BUSITEMA UNIVERSITY

FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

Art Museum Instructing System: A case study of the Uganda Museum

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A project Report submitted to the Department of Computer Engineering in Partial Fulfilment of the Requirement for the Award of a Bachelor's Degree in Computer Engineering of Busitema University

June, 2016

DECLARATION

I NAKIBONGO LILLIAN DOREEN Reg. No. BU/UG/2012/82 hereby declare that this project report is my original work except where explicit citation has been made and it has not been presented to any Institution of higher learning for any academic award.

Sign: ……

Date: ----------

APPROVAL

This is to certify that the project report under the title " ***Art Museum Instructing System"*** has been done under my supervision and is now ready for examination

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Sign:…….

Date:……..

ACKNOWLEGDEMENT

I take this opportunity to thank the Almighty God for He has enabled me to accomplish this project. I would also like to thank my dad, mum and siblings for the strong support they have given me during this period. Lastly I would like to thank the Computer Engineering Department for the strong work they have done in equipping me with the knowledge I have attained. May God bless you abundantly.

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LIST OF ACRONYMS AND ABBREVIATIONS

ID	Identification
LCD	Liquid Crystal Display
NDP	National Development Policy
PDA	Personal Digital Assistant
RFID	Radio Frequency Identification
LAN	Local Area Network
IR	Infrared
WLAN	Wireless Local Area Network
RTLS	Real Time Locating Systems
RF	Radio Frequency
USART	Universal Synchronous Asynchronous Receiver and Transmitter
UART	Universal Asynchronous Receiver and Transmitter
GND	Ground
VCC	Power

ABSTRACT

Uganda is gifted with a lot of tourism places which include museums, wildlife and game parks; The Uganda Museum falls under the Depart of Antiquities and Museums in the Ministry of Tourism, Wildlife and Antiquities [1]. It was established to conserve, promote and interpret Uganda's cultural and natural heritage through research collections, documentation and imparting knowledge for today and the future. According to a brochure supplied by the Museum, in addition to the materials in the galleries for public viewing, the museum keeps reserve collections of ethnographical, archeological, natural history, paleontological interest as well fine art for scholars to study. The Museum has an education service unit, with qualified staff called instructors who attend to visitors. The museum depends very much on the public, not just for patronage, but also for helping build up collections and in recording new discoveries. Offers of suitable specimens are always welcome[2]. In the museum, instructors avail information to people however as time goes on they get tired mostly on busy days. The work in this report includes the steps and procedures that were taken in the design and implementation of an Art Museum Instructing System. The system should provide information to tourists directly once they enter the museum while using their pads, the following methods were used to get information in the research: interviews were used to obtain people's views on the proposed project and to help determine the requirements needed, Consultations and Questionnaires. The Art Museum Instructing System is cheap, reliable and enables tourists to access information about the different artifacts. The work is arranged in mainly in six chapters, Chapter one includes the introduction of Art Museum Instructing system .Chapter two shows the literature view of the system in relation to the existing systems. Chapter 3 illustrates the methods employed in the whole research process and coming up of the working prototype of the system. The methods included in this research include interviews, consultations and questionnaires. Chapter 4 includes requirements analysis and system design, functional and non-functional requirements. This chapter goes on to show the system design which involves diagrams like user case diagram and systematic diagram. Chapter 5 talks about the implementation of a real system and its testing. Finally chapter six contains recommendations and the summary of this report.

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CHAPTER ONE

INTRODUCTION

1.1Background of the study

[1]Over the years tourism is increasingly becoming instrumental in the socio economic development of Uganda; with careful planning and commitment of resources, the tourism sector has a potential to greatly contribute to the strengthening of the fundamentals of the economy to enable the country harness her abundant opportunities. Although the sector is recognized in the National Development Plan (NDP) 2010/11-2014/15 as one of the fastest growing service sector of the economy and a major foreign exchange earner [1], there has been limited strategic planning, investment and inadequate mainstreaming of tourism in all government activities to boost the sector. This is in contrast to many countries in the region and beyond that have significantly invested and benefited from the high rates of return.

Uganda is gifted with a lot of tourism places which include museums, wildlife and game parks. The Uganda Museum falls under the Department of Antiquities and Museums in the Ministry of Tourism, Wildlife and Antiquities [1]. It was established to conserve, promote and interpret Uganda's cultural and natural heritage through research collections, documentation and imparting knowledge for today and the future. According to a brochure supplied by the Museum, in addition to the materials in the galleries for public viewing, the museum keeps reserve collections of ethnographical, archeological, natural history, paleontological interest as well fine art for scholars to study. The Museum has an education service unit, with qualified staff called instructors who attend to visitors. The museum depends very much on the public, not just for patronage, but also for helping build up collections and in recording new discoveries. Offers of suitable specimens are always welcome [2].

