

A STEP TOWARDS SMART MUSEUM USING SMART CAMPUS GUIDE

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ABSTRACT

This paper introduces an Android application (Smart Campus Guide) that recognizes the structure (a building and a statue, e.g. Museum) in which a user is interested and displays useful information about the museum. The new technologies introducing the Internet of Things allow to provide advanced services to the users. This application records user's personal information when the user downloads this application, keeps track of the user while it is run, recognizes the structure when the user takes a picture of it, displays the picture along with a text ,audio and image showing some useful information about the structure, and plays a video which is closely related to the structure. This paper also introduces our design and implementation of the application in detail. The techniques introduced in this paper can be used in mobile are location based services, IoT based services and QR code scanning. The system has been designed to be easily extensible to other IoT technologies and its effectiveness has been evaluated in the museum. In this system we are also implementing online ticket booking and online transactions.

Keywords: *IoT based, Location-Based, Mobile application, QR code scanning, database.*

I.INTRODUCTION

Art and Culture are always played an important role in human beings live. Over the centuries, hundred of museums and art galleries have preserved historical cultural heritage and served as important sources of education and learning. Museums are nowadays point of interest for human beings such as theatres or cinemas. Visits at museums are often considered boring, because it is hard for museums curators to catch the attention of tourists. Interests may vary from person to person. Interests are different from children to adults, students group from single visitor, casual visitor to fond-visitor. Therefore, interactive and personalized museum tours need to be developed. In this perspective, a significant contribution can be given by the next Internet of Things (IoT), which involves the extension of the Internet to small and lowcost "things" that are thought to realize smart environments in order to provide new services to the users.[12]

As the electronic techniques are advance computing machines have been miniaturized and smart phones are developed with powerful processors and large memories. Nowadays, various services become available on

smart phones. In this paper we are introducing smart campus guide android application. The campus guide consists of server and client. Main features of client determining current location of user and building user is watching and playing video which is closely related to building. In order to realize client's features, server consists of many components including streaming server and database server.[1]

Online ticket system can be bought with the help of smart phone application. The ticketing information of the user is stored in the database.

The service scenario of our campus guide is summarized as follows:[1]

- 1) When the application is first downloaded by a user, the application takes the user's personal information and saves it in the database.
- 2) After registering the client's information, he will get the ticket information and he will book the ticket according to the criteria.
- 3) When the user takes a picture of a building, it recognizes which stucture is taken.
- 4) It displays the picture along with a text, images showing some information about the structure.
- 5) It plays the audio, video closely related to the structure.
- 6) After playing a video, it goes back to step 3.

IoT aims to create a better world for people, where smart objects around us know what we like, what we want and act accordingly without explicit gestures. To achieve this goal, the industrial world is strongly focused on adopting low-power and low-cost embedded technologies in everyday objects, which become real smart objects.[12]

1.1 Existing System

The existing system is based on the manual entry and the tickets are allocated to the user manually. But the existing system has some drawbacks that all the work done is totally based on humans. Today, museums and art galleries usually provide visitors either with paper booklets or with audio guides. It is very costly and not secure. It provides a hardships faced by existing system. It does not provide smooth and effective operations.

