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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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Organised by
Department of Built Environment Studies and Technology
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Malaysia

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THE ADVANCED TECHNOLOGY FOR SHOTCRETE METHOD

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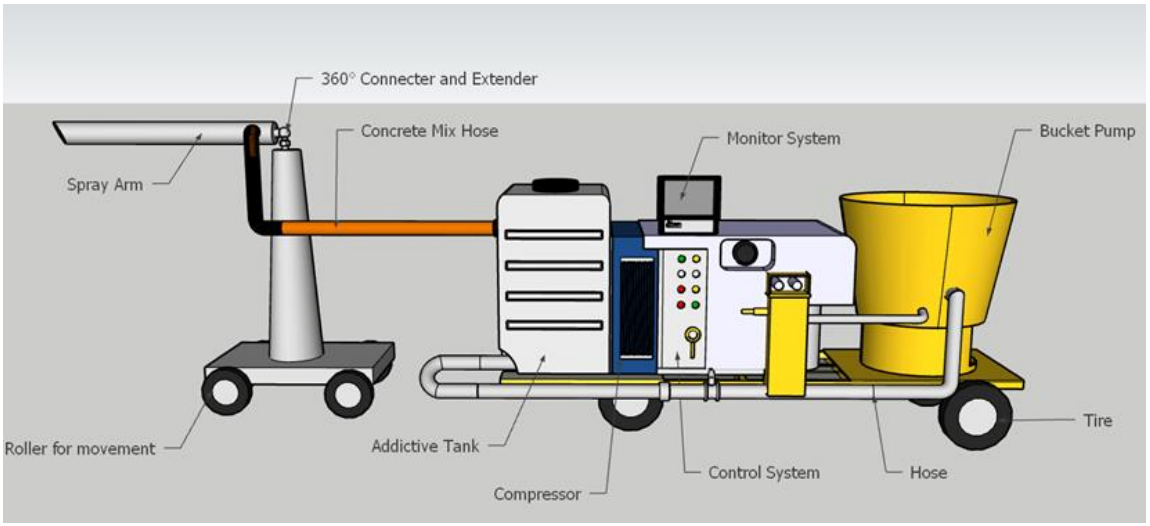

The Advanced Technology For Shotcrete Method

Innovation Idea:

Shotcrete, an efficient method for applying concrete to complex structures such as tunnels, retaining walls, and free-form surfaces, relies on a combination of machinery and skilled labour. However, issues related to dusting and wastage pose challenges in concrete application. To address these concerns, the implementation of contemporary technology, specifically a robotic machine for concrete spraying, offers a promising solution. This research focuses on developing an advanced technology for the shotcrete method, with primary goals of reducing labour costs, minimising construction time, and ensuring worker safety by avoiding exposure to health risks. The study utilises document analysis as a method for data collection and design thinking to analyse and create innovative products, services, and business models. The 3D modeling process, employing SketchUp software, was used to visualise and portray the product's design effectively. The proposed solution targets underground construction, repair work, and slope and surface protection, where numerous concrete applications are necessary. Aligned with Sustainable Development Goal 9, i.e., Industry, Innovation, and Infrastructure, this research aims to fulfill the need for sustainable and efficient concrete technology. The developed product offers a solution to mitigate dust-related health risks for on-site workers, streamlining construction processes, and reducing labour costs. By improving the shotcrete method through innovation, this research contributes to a more sustainable future for the construction industry.

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