

ABSTRAK

Keterbatasan pengetahuan masyarakat Indonesia dan kesulitan dalam mengenali jenis ikan konsumsi masih sering terjadi, khususnya terhadap ikan dengan tampilan visual yang serupa. Penelitian ini bertujuan mengembangkan aplikasi Android untuk mengklasifikasikan sembilan jenis ikan konsumsi Indonesia dan menampilkan informasi gizinya. Model klasifikasi dikembangkan menggunakan arsitektur MobileNetV2 pada 2.700 citra. Pengembangan aplikasi menerapkan metode *Rapid Application Development* melalui tahap perencanaan kebutuhan, desain sistem, pengembangan, dan implementasi. Model dikonversi ke format TensorFlow Lite menggunakan *dynamic range quantization*, kemudian diintegrasikan ke aplikasi berbasis Java dengan arsitektur *Model-View-ViewModel* agar inferensi dapat dijalankan secara luring. Hasil pengujian menunjukkan bahwa model memperoleh akurasi sebesar 92,96% pada 270 data uji. Aplikasi menghasilkan rata-rata waktu klasifikasi 85,57 ms pada perangkat pengujian. Seluruh 18 skenario *black box testing* memperoleh status lulus, sedangkan *User Acceptance Testing* menghasilkan tingkat penerimaan sebesar 90,6% dengan kategori sangat baik. Dengan demikian, aplikasi berhasil mengintegrasikan MobileNetV2 untuk klasifikasi ikan secara luring, memenuhi kebutuhan fungsional utama, serta dapat diterima dengan baik oleh