II. PROPOSED SYSTEM

The system involves Smart Campus Guide Application QR code scanning:-

2.1 Block Diagram

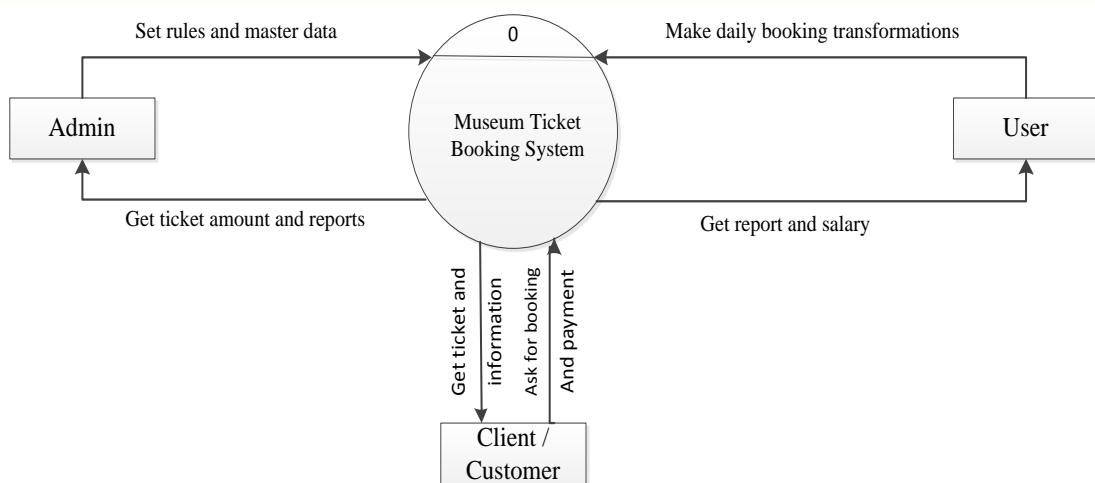


Figure2.1. DFD for Android Based Automation of Museum

Description

First the application is first downloaded by a client, the application takes the client's personal information and saves it in the database.

Second one is after registering the client's information, he/she will get ticket information.

Third part is after getting ticket information, client will book the ticket according to assigned criteria.

In fourth, after ticket booking, client will get entry for museum. When the client selects the statue then the QR code will be scan by the client and he will get related information about the particular statue.

Fifth part shows the information along with a text, audio, video or image.

2.2 System Architecture

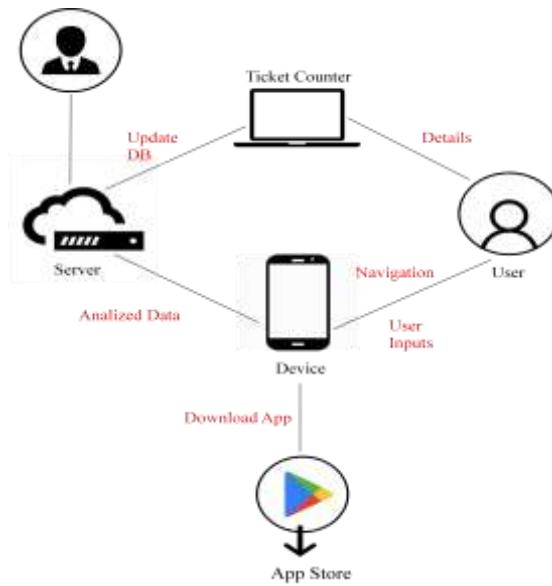


Figure2.2. System Architecture for Android Based Automation of Museum.

III. MOTIVATION

“Design and Implementation of a Smart Campus Guide Android App”, introduces application which records user’s personal information when the user downloads this application, keeps track of the user while it is run, recognizes the structure when the user takes a picture of it, displays the picture along with a text showing some useful information about the structure, and plays a video that is closely related to the structure. This paper introduces our design and implementation of the application in detail.

“Mobile Augmented Reality System For Personal Museum Tour Guide Application”, introduces a prototype of a mobile interactive museum guide system, which consists of an ultra mobile with a camera. This museum guidance system can automatically find and retrieve multimedia information about the objects of interest to the visitors in an intuitive way. A coarse to fine image recognition method is used to improve the recognition rate and a sub-exhibits localization method is proposed to solve the occlusion problem.

“Museum Automation with RFID”, introduces that the visitor should prepare a ticket and pay for it. The ticket will be checked, and then visiting will be started. At this stage, the visitor needs to be guided in order to find desired things’ location. After getting to the desired object, he/she should get the information about it. After a while, the visitor will exit from the environment, but he/she may write his/her views and opinions on survey paper before exit.

“AR-based Interactive Exploration of a Museum Exhibit”, introduces virtual reality i.e. augmented reality. New technologies are increasingly used, like for example multimedia presentations which convey information in form of animated sequences of pictures, videos and texts. Visitors highly appreciate these new technologies. A further development in this field presents the technology of Virtual Reality (VR), which is already used in some museums or exhibitions. By means of specific input aid output devices the visitor is put into a completely computer generated three-dimensional environment.

