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Identification, Preservation and Management of Cultural Heritage of Edirne, Turkey by Means of a Web-Based Application

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ABSTRACT

Cultural Heritage can be expressed as the ways of living developed by a community and passed on from generation to generation, including places, objects, practices, customs, values and artistic expressions. The care of its historical memory reveals the degree of civilization and morality of a city and/or country. In this regard, digitization plays a key role for conserving, maintaining and sharing cultural assets.

In this study, an online access platform for conserving, maintaining and sharing the cultural assets of Edirne has been developed. Firstly, a new digitization and archiving application has been developed and integrated into existing library automation systems. Second, after obtaining their copyrights, available books, magazines and other printed materials have been scanned, indexed, abstracted and archived in the database of the online access platform. Finally, the digitized materials in the online access platform have been made publicly available. The project realized in this study will both enable to digitally conserve the available cultural assets of Edirne and hand them down to the next generations.

Keywords: Edirne, Cultural heritage, Preservation, Online database, Digitization.

I. Introduction

Cultural heritage is a broader concept than what we understand as cultural heritage such as paintings, drawings, sculptures, mosaics and prints as well as historical monuments and buildings, and includes all evidence of human expression and creativity such as photographs, documents, books, and instruments. Furthermore, it is not only limited to objects which can be seen and touched, and includes oral history, knowledge, traditions, performing arts, social practices, representations, rituals, traditional craftsmanship and skills transmitted from generation to generation within a community. On the other hand, cultural heritage is in fact not a set of cultural objects or traditions inherited from the past and is the result of a selection process to decide what is worthy of being preserved for future generations both political and cultural reasons.

Efforts to preserve cultural assets have long been a challenge but have gained new momentum nowadays (Ekwelem et al., 2011). Being a cultural process, preserving cultural assets contributes to the community in terms of many aspects as well as its economical and historical benefits. In this regard, digitization opens up amazingly new opportunities (Pieraccini et al., 2001; Pavlidis et al., 2007).

In this paper, the details of a web-based application and its database developed to preserve the cultural heritage of Edirne, called "Edirne City Assets Database", are presented. The main aims of the project in which the web-based application was developed were to conserve and manage all types of printed materials and electronic resources related to Edirne, and then to develop a user friendly web based interface for the database's potential users. In addition, as shown in Fig. 1, to increase the visibility of the developed application, a large touchscreen monitor was installed in the Library and Documentation Center of Trakya University. Since obtaining legal permissions from copyright holders takes a long time, firstly, the books, magazines, photographs and other printed materials found in "Edirne Library reading-room" were transferred to the database of the application. In addition, while the development phase was going on, the

project team obtained legal permissions so that the copyrighted printed and electronic materials related to Edirne could be scanned and/or transferred to the database. After obtaining the legal permissions from their copyright holders, those copyrighted materials were also transferred to the database.

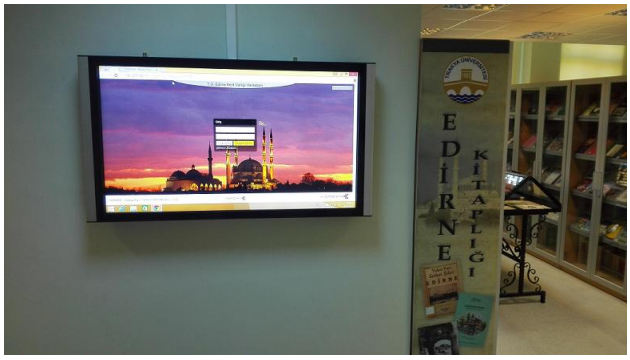

Fig. 1. The touchscreen monitor.

As the care of historical memory by means of conserving, maintaining and sharing cultural assets reveals the degree of civilization and morality of a city, this project is one of the most important actions towards the preservation of Edirne's cultural assets. Thanks to its unique features and considering the importance of Edirne in the Balkans, the developed application has started to play a key role for readers and researchers who are interested in Edirne. The application with its user friendly, multi-language, web based and operating system-independent interface provides Edirne-related information with printed and non-printed materials to both national and foreign researchers.

The remainder of the paper is as follows. Literature review is given in Section II. The details of the project titled "Edirne City Assets Database" are explained in Section III. Finally, the paper is concluded in Section IV.

II. Related Work

In essence, the concept of cultural heritage is different from the notion of common heritage of mankind and can be seen as a result of the activities and processes performed by humans (Aplin, 2002). Although studies and researches on the preservation of social, religious, artistic and traditional values were conducted for a long time, the importance of the cultural heritage has been understood more in recent years.

Digitization, the major step in the preservation and maintenance of cultural heritage, is a specific and complementary process to digital library systems. Hence, personnel responsible for the digitization must be well trained to minimize risks. In this regard, workflows which take into consideration quality standards for managing cultural heritage-related resources can be used to achieve desired outcomes (Al-Barakati, 2014).

Documentation has an important role in the preservation of all types of cultural heritages. However, sustainable storage and management in the documentation process are not possible without an efficient logging mechanism (Kioussi, 2013). In addition, considering the large size and diversity of collected data, methods for the identification and management of the data are necessary (Meyer, 2007).

MOSAICA is one of the first examples of digital cultural heritage applications. It is a Web 2.0 based application and enables to search and explore capabilities on a given digital heritage map (Barak, 2009). Thus, it is possible to quickly locate all cultural assets around a region.

In recent years, it has been started to include audio-visual heritages in digital cultural heritage applications. On the other hand, in addition to its benefits, the inclusion of audio-visual heritages brings several threats (Ongena, 2012). Dimoulas *et al.* investigate methodologies and techniques necessary for successful integration of audio-visual assets (Dimoulas, 2014).

Although, in the literature, there are similar applications developed to preserve cultural heritages of different countries and cities, the proposed application is the first digital heritage preservation application developed for Edirne. Edirne is a city in the region of East Thrace and very close to Turkey's borders with Greece and Bulgaria. Due to its location, Edirne's cultural heritage is not only important for Turkey but also for the Balkans. Therefore, it is an urgent issue to preserve Edirne's cultural heritage via digitization, archiving, classification and publishing Edirne-related resources. All the written materials must be digitized and stored as full-text and be published online so that researchers all around the world can reach them easily.

III. Edirne City Assets Database

The developed web-based application called "Edirne City Assets Database" is a novel solution to preserve the cultural assets of Edirne. The following subsections explain the technical details of the application and present the outcomes of the project.

a. Technical Details

In the first step of the project, as shown in Fig. 2, a digitization and archiving application with a user-friendly and easy-to-use web-based interface and a relational database were developed by following the traditional waterfall software development model. Here, the primary goal of the project team was to ensure that the developed application would be compatible with the existing library automation systems of Trakya University. The second goal was to ensure that the web-based interface would be compatible with all types of web browsers and devices including desktop computers, notebooks, tablets and smart phones. The third goal was to ensure that the web-based interface would quickly fetch the desired information even if the database of the application exceeded its predicted size.

In the current version, the application supports all types of electronic resources and almost all file formats including JPG, GIF, TIFF, PNG, BMP, MPG, MOV, AVI, WMA, ASF, WAV, MP3, DOC, XLS, PDF, and ZIP. As shown in Fig. 3, each electronic resource is assigned a unique code number so that it can be quickly accessed and if necessary it can be edited by system administrators.

Usage statics are important markers to identify changes

needed to improve the performance of a software application. For this objective, the application creates logs for all searches carried out by the users of the application. As shown in Fig. 4, when the user looks for a specific item, search results are listed on the screen with their names and small images to help the user understand the types and formats of the electronic resources and their contents.

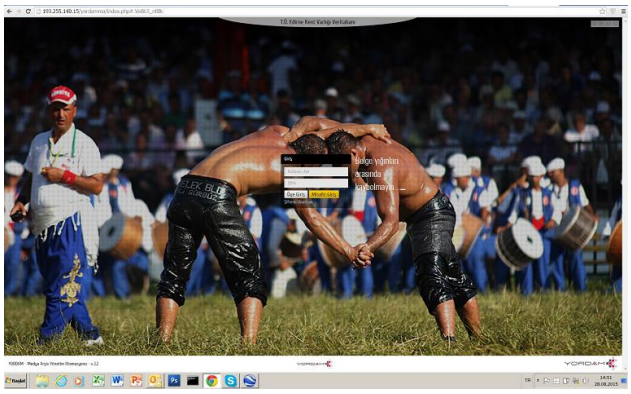

Fig. 2. Login screen of the application.

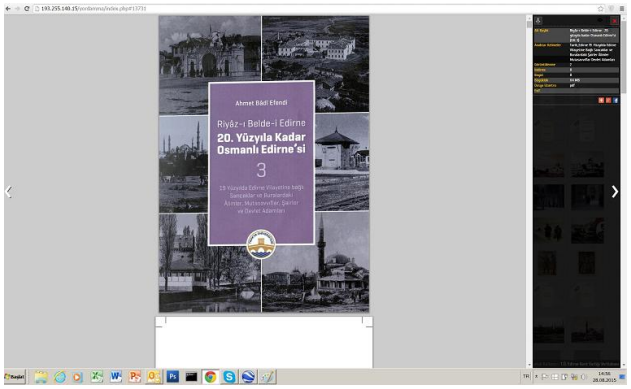

Fig. 3. An electronic book in the database.

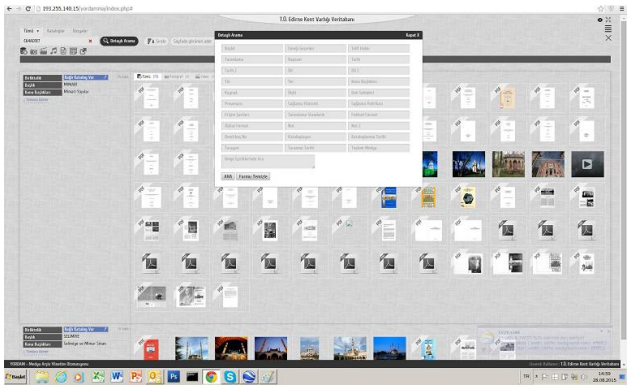

Fig. 4. An example of search results.

Taking into consideration that some of the users will be disabled and/or elderly, magnifier has been integrated into the application. Therefore, as shown in Fig. 5, during the digitization process of the project, all resources were scanned at the highest available quality and resolution provided by the scanners. Similarly, the users are able to select and save a portion of the images in order to quickly access what they need and limit their bandwidth usage.

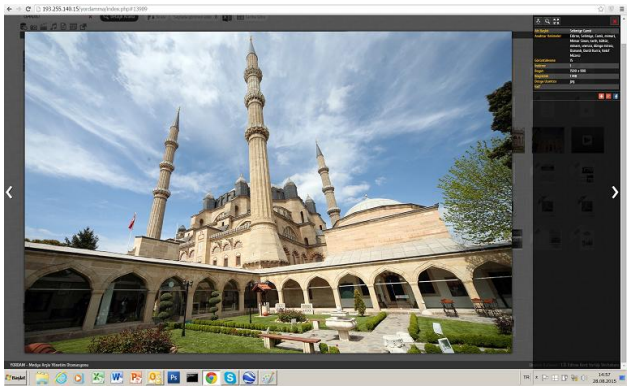

Fig. 5. Looking at an image in the database.

The server is connected to the Internet via a broadband connection and by this way the application's performance is guaranteed. Data on the server on which the web-based application and its database run is periodically backed up so that in a disaster scenario data loss is prevented. To prevent/reduce the effects of any types of information security threats, logging ability has been included in the application in addition to the intrusion detection system running on the server.

b. Outcomes

The developed application allows quick and easy access to Edirne-related materials through a user-friendly and easy-to-use interface. Although it has many outcomes, its main outcomes are:

1. The project allows preserving the historical and cultural memory of Edirne in an efficient way.
2. The project is an important tool to increase the publicity of Edirne city and possibly trigger several academic initiations.
3. The project is a good example of how software tools help to preserve cultural assets.

IV. Conclusion

We can describe cultural heritage as the ways of living developed by a community and passed on from generation to generation. Cultural heritage includes customs, practices, artistic expressions, values, in addition to objects and places. Its care reveals the degree of civilization and morality of a country and/or city and its preservation contributes to the advancement.

Considering the importance of digitization in the preservation, maintenance, and sharing cultural assets, in this study, an online database based on a digitization and archiving application has been developed for Edirne. The developed application with its user-friendly and easy-to-use web-based interface allows to index, abstract, archive, and publishes online any types of printed materials such as books, journals, and magazines after obtaining necessary copyrights. It also allows storing and publishing images, videos, sounds, and voices. In this way, the existing cultural assets of Edirne will be maintained and handed down to the next generations.

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