

**UNIVERSITI TEKNOLOGI MARA
PERAK BRANCH**

**AUTONOMOUS ROBOTIC LIGHTWEIGHT
WALL PANEL INSTALLER**

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Innovation project report submitted in partial fulfilment of the
requirement for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this innovation project report was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

In the event that my innovation project report, be found to violet the conditions mentioned above, I voluntarily waive the right of conferment of my degree and agree be subjected to the disciplinary rules and regulations of University Teknologi MARA.

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ABSTRACT

Mobile cranes are the most important machines on a construction site due to their size and transporting role and have long been dominated Malaysia's construction industry. As IR 4.0 evolves, the construction industry must seek, discover, and adopt new technologies to transform the conventional, conservative construction method into Construction 4.0. Lightweight panel is easier to handle than precast for low-rise structures. Despite using lightweight panels, a mobile crane is needed for lifting, which is time-consuming and unproductive. Implementing flexible robot automation based on computer-assisted planning, engineering, and construction management can improve working conditions, health and safety, scheduling, and product quality in the Malaysian construction industry. This study aims to recommend autonomous robotic as installer for lightweight panel to increase labour productivity, develop an innovation on Autonomous Robotic Lightweight Wall Panels Installer, and assess the market potential of the innovation product. The ideas started from the design framework. Through the article and website, installation of lightweight panels for low-rise buildings was researched. The innovation concept is then visualised. Components, assembly, and operation are converted into a video simulation after SketchUp development. Finally, product marketability. Based on the findings, the innovation technology intends to improve Malaysia's productivity. Malaysia is said to be rapidly gaining momentum in terms of autonomous robotic adoption, as more companies seek to expand their use of the technology. However, the commercial viability of Autonomous Robotic Lightweight Wall Panel installers will enhance working conditions, health and safety, scheduling, and product quality in general.

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