# ABSTRACT

The many types of herbal plants that are abundant in Indonesia often cause difficulties in identifying existing herbal leaves. This is due to the similarities that exist between these plants, especially in the leaves. Therefore, we need a solution that can overcome these difficulties, namely with a technology that is able to understand the patterns that exist in herbal leaves based on the information contained in the database.

In this research, a mobile application system called "HerbCam" has been developed using deep learning technology to detect and classify herbal plants in real-time. This system uses the YOLOv5 method which has good accuracy and speed in identifying plants. The HerbCam application is equipped with a camera feature that allows users to detect herbal plants directly in real time. Apart from that, this application also has additional features to identify images of herbal leaves through a gallery or take pictures directly, as well as providing a complete description of herbal plants, such as scientific names, regions, ingredients, and benefits.

System testing is carried out by measuring precision, recall, mAP50, and mAP50-95 to evaluate the quality of detection and classification. The test results show that the system achieves a precision level of 0.9, a recall of 0.8, a mAP50 of 0.9, and a mAP50-95 of 0.8, indicating good detection quality. Application testing involves testing distance and lighting, the test results show that the application can detect herbal plants at an ideal distance of 15-20 cm with a fairly high success rate, and is able to identify objects well in lighting ranges above 40 lux.

Keywords: herbal leaves, deep learning technology, YOLOv5, mobile application, system testing, application testing.