

ABSTRAK

Taufiq, Ramadhan. 2023. *IMPLEMENTASI METODE YOU ONLY LOOK ONCE (YOLO) PADA PENGENALAN OBJECT RIMPANG*, Skripsi. Tanjungpinang: Jurusan Teknik Informatika, Fakultas Teknik dan Teknologi Kemaritiman, Universitas Maritim Raja Ali Haji. Pembimbing I: Nurul Hayaty, S.T., M.Cs. Pembimbing II: Nola Ritha, S.T., M.Cs.

Rimpang merupakan tumbuhan yang tumbuhnya menjalar di bawah permukaan tanah dan dapat menghasilkan tunas dan akar baru dari ruas-ruasnya. Biasanya disajikan setiap hari seperti minuman, makanan, dll. Banyaknya kemiripan dalam rimpang menyebabkan cenderung kesulitan untuk membedakannya. Tujuan dari penelitian ini adalah untuk mengetahui kemampuan metode *You Only Look Once* YOLO dalam mendeteksi jenis rimpang secara *real-time* yang diaplikasikan pada *smartphone* berbasis operasi sistem *android*. YOLO merupakan algoritma pendeteksian yang dilakukan dengan menggunakan *repurpose classifier* atau *localizer* untuk melakukan deteksi. Analisa yang dilakukan menggunakan dataset sebanyak 1000, 40 kelas, 16 *batch*. Menggunakan pembagian split data menjadi 70% data *training*, 20% data validasi, dan 10% data *testing*. Proses pelatihan hingga 300 *epoch*, dan penyimpanan *checkpoint* ke bentuk *pytorch file* dilakukan pada *epoch* 50, 100, 150, 200, 250, dan 300. Proses *testing* menggunakan *epoch* 150 karena menghasilkan nilai *Precision*, *Recall*, dan *mAP* terbaik. Pengujian ini dilakukan menggunakan perangkat *smartphone* Infinix Hot 10s dengan resolusi video berukuran 720x1640 piksel. Berdasarkan hasil pembahasan penelitian ini mendapatkan akurasi 80%.

Kata kunci: YOLO(*You Only Look Once*), *real-time*, *Precision*, *Recall*, *Map*, *android*.

ABSTRACT

Taufiq, Ramadhan. 2023. *IMPLEMENTATION of YOU ONLY LOOK ONCE (YOLO) METHOD IN THE IDENTIFICATION OF RHIZOME TYPES*, Thesis. Tanjungpinang: Department of Informatics Engineering, Faculty of Engineering, Maritim Raja Ali Haji University. Advisor I: Nurul Hayaty, S.T., M.Cs. Advisor II: Nola Ritha, S.T., M.Cs.

Rhizomes are plants that grow by creeping beneath the surface of the ground and can produce shoots and roots from their nodes. They are typically served daily as drinks, food, etc. The high similarity among rhizomes tends to make it difficult to differentiate them. The purpose of this research is to determine the ability of the You Only Look Once (YOLO) method in real-time detection of rhizome types applied to Android-based smartphones. YOLO is a detection algorithm that uses repurposed classifiers or localizers to perform detection. The analysis was conducted using a dataset of 1000 samples, 40 classes, and 16 batches. The data were split into 70% training, 20% validation, and 10% testing. The training process was carried out for 300 epochs, and checkpoint storage in PyTorch format was performed at epochs 50, 100, 150, 200, 250, and 300. The testing process used epoch 150 because it produced the best values for Precision, Recall, and mAP. The testing was conducted using an Infinix Hot 10s smartphone with a video resolution of 720x1640 pixels. Based on the results of this study, the accuracy obtained was 80%.

Keywords: *YOLO(You Only Look Once), real-time, Precision, Recall, Map, android.*