of the rooms are sometimes ambiguous to follow, confusion to where the room located will effect searching efficiency. By using this PSU Lingayen Virtual Mapping Walk-Through System, it can easily find the specific buildings or rooms that the students or visitors are looking for.

Features needed to develop a PSU Lingayen Virtual Mapping Walk-Trough System

The features of the developed PSU Lingayen Virtual Mapping System are 3D/2D view, walk-through, compass, mini map and searching button.

1. 3D/2D view. This feature gives the user a 3D view of the whole PSU Lingayen Main Campus and the top-down view or 2D view as shown in Fig. 2.

Fig 2. 3D View of the front building of PSU-Main

2. Walk-Through. This feature as shown in Fig.3 will help user to have a tour and find the searched room in the whole Campus.

Fig 3. Starting area for walk-through

3. Compass. It is used to identify clearly the exact location weather it is in East, West, South or in North direction in order to lessen the time in searching for the

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right location. It is located at the right side of the screen while walking-through the Campus.

4. Mini Map. This is located at the left side of the screen while walking-through the Campus or search room/building. To locate and find easily the alert button that included in searching button.

Fig 4. Compass (*right*) & Mini Map(*left*) of the Campus

5. Searching Button. To easily find the rooms and buildings. Button that blinks and stop when already found the room or the building as shown in Fig5.

Fig 5. Searching feature of the system

6. Alert Button. It appears when you searched the rooms/ buildings. This alert button leads/guides the student/visitor to the searched room/building. It recognizes easily the exact location and disappear when finally reached the room that has been searched.

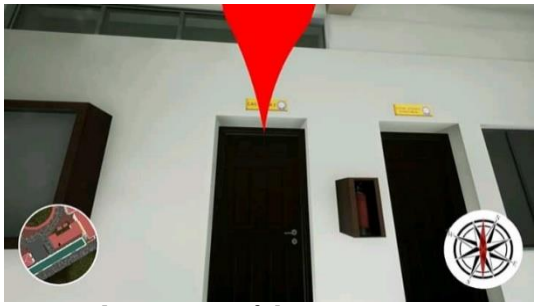

Fig 6. Alert Button of the system

CONCLUSION AND RECOMMENDATION

Based on the findings of the study, the following conclusions were made.

1. The problems encountered in the traditional finding of the building are time consuming and inefficient building searching as well as room locations.

2. Features appropriate for the PSU Lingayen Virtual Mapping Walk-Through System that can easily identify the building and room on via searching button also includes a Mini Map and a Compass.

The following are the recommendations for further development of the Virtual PSU Lingayen Walk-through.

1. **Auto transfer to searched room.** The researchers highly recommended to the future developers for the Auto Transfer to searched room as an additional feature of the system.

2. **3D Character**. The researchers recommended to the future developer to add 3D character while walking through the Campus for the advanced development.

3. **Utilization of the system**. The researchers recommended to utilize the developed system in Lingayen Campus for the freshmen students, visitors and for accreditation purposes.

4. **Development of Virtual Mapping Walk-through for the other Campuses**. The researchers recommended to the future researchers to develop same system for the other Campuses.

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