ABSTRACT

Fall incidents in humans, particularly among the elderly and individuals with vulnerable health conditions, pose a significant health problem as they can result in physical injuries and medical complications. According to data from the World Health Organization (WHO), falls are one of the leading causes of injury and death in the elderly population. This study aims to design and implement a real-time fall detection system for humans using camera sensors. This technology falls under the ambience approach, which does not require wearable devices but instead uses camera sensors to monitor human body movements. The system is expected to reduce the risk of serious injuries from falls by detecting movement patterns indicating a fall and immediately sending alerts to responsible parties or emergency services. The use of image processing and artificial intelligence (AI) technologies, such as the You Only Look Once (YOLO) method, allows real-time object detection with high accuracy and efficiency. This system is expected to enhance safety, particularly for the elderly, and contribute to the development of safe and efficient surveillance technologies.

Keywords: Fall Detection, Image Processing, You Only Look Once (YOLO)