“Smart Guide – A Smartphone Museum Guide with Ultrasound Control”, introduces smart campus guide in the form of mobile. However, smart phones are well equipped for outdoor localization tasks, they do not provide support for identifying an indoor point of interest. This especially provides the context aware use of smart phones for guidance tasks inside a building, e. g. a museum. Alternatively like the use of barcode tagging demands an interaction of the user with the tag, as well as dedicated sensors on the users’ phone can be done.

IV.CONCLUSION

We have presented new Smart Campus Guide application and web portal which reduce efforts of the dealer to allocate tickets to each user. Also our system reduces manual efforts. This system is support to eliminate and reduce the hardships faced by existing system. Moreover this system is designed for the particular need of museum to carry out operations in smooth and effective manner. The application reduced efforts to avoid errors while entering data. It is user friendly system.

REFERENCES

- [1] Design and Implementation of a Smart Campus Guide Android App, Applied Mathematics & Information Sciences **8**, No. 1L, 47-53 (2014) *An International Journal* Jaegeol Yim, Jaehun Joo, Gyeyoung Lee and Kyubark Shim, April 2014 pp. 223–227, 2014.
- [2] Mobile Augmented Reality System For Personal Museum Tour Guide Application, Key Laboratory of Photoelectronic Imaging Technology and System, Ministry of Education of China, School of Optics and Electronics, Beijing Institute of Technology, Beijing, 100081 Chen Jing, Guo Junwei, Wang Yongtian, 2011.
- [3] Museum Automation with RFID, National Academy of Science o f Armenia Yerevan, Armenia, Farshid Sahba, 2014.
- [4] AR-based Interactive Exploration of a Museum Exhibit, Fiirstenallee II, **33102** Paderborn, Germany Michael Gafe, Raphael Wortniann, Holger Westphal, 2011.
- [5] SmartGuide – A Smartphone Museum Guide with Ultrasound Control, Pascal Bihler, Paul Imhoff, Armin B. Cremers, 2011, The 8th International Conference on Mobile Web Information Systems(MobiWIS).
- [6] Tracking Visitors in a Real Museum for Behavioral Analysis, 2016 Joint 8th International Conference on Soft Computing and Intelligent Systems and 2016 17th International Symposium on Advanced Intelligent Systems 978-1-5090-2678-4/16 \$31.00 © 2016 IEEE
DOI 10.1109/SCIS&ISIS.2016.209 80, Ryota Suzuki, Antony Lam, 2016.
- [7] An Approach to Integrated Access for a variety of Museum Information, Atsushi Yamada, Yushi Komachi, Fumio Adachi, 2004, *134 Chudoji Minami-machi, Shimogyo, Kyoto, Japan*.
- [8] A Model for Computerization of Museum Collections, Lisa M. Kamisher, 1989, *The International Journal of Museum Management and Curatorship* (1989), 8,45-56.
- [9] Evaluating websites of museums: State of the art, Katerina Kabassi, 2016, Journal of Cultural Heritage xxx (2016) xxx–xxx.
- [10] Ubiquitous Adoption of Telemedicine to Extend Patient Care beyond the Office,ISSN 2349-4395 (Print) & ISSN 2349-4409 (Online), International Journal of Emerging Engineering Research and Technology, Volume 3, Issue 2, February 2015, PP 25-28 .
- [11] Agro Advisory Interface for Agriculture Contingencies, ISSN: 2454-1362, Imperial Journal of Interdisciplinary Research (IJIR), Vol-2, Issue-10, 2016, Page-2137-2139.
- [12] An Indoor Location-aware System for an IoT-based Smart Museum: DOI 10.1109/JIOT.2015.25062528, IEEE Internet of Things Journal, S. Alletto, R. Cucchiara, G. Del Fiore, L. Mainetti, V. Mighali, L. Patrono, and G. Serra.
- [13] Integrated Museum Databases and Office Automation, Dr. R. John Mathew, 1987, *The International Journal of Museum Management and Curatorship* (1987), 6, 115-120.
- [14] Mr. Sagar Patil, Ms. Shraddha Limbekar, Ms. Amruta Mane, Ms. Netra Potnis, *Smart Guide – an approach to the Smart Museum using Android*, ISSN: 2395 -0056, *International Research Journal of Engineering and Technology (IRJET)*, Volume: 05 Issue: 02, Feb-2018, Page 652-655