Automated Building Drawings

Project Synopsis

Bachelor of Technology
(Computer Science and Engineering)

Submitted By:
Navdeep Singh (1243678)
Mandeep Singh (1243667)

Submitted To:
Sumeet Kaur Sehra
CSE Department

Department of Computer Science & Engineering
Guru Nanak Dev Engineering College
Ludhiana 141006

CHAPTER 1

PROJECT SYNOPSIS

1.1 Introduction

Automated Building Drawing is a project for creating two-dimensional drawings (front-view, top-view, side-view etc.) from a three-dimensional model.

The main purpose or objective of the project is to make it usable even by the layman. The main target users are the Civil Engineers who want their plans to be printed on the sheets. As of now, they have to create the drawings separately with different views in any CAD software and the 3D model separately. So to automate converting a particular three-dimensional model to the print-ready drawings (with different views), this project will be beneficial. The interface should be easy to use and pretty intuitive. Because the interface is a thing that makes user experience better and to make the user use it.

The Drawing module allows you to put your 3D work on paper. That is, to put views of your models in a 2D window and to insert that window in a drawing, for example a sheet with a border, a title and your logo and finally print that sheet. The drawing may consist of different views like top, front, side and orthographic views.

1.2 Problem Formulation

The main target users are the Civil Engineers who want their plans to be printed on the sheets. As of now, they have to create the drawings separately with different views in any CAD software and the 3D model separately. So to automate converting a particular three-dimensional model to the print-ready drawings (with different views), this project will be beneficial. So to decrease the efforts, time and cost, it would be really beneficial.

What we can do is to examine thorougly the existing systems if they work good or not. Another thing to do can be to fetch the values from a database (probably Object-orieneted). This will automate the whole process. As there are other tool to put the values of a 3D model into the database. And we can fetch those attributes and values from the database and create the drawings directly.

First the aim is to make the life easier of a drafter. As if we need to view a model from a different angle and print it's drawing, then it would be a tedious task to do. Hence it can be considered as a further scope of improvements of existing systems.

1.3 Objectives

- To put views of your models in a 2D window and to insert that window in a drawing,.
- Automatically creates orthographic views of an object.

1.4 Feasibility Analysis

Feasibility analysis aims to uncover the strengths and weaknesses of a project. In its simplest term, the two criteria to judge feasibility are cost required and value to be attained. As such, a well-designed feasibility analysis should provide a historical background of the project, description of the project or service, details of the operations and management and legal requirements. Generally, feasibility analysis precedes technical development and project implementation. There is some feasibility factors by which we can determine that project is feasible or not:

- **Technical feasibility**: Technological feasibility is carried out to determine whether the project has the capability, in terms of software, hardware, personnel to handle and fulfill the user requirements. The assessment is based on an outline design of system requirements in terms of Input, Processes, Output and Procedures. Automated Building Drawings system is technically feasible as it is built up in Open Source Environment and thus it can be run on any Open Source plateform.
- **Economic feasibility**: Economic analysis is the most frequently used method to determine the cost/benefit factor for evaluating the effectiveness of a new system. In this analysis we determine whether the benefit is gained according to the cost invested to develop the project or not. If benefits outweigh costs, only then the decision is made to design and implement the system. It is important to identify cost and benefit factors, which can be categorized as follows:

  1. Development costs.
  2. Operating costs.

  Automated Building Drawings is also Economically feasible with 0 Development and Operating Charges as it is developed using open source technologies and the software is operated on Open Source platform.
- **Legal feasibility**: In this type of feasibility study, we basically determine whether the project conflicts with legal requirements, e.g. a data processing system must comply with the local Data Protection Acts. But the software has been developed with properly Licensed technologies. Thus is the legal process.
- **Operational feasibility**: Operational feasibility is a measure of how well a project solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development. All the operations performed in the system are very quick and satisfy all the requirements.

- **Behaviour Feasibility**: In this feasibility, we check about the behavior of the proposed system software i.e. whether the proposed project is user friendly or not, whether users can use the project without any training because of the user friendliness or not. Automated building drawings is very user friendly as its users interact with it through web.

1.5 Methodology/Planning of work

- Studying the current existing system and its problems.
- Proposing solutions for various problems in the existing system.
- Implementing the solutions and keeping in mind the benefits of the Automated building drawings system.

1.6 Facilities required for proposed work

1.6.1 Hardware Requirements

- Operating System: ubuntu 12.04 or windows 7
- Processor Speed: 512KHz or more
- RAM: Minimum 256MB

1.6.2 Software Requirements

- Software: Xampp or lampp(in case of ubuntu)
- Programming Language: C++, Python, Qt
- Database: MySQL or some Object-oriented database

BIBLIOGRAPHY

[1] FreeCAD Code, https://github.com/FreeCAD/FreeCAD

[2] FreeCAD forum, http://forum.freecadweb.org

[3] Module, http://www.freecadweb.org/wiki/index.php?title=Drawing_Module

[4] Wikipedia, http://en.wikipedia.org/wiki/