ABSTRACT

The increasing number of elderly people in Indonesia poses new challenges to maintaining their health. In particular, the elderly who live alone without relatives at home have a higher risk of illness, especially in terms of the risk of falling. Therefore, it is important to develop a fall detection system that is able to monitor the condition of the elderly in their home environment. In this project, an object detection system based on YOLOv5 (You Only Look Once version 5) architecture is designed and implemented to detect people falling. The system relies on integrated deep learning and image processing techniques to develop accurate and reliable detection. The YOLOv5 method is proven to be effective in detecting objects under various visual conditions. The system receives images or videos from various sources, including webcams, image files, and videos. After receiving the input information, the system will process it using the pre-trained YOLOv5 model. Each detection result comes with a customizable confidence threshold, allowing for more accurate detection tracking. One of the standout features of the system is the ability to send notifications via communication platforms such as Telegram to users. This allows the elderly or their families to react immediately if a fall is detected. With further development and customization, this fall detection system has the potential to be an invaluable tool in maintaining the health and safety of the elderly, providing peace of mind for them and their families.

Keywords: YOLOv5 Method, Fall Detection System, Elderly Population, Confidence Threshold