AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
Computers and Systems Engineering Department

Development of a Virtual Environment Realization System

A Thesis

Submitted in Partial Fulfillment for the Requirements
of the Degree of Master of Science in Electrical Engineering
(Computers and Systems Engineering)

Submitted By

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B.Sc. of Electrical Engineering
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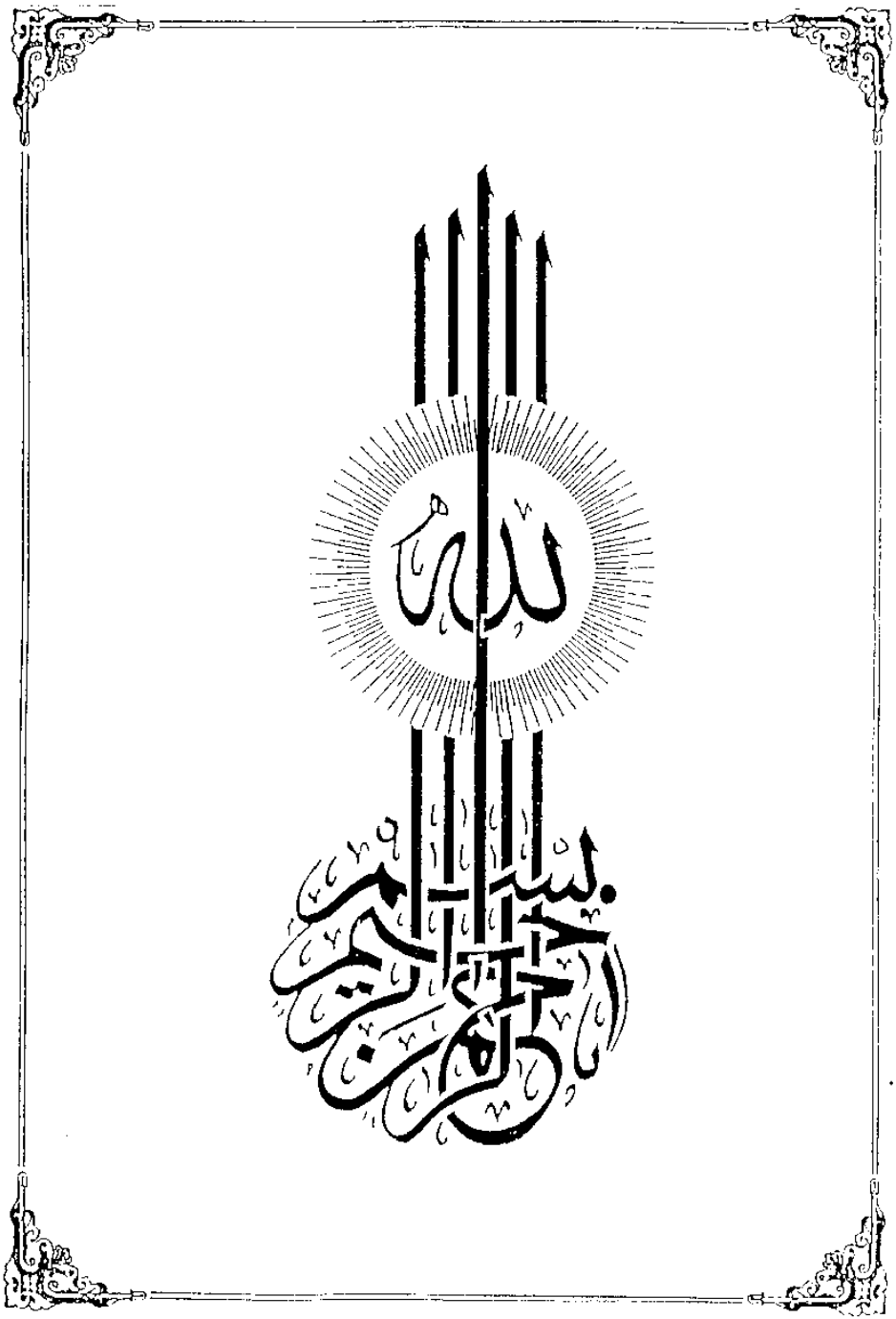
Cairo - 1997



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Thesis Abstract

Thesis Title	:	Development of a Virtual Environment Realization System
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Virtual Reality or Virtual Environment is a highly interactive simulation of a real or imaginary world. It is one form of a highly interactive three dimensional user interface. Now many single user applications have been successfully implemented. a more interesting topic is Distributed Virtual Reality. Where multiple users share and interact in a virtual environment.

This thesis focuses on the design and implementation of a multi participant virtual environment realization system, using VRML (Virtual Reality Modeling Language) as the modeling language. The thesis is divided into six chapters:

The first chapter, gives an introduction to the virtual reality concepts, it discusses the types and levels of the virtual reality systems, introduces the aspects of the virtual reality programs, it also presents technical and social aspects of a virtual reality systems.

The second chapter, gives a complete description of VRML (Virtual Reality Modeling Language) which is used in the implementation of the system to describe the virtual world. It also explains the language primitives by examples.

The third chapter, presents the design of the implemented realization system, it describes the system modules and its execution sequence.

The fourth chapter, introduces the distributed virtual reality concepts, it discusses the Different Protocols, Requirements and factors involved in the development of a distributed virtual environment. It also discusses the different communication models for the distributed virtual environments.

The fifth chapter, introduces the different approaches for adding multi participant support to the virtual environments. It also discusses the changes applied to the virtual reality modeling language to add the multi participant support. This chapter also discusses the changes applied to the design of the realization system and the new execution sequence for the multi participant implementation.

The sixth chapter, introduces the future studies and work that can be done in this field.

Acknowledgments

I would like to take the opportunity to acknowledge the direct and indirect help of many people who made this thesis possible.

First I would like to express my sincere appreciation to Prof. Dr. Osman A. Badr for his continuous support and valuable guidance. I have enjoyed being his student for the past years and will always be indebted for his encouragement and constructive criticism.

I would Also like to thank Eng. Alaa El-Raey for his valuable advises and assistance during the development of this thesis.

Special thanks to Eng. Hany Omar for his advises and continuos encouragement.

I cant forget to thank my parents for their continuos unlimited support, without their praying for me non of this could be possible.

Ahmed Awad El-Sayed
June 1996

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