UNIVERSITI TEKNOLOGI MARA
College of Built Environment

Poster Book

IIIDBEEX 2023

20 JANUARY 2023

International Invention, Innovation & Design Exposition for Built Environment and Engineering 2023

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3D WEB-BASED RESIDENTIAL COLLEGE SYSTEM

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INTRODUCTION

The innovation product of the 3D interactive web-based Residential College System is where the system utilizes an advance technology of geospatial analysis (Geographical Information System). The existing e-college system is incompatible since it **is time consuming and unattractive because the majority of the data is stored semi-manually and alphanumerical database**. As a result, a 3D geographic information systems (GIS) have arisen as a critical component of the residential college administration system.

PROBLEM STATEMENT

Residential college system has been facing the same problems from many years where the system is not compatible and an outdated system. This management system only includes the database of the students where it is not on par with the technology that has been evolving over the years. The existing system has been time consuming as most of the information are stored semi-manual in the system where it will be time consuming to cover the thousands of students' profile and unattractive as well as unable to be visualize the exact building or location of the blocks or rooms.

OBJECTIVES

1. to develop an interactive and informative 3D Residential College System based on analyzed user specific requirements
2. to perform a 3D geovisualisation database query and system performance test of developed web-based Residential College System
3. to establish the system to be used by college administration in organizing the college

METHODOLOGY

AutoCAD • Floor plan construction

ArcGIS Pro • CAD imported spatial and attribute data

ArcGIS Online • Configuration

Experience Builder System **3D**

WebApp Builder **2D** System

NOVELTY & COMMERCIALISATION

- *User Acceptance Test (UAT) revealed: effective monitoring and feedback, better visualization on the system, the information of the students can be extracted easily from the database system, and containing query system*
- *Interactive and interesting query system with visual location map (room, block and level)*
- *User friendly query tool: vacant room, occupied room, status and states together with spatial (map location information)*
- *Can be visualized 3D/2D on the system rather than conventional database system query and development.*
- *Integration of both spatial (map) and non-spatial (attribute) for better strategic decision-making solution the development*

RECOGNITIONS

10 NGGSIC NATIONAL GEOMATICS/GEOINFORMATICS STUDENT INNOVATION COMPETITION 2022

2nd GRADUATE DIGITAL INVENTION, INNOVATION & DESIGN GDIID2021

CONCLUSION

In summary, the system able to reduce time and cost, enhance management efficiency from semi-automatic to fully dynamic online system, fast action if maintenance of room if required since the exact room easily be located, and the system can be continuously updating from time to time with the availability of internet networking for any assign administration staff. This innovation product has resulted in the development of a GIS web-based residential college system that could improve the organization's ability to handle future building data

2D

3D