



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**

**BUILDCON 2023**  
**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

# **BUILDCON 2023**

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## SMART SOLAR PANELS FOR ROADWORKS

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Smart Solar Panels For Roadworks

### **Innovation Idea:**

Demands for electricity in Malaysia are expected to rise between five to six per cent for the next two to three years in line with increasing urbanisation and rapid industrialisation in the country. Malaysia is currently having a critical energy consumption in the electricity sector, with an additional increase of 4,780-megawatt (MW) capacity. The use of solar panels at buildings has the potential to save electricity and make a green environment. However, poorly performing solar panels at buildings have a negative impact on solar heat gain and sunlight penetration. Therefore, the study proposes the implementation of solar panels for roadworks is the best idea because roads are open space areas and have the potential to consume more solar radiation that can produce more energy for the users. In order to develop Smart Solar Panels for Roadworks to replace all current petroleum-based asphalt roads in Malaysia, the mean annual sun irradiation and the properties of the solar glass were studied. Analyses were carried out qualitatively, using a simulation and a review of literature. The simulation method focused on visualising the design and performance of the innovation product to clearly communicate the potential of this idea, while the literature

review focused on the observation of the performance of the solar roadways that have been used primarily for roads in China and France. Since it effectively improves electricity and provides renewable energy to a building's occupants, this innovation idea may have the potential to be marketed.

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

Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim  
Rektor  
Universiti Teknologi MARA  
Cawangan Perak



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Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

“BERKHIDMAT UNTUK NEGARA”

Saya yang menjalankan amanah,

**SITI BASRIYAH SHAIK BAHARUDIN**  
Timbalan Ketua Pustakawan

*nar*

*Setuju.*

*27.1.2023*

PROF. MADYA DR. NUR HISHAM IBRAHIM  
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