

ABSTRACT

The increasing need for efficient public space management has encouraged the use of automated technologies to monitor and control crowd density. Real-time people counting systems can support managerial decision-making, health protocol enforcement, and visitor safety and comfort. However, the implementation of such systems still faces challenges related to detection accuracy, duration tracking, and compliance with data privacy regulations as stated in Law No. 27 of 2022.

To address these issues, this research developed a computer vision-based People Counter system using the YOLOv8 object detection algorithm. The system is designed to detect and count the number of people and record their presence duration within a room using video input from RTSP-enabled cameras. It is also integrated with a database and a visualization dashboard to support real-time data monitoring while complying with data privacy and occupational safety regulations under Government Regulation No. 50 of 2012.

Test results show that the system achieves an average detection accuracy of 87.5% with a processing speed of ≥ 15 FPS under various lighting conditions. It is capable of tracking individual duration with a margin of error of ± 2 seconds and reliably storing and displaying the data. Therefore, the developed system can be considered reliable for improving operational efficiency and public space supervision.

Keywords: People Counter, YOLOv8, duration, person detection, computer vision