MIDDLE EAST TECHNICAL UNIVERSITY

DEPARTMENT OF COMPUTER ENGINEERING

SENIOR PROJECT
FALL 2005

PROJECT PROPOSAL
for
DIGITAL CIRCUIT DESIGN AND SIMULATION TOOL

"PROJECT BELLATRIX"

ORION®

1.Company

1.1. Company Name

Our company name is ORION which is the name of a constellation. We decided on this name because it symbolizes our team spirit.

1.2. Company Emblem

Our team logo is shown below :

1.3. Company Organization

1.3.1.Company Structure

All company members are qualified in software design and programming, and each member will have the same responsibility in this project. Therefore we decided to have a decentralized structure. Meanwhile, to prevent the possible conflicts between us and our supervisor or customer, we selected a team leader. So we chose Controlled Decentralized (CD) team structure for our company.

1.3.2. Company Members

Emin ÖZCAN	1298090
Mehtap Ayfer PARLAK	1347855
Mehmet Ergin SEYFE	1298215
Ilgın YARIMAĞAN	1409101
Eren YILMAZ	1298470

1.3.3. Member Roles

Names	Roles
Mehmet Ergin SEYFE	Leader, Meeting Manager, Gate Keeper,Initiator
Emin ÖZCAN	Devil's Advocate,Initiator
Eren YILMAZ	Research Manager,Initiator
Mehtap Ayfer PARLAK	Recorder,Summarizer,Initiator
Ilgın YARIMAĞAN	Recorder,Summarizer,Optimist,Initiator

2.Project

2.1. Project Title

Until we decide a title for our project, we will use the codename *Project Bellatrix*.

2.2. Project Scope

Digital circuit design is a very common concept covered both in computer engineering and electrical engineering programs. In the courses that cover this concept, a simulation tool is indispensable for designing and testing digital circuits. There are several applications available for this purpose. Most of these applications meet only the basic needs of students and academics. Hence, they don't offer either a good graphical user interface or user-friendliness. There are also some such commercial programs available in the market. However, these programs are very expensive in order to use in education field. In this respect, our fundamental aim is to create a user-friendly, reliable and fast digital circuit simulator.

Specifically, our simulator will be designed for digital design courses. For a long time, Diglog simulator is used for logic design laboratory assignments; both students and teaching assistants are unsatisfied with this applications. The main problem for students is the poor graphical interface of this application. Furthermore, the lack of automated testing causes extra work for teaching assistants. Therefore, we propose to create an easy-to-use program which can be used instead of old programs like Diglog. Mainly, we consider to simulate combinational and sequential circuits, and we intend that our software will have backward compatibility with

Diglog. This means that, our program will be able to read Diglog files and save the projects in Diglog file format. This ability will make it easy to migrate to our program, namely Project Bellatrix, from Diglog.

2.3.Project Intended Features

- A very powerful user interface

    We aim that our program's GUI will be user-friendly.

- High system performance

    We aim that our program will run fast and need minimum system hardware requirements.

- High stability

    We aim that our program will have high stability to work with huge projects.

- Extendibility

    We aim that our program will enable user to create custom gates and/or chips.

- Compatibility

    We aim that our program will have backwards compatibility with Diglog file format.

- Embedded Testing Tool

    We aim that our program will have an embedded circuit testing tool.