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INVENTION AND INNOVATION EXHIBITION (I-JaMCSIIIX) 2023

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Web-Based Safety Helmet Detection System For Construction Site Worker

Hajar Izzati Mohd Ghazalli, Fadzlin Ahmadon, Siti Azrina Aisyah Mohd Azhar, Nur Hidayah Abdul Ghani, Nurul Nadiah Nasuha Zaimi and Nurul Atikah Ariffin Kamal

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Abstract— The construction industry is a very important industry to raise the name and value of a country. The proof is that many skyscrapers in this country are able to be built because of the efficient construction workforce. However, to this day, there are still many accident reports received as a result of neglecting to wear safety hats while working on construction sites. This project is a real-time safety helmet detection system using YOLOv8, aimed at promoting digitalized safety guarding in the construction industry. The objective of the project is to reduce the likelihood of head injuries and fatalities by ensuring proper safety helmet usage. The developed system achieves an accuracy range of 60-85% and specializes in detecting smaller safety helmet targets. By leveraging the capabilities of YOLOv8, the detection system provides timely and efficient identification of workers not wearing safety helmets. This digitalized approach enhances safety measures by enabling proactive intervention and prevention of potential accidents. The system's accuracy and ability to detect smaller targets contribute to its effectiveness in real-world construction environments. The proposed solution advances the construction industry towards a more automated and digitized safety infrastructure, fostering a safer working environment for all personnel.

Keywords— YOLOv8, safety helmet, construction sites



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