

ABSTRACT

Cervical cancer is a type of cancer that occurs in the cervix, the lower part of the uterus that connects the uterus to the vagina, and is a serious health threat for women. This research aims to implement the YOLOv8 model, a deep learning-based object detection model, in detecting and identifying cervical cancer wounds through images produced by a colposcope camera. This model is expected to help identify cervical cancer lesions efficiently. This research applies YOLOv8 which was chosen based on its lightweight architecture and ability to carry out real-time detection. The initial dataset consisted of 519 images, which were increased through an augmentation process to reach a total of 1081 images. The main parameters measured in this study include the mean Average Precision (mAP) value for detection accuracy, Precision and Recall, and F1-Score to evaluate the balance between detection accuracy and sensitivity. The research results show that the YOLOv8 model succeeded in achieving mAP50 of 89.3% and mAP50-95 of 74.7%, with an overall Precision value of 91.8% and Recall of 87.3%, as well as an F1-Score value of 89.4 % which indicates fairly good model performance in detecting and classifying injuries at various levels of severity. With this performance, it is hoped that the YOLOv8 model will make a significant contribution to efforts to detect cervical cancer early and simplify the process of diagnosing and treating this disease in the clinical environment.

Keywords: *Cervical Cancer, Colposcope, Deep Learning, Wound Detection, YOLOv8*