

ABSTRACT

Road crossing is an important aspect of mobility for the community, including persons with disabilities. However, it is often a problem for users of road crossings for people with disabilities where it takes quite a long time to cross. This requires special attention. From these problems, we need a system that can detect people with disabilities who will cross the road using special timing.

Based on these problems, this research will design an automation system that can detect and classify pedestrians with disabilities and non-disabilities. In this study, this system was designed using Artificial Intelligence (AI) technology based on image processing. For the classification of persons with disabilities (cane users and wheelchair users) and non-disabled, this study uses the You Only Look Once (YOLO) method. The design of this system can also display time indicators, signals, and sounds when there are pedestrians according to their classification.

Testing the entire system that has been carried out consists of 4 stages, namely testing the trigger sensor as input to detect pedestrians. The test is carried out by measuring the distance and angle range that has been determined with 1m-2m distance with an angle range of 60°-120° and has obtained good results. The system can classify pedestrians with accuracy values above 80%. The system has also been able to work well in special areas that have been mapped and the output of the system has also been running well. Tests that have been carried out, the results show that the system is working properly and maximally according to system requirements.

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