Safety Helmet Detection

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Abstract*: Construction sites are inherently hazardous environments, with workers exposed to risks such as falling objects, machinery accidents, and head injuries. Ensuring compliance with safety regulations, such as wearing safety helmets, is crucial for mitigating these risks and preventing accidents. However, manual monitoring of construction sites is labor-intensive and prone to errors, leading to gaps in safety enforcement and increased accident rates. There is a critical need for automated systems capable of accurately detecting objects and monitoring workers' compliance with safety protocols in real-time to improve safety outcomes in construction sites.The proposed system aims to develop a custom object detection and safety helmet detection system for construction sites using a custom dataset of construction site images and annotations. The system will be trained on annotated images to learn the characteristics and features of construction site objects, as well as safety helmets worn by workers. Upon deployment, the system will continuously monitor construction sites using computer vision techniques to detect objects and identify whether workers are wearing safety helmets. When safety violations are detected, the system will issue alerts and notifications to site supervisors, enabling timely intervention to address safety concerns. Through this approach, the proposed system aims to enhance safety measures and reduce the incidence of accidents in construction sites.*

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