



UNIVERSITI
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MARA

Cawangan Perak



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
College of Built Environment
Universiti Teknologi MARA Perak Branch
Malaysia

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SAFETY HELMET WITH AIR QUALITY SENSOR

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Safety Helmet With Air Quality Sensor

Innovation Idea:

Outdoor air pollution has emerged as a global public health concern, affecting millions of individuals worldwide. Exposure to high levels of air pollutants, including volatile organic compounds (VOCs) and particulate matter (PM), can lead to severe health consequences, even causing instantaneous death. Among the affected, frontline construction workers and managers face additional risks due to exposure to construction dust. To address this issue, the present research aims to develop an innovative product, i.e., A Safety Helmet with Air Quality Sensor, specifically designed for construction industry workers. The research objectives include conceptualising design ideas for the Safety Helmet with Air Quality Sensor, assembling a prototype based on the improvised design, demonstrating its performance, and exploring its marketability potential. The visualisation of the innovation idea was achieved through a simulation using SolidWorks software to facilitate in understanding the concept and design. The simulation process encompasses both prototype assembly and product application. The prototype assembly was demonstrated in a video format, enhancing visualisation and comprehension. The innovative safety helmet design that is incorporated with an air quality sensor was inspired from a combination of the safety helmet's functionalities: air quality sensors and visors. Addressing the urgent concern of air pollution's impact on human health, implementing safety helmets with air quality sensors can be a proactive solution. These helmets continuously monitor the surrounding air quality, empowering wearers with real-time information to make informed decisions for their safety. Public awareness campaigns are recommended to educate individuals, particularly in heavily polluted areas or workplaces, about the importance of wearing such safety helmets. By emphasising continuous improvement and innovation in the design and functionality of the safety helmet, it can assured that its efficiency, reliability, and affordability, makes it a valuable tool in mitigating the health risks associated with air pollution in the construction industry.

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

Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
Rektor
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Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

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Saya yang menjalankan amanah,

SITI BASRIYAH SHAIK BAHARUDIN
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nar

Setuju.

27.1.2023

PROF. MADYA DR. NUR HISHAM IBRAHIM
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