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REVIEW PAPER ON 3D VISUALIZATION OF UNDERGROUND PIPELINES

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Abstract – *Management and visualization of underground utilities have been always of a great concern in many countries. Insufficient, inaccurate and unclear information about location and depth of cables and pipelines may cause various problems and may even result in tragic accidents In this paper we argue that 3D visualization of pipelines is of a critical importance for efficient maintenance, providing a better perception and understanding of the complexity of the underground networks. Visualization of pipelines organized as 3D lines in a RIVET and NEVISWORK. Parameter, such as diameter, heights, radius etc are organized together with the pipe geometry as well various tests are performed on a case study of karad area.*

***KeyWords*: Underground utility, CAD, 3D Data model,visualization.**

1. INTRODUCTION

Many utility networks are currently managed as 2D/3D line objects with attributes in databases. This representation is sufficient for performing a variety of tasks but faces numerous challenges when these data have to be visualized in 3D environments. The visualization of 3D lines on the screen is often unclear as it lacks the volumetric appearance, required to produce depth perception, which is the key issue to understand the disposition and relationship of the objects on the screen. Lines displayed on current graphics hardware cannot be shaded as do not have any volume or surface, and as consequence occlusion and relative size are impossible to achieve. Their information. With lines only, it is impossible to determine the closest object and the understanding of the scene becomes difficult if not impossible. Many projects have been initiated to investigate these issues.

To solve this problem, volume should be added to non volumetric 3D lines, i.e. their 3D shape has to be reconstructed by creating the outer shell of the desired object and making them suitable to real-time rendering using computers equipped with Graphics Processing Units.

1.1 PROBLEM STATEMENT

Management and visualization of underground utilities have been always of a great concern in many countries insufficient, inaccurate and unclear information about location and depth of cables and pipelines may cause various problems and may even result in tragic accidents.so there is need to provide solution to above problem.

1.2 OBJECTIVE

This study aims to develop a 3D Model integrating BIM and GIS technology to reduce data loss and promote data sharing between stakeholders.

1. To Visualize underground features and their relation to the 3D space.
2. To prepare set of data which satisfy the demand of underground BIM of pipe network.
3. To Identify processes and spatial patterns when looking for the problem solution.
4. To develop an integrated 3D model of the underground environment.
5. To Create and maintain building, infrastructure and utility networks.

2. METHODOLOGY

The whole project work is to be divided into the four stages, as below,

I. In the first stage the problem in the construction industry is identified, Finalize the topic related to the problem statement, deciding the aim & objectives.

II. Second stage of project consists of literature survey to understand the basic concepts & various terminologies related to the project topic. This stage also includes collection & study of various software's required for 3D BIM modeling.

III. Third phase of the project consist of collection of data of ongoing construction project & develop the Model for the project.

IV. The fourth phase consists of analysis of data & determining the results from analyzed data & determined the conclusion of the project.

Requirement analysis	**Data collection**	**Data processing**	**Dataanalysis**
Requirement analysis	Access document	Data semantic quality assessment	
Data preparation	Literature review	Validate topology	
3D modeling	Literature review	evaluation	3D modeling
Model evaluation	Questionnaire	Single line spacing	Model assessment

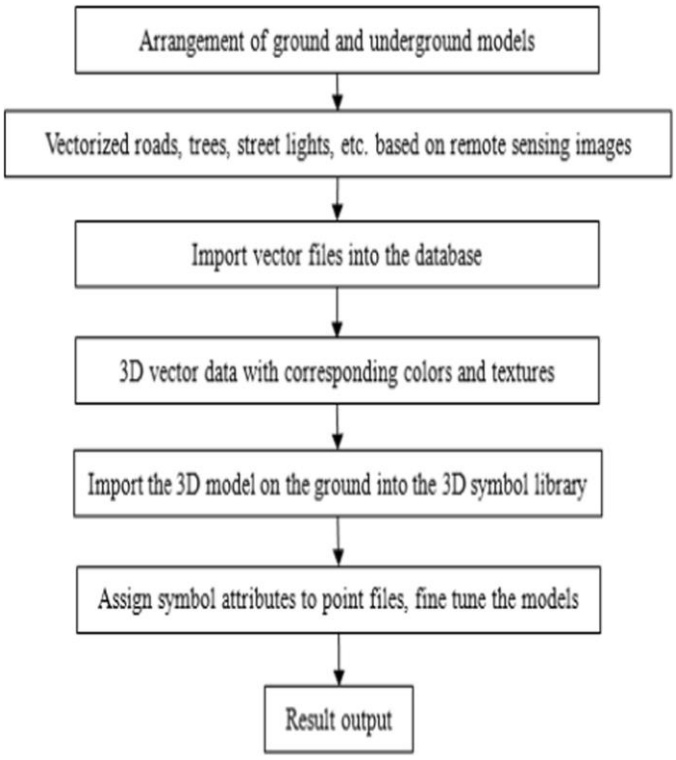

Chart -1: Modelling Process

3. CONCLUSIONS

3D Visualization of pipelines is much more appealing as compared to 2D visualization. Relationship between pipes and other objects are well visible in 3D Scene. The entire pipeline network is also much better represented and can be visually investigated. The enclusion of 3D Symbols to show pipeline attachments helps to provide additional information on the particular pipelines, including its function, direction of flow, connectivity etc.

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