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BUILDCON2023

**COMPILATION OF PROJECT INNOVATION IDEAS
SEMESTER MARCH – AUGUST 2023**

EMBRACING SMART CONSTRUCTION TRANSFORMATION

BUILDERS' CONVENTION DAY 2023

**Department of Built Environment Studies and Technology
College of Built Environment
Universiti Teknologi MARA Perak Branch**

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COMPILATION OF PROJECT INNOVATION IDEAS
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Organised by
Department of Built Environment Studies and Technology
College of Built Environment
Universiti Teknologi MARA Perak Branch
Malaysia

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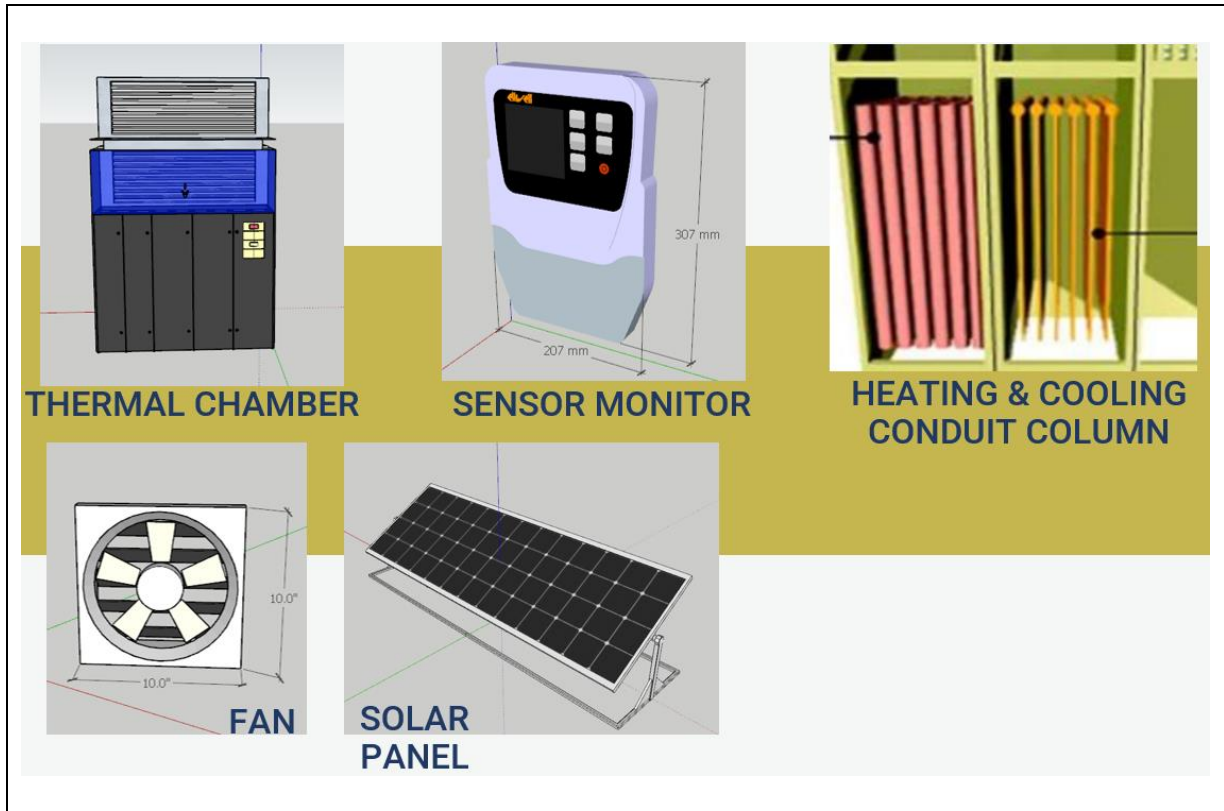
UNDERGROUND THERMAL CHAMBER AND VENTILATION SYSTEM

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Underground Thermal Chamber And Ventilation System

Innovation Idea:

The demand for sustainable building solutions has grown exponentially with the increasing concerns over climate change and energy consumption. In response to this, the innovation of underground thermal chambers has emerged as a promising and ground-breaking approach to enhance energy efficiency and environmental sustainability in the construction industry. This abstract presents a comprehensive overview of this innovative technology, highlighting its aims to develop underground thermal chambers and ventilation systems beneath the flooring. These systems draw in fresh air from the exterior, utilising the natural cooling and warming properties of the earth, and then redistribute it throughout the building interior. Additionally, it discusses marketability benefits and potential applications. This research presents the key components and functioning of underground thermal chambers, emphasising their capacity to enhance indoor air quality through efficient ventilation systems. Moreover, this study examines the wide-ranging applications of underground thermal chambers, with a particular focus on their implementation in malls and the construction industry. The versatility of this technology allows for seamless integration into both new and existing structures, making it a viable option for retrofits and new developments alike. Despite the numerous advantages, challenges and limitations are also addressed in this study. Factors such as initial costs, site-specific considerations, and

potential construction complexities must be carefully evaluated during the planning and implementation stages. However, this study emphasises that the long-term benefits and potential return on investment often outweigh the upfront expenses. In conclusion, the innovation of underground thermal chambers represents a transformative step towards sustainable and energy-efficient construction practices. Through harnessing the earth's natural resources, these chambers demonstrate a potent solution to combat climate change, reduce energy dependency, and create healthier indoor environments. As this technology gains momentum, it is poised to revolutionise the construction industry and shape a more sustainable future for generations to come.

Surat kami : 700-KPK (PRP.UP.1/20/1)

Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
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