بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

Ain Shams University
Faculty of Engineering

CONCEPTUAL COST ESTIMATION OF BUILDING CONSTRUCTION PROJECTS USING FUZZY LOGIC

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE
IN CIVIL ENGINEERING

Prepared by

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Cairo, EGYPT
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STATEMENT

This thesis is submitted to the faculty of engineering at Ain Shams University in partial fulfillment of the requirement of the M.Sc. Degree in Civil engineering.

Any kind of work included in this thesis has been done by the author. No part of the thesis has been submitted for a degree or a qualification at other university or institute.

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Islam Badra

ABSTRACT

Owners need clear information about the cost at the early stage; while information about drawings and designs are limited. Cost is a very important standard and should be taken into account during the early stage of any construction project, so cost estimation is crucial in construction related projects. Estimating of project cost is imperative step in early phase in project because it can influence or change the scope of project. The accuracy of the estimation is very important to achieve the objective of any Construction project, where cost overruns can lead to serious obstacles, for instance project termination, especially on the current focus on limited budget.

This research aims to develop a fuzzy model for estimating the cost of construction projects in the conceptual stage. Seven factors affecting cost estimation were identified; slab type, area of floor, floor number, number of elevators, type of internal finishing, type of external finishing, and type of electro-mechanical work. This model will serve as a tool that could be used by all parties and will facilitate the cost estimation process at the early phases of projects through a more effective utilization of the limited available information.

The proposed model was developed using 6,912 rules and 131 real projects. The absolute percentage of errors was 9.16%. The New artificial intelligent approaches have recently gained immense popularity. The proposed model will serve as a tool that could be used by all parties involved in the project.

Keywords: construction cost; residential building; Conceptual phase; regression analysis; Fuzzy logic.

TABLE OF CONTENTS

LIST OF TABLES