Uganda Museum is the oldest Museums in East Africa; it was officially established by the British protectorate government in 1908 with ethnographic material. The history of the Museum goes back to 1902 when the governor George Wilkerson called for collection of

objects of interest throughout the country to set up a museum. The museum started in a small Sikh temple at Lugards Fort in Old Kampala Hill. Between 1920 and 1940s, archaeology and paleontological surveys and excavations were conducted by Church Hill, E.J. Wayland, Bishop J. Wilson, P.L. Shinnie, E. Lanning and several others who collected a significant number of artifacts to boost the museum. The museum at fort Lugard later become too small to hold the specimen and the museum was moved to Margret Trowel School of fine Art in Makerere University College in 1941. Later funds were raised for a permanent home and the museum was moved to its current home Kit ante Hill in 1954. In 2008 The Uganda Museum turned 100 years [3].

Tourist arrivals refer to persons who are non-Ugandan residents entering the country from any border point. The total arrivals and departures in the country have steadily increased over the last 3 years (period 2011 – 2013). Tourist arrivals for the year 2013 increased to 1,206,334 from 1,196,765 in 2012 translating to an increment of 0.8 percent [4]. This is a slow growth compared to 4 percent growth between 2011 and 2012. This slow growth was registered in the category of visitors coming to see their relatives and friends. The visitor ship to the Uganda Museums has registered a remarkable increase from 98, 435 visitors in 2012 to 112,684 visitors in 2013 indicating a 14 percent increment from the previous year. This shows that the Uganda Museum has continued to register an increasing trend in the number of visitors over the last years. A total of 1,151,356 tourists were registered in 2011 indicating a 21.6% increase from 945,899 in 2010. There was a 36.8% increase in the number of visitors from Europe and a 29% increase in number of visitors from Africa .Out of the 112,684 visitors registered in year 2013, 84 percent were school children visiting the museum indicating an increase in the number of school children by 16 percent in 2013 from 81,597 in 2012, 12 percent were Ugandan Nationals, and 4 percent Non-Ugandans. This shows that the majority of the Visitors received during the year 2013 were school children, and this has been the trend for the last five year[5]

Apart from the permanent exhibits in the galleries, the Uganda museum offers educational service in form of Demonstration lessons, Outreach programs, Workshops and complimentary services. Using the available specimens, the museum arranges a

variety of topical lessons related to the school curriculum. Conducted tours, organized large number of schools are showed around the museum as well as giving introductory lectures with slides, films with other aids. The museum staff from the Education section goes out into the more remote areas of the country to teach in the villages whose schools are not able to have a chance to reach the museums. Some objects are loaned out to schools to be used as visual aid. The museum hosts lectures, public talks and workshops on relevant topics to the public in the auditorium. The museum is well equipped with facilities such as canteen and internet cafe which offers a variety of traditional foods of Uganda taste and gift shops that show case Uganda's craft. The number of visitors to the museum depends on the season. However it receives the biggest numbers in April and July. This amounts to 2,000 visitors per day. The biggest category is the school children. According to [1], the museum tour instructor, “In some scenarios, only two tourist’s show up per day, but on average 10 tourists per day.” However some days tourists are too many and the tour instructors get tired, moody and don’t reveal enough information about all the artifacts hence arising a problem of inadequate information revealed to the tourists.

There is therefore a need for a system that helps instructors reduce on their workload by automatically sending information to the tourists on the LCD using radio frequency technology once they enter the Uganda museum hence the Art museum instructing system.

1.2Problem statement

There is increased workload of instructors on busy days when tourists are too many in the Uganda museum. This affects tourists in the sense that they do not receive enough information about the different artifacts in all the different galleries due to the instructors’ change of moods, behaviors and becoming very tired.

1.3 Objective

The objective of this study is divided into two sections that is main and specific objectives.

1.3.1 Main objective

To design and implement an Art Museum Instructing System to avail information to tourists.

1.3.2 Specific objectives

i. To identify and analyze the requirements needed to design and develop an Art Museum Instructing System

ii. To program an EEPROM which will act as a database where the information concerning the different artifacts will be stored.

iii. To develop an algorithm which will enable tourists access artifact information

iv. To test and validate the Art museum instructing system

1.4Justification

Due to the increased workload of instructors in the museum on busy days, they do not avail enough information about the different artifacts to the tourists. This is due to boredom of repeating the same story taking a lot of time and much cost for both the instructors and the museum administration. Increased workload makes instructors tired and moody hence denying tourists' freedom to easily interact with the artifacts at peace. The problems above have led to the need to develop an Art Museum Instructing System to reduce the instructors' workload.

1.5Scope of the study

The art museum instructing system will only avail tourists with information about the different artifacts from the database using an algorithm of First In First Out in the Uganda museum. The system will only use English words.

The project was scheduled to last for seven months starting November 2015 to May 2016.

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