Ain Shams University
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Preservation and Maintenance through Digitizing Architectural Heritage

A Thesis submitted in partial fulfillment
of the degree of Masters of Science in Architecture

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Title Sheet

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THESIS SUMMARY

This research aims to set a whole new integrated digital system for heritage recording.

The research presents in the first chapter some of the latest researches in the field of heritage, in order to start where others ended and solve the research problem.

The second chapter defines heritage preservation and divides it into 5 phases. These phases begin with data gathering in the pre –operation phase; then comes the design work for the operation, then the operation itself; the fourth phase is as-built drawings and documents and the final phase is maintenance and reuse.

Recording the site or monument is in the fourth phase of any preservation operation, along with as-built drawings. The research defines heritage recording and then will propose a new accurate and interactive system where data can be edited and updated instantly.

Chapter three overviews and analyses some important applications for heritage recording inside and outside Egypt.

It also defines an open source web application as a website where the user can update and modify the content without any copyrights violation. This way the user collaborates in making the database.

The proposed system in this research will be an open source web application trying to reach the research goal and objectives.

Chapter four will define BIM technology (Building Information Modeling), and will present three of its most important software.

Then the research will make a comparison between the well-established BIM technology and the proposed system PRIM (Preservation Information Modeling), which resembles BIM in some functions but differs in many other.

The research here shows how PRIM will have a relational database that can be updated constantly by any user.

Then chapter five will describe PRIM in details and how to use it.

PRIM's main concept is documenting the building's data throughout its history, with updatable and editable qualities.

The idea also aims to link PRIM to Revit Architecture software where vector drawings can be viewed and edited and where all building's data and details parameters can be stored.

The research ends with the conclusions out of the data analysis, and presents some recommendations for future studies and others for the PRIM system development.

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ABSTRACT

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The process of preservation is a highly specialized operation. It aims to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents. The need for an integrated system that can show the result of this operation considering all these factors without wasting a lot of time will help preserving the monument, and afterwards help to maintain, reuse and promote them. The research begins with an overview of the problem, showing all previous research in that field.

Then in chapter 2, it defines the terminologies concerning architectural heritage recording and the preservation phases starting with preparing the site up to promoting the building and maintaining it.

In chapter 3, the research will show the most efficient web and desktop applications in Egypt and worldwide analyzing their pros and cons.

In chapter 4, the research compares the integrated system in building: Building Information Modeling (BIM) with a similar proposed system: Preservation Information Modeling (PRIM).

Chapter 5 will introduce the proposed system, overview it and show its added value in the field of virtual heritage recording.

The final chapter will set recommendations for future research in that field.

Keywords:

Virtual Heritage – Documentation – Preservation - Architectural Heritage - Building Information Modeling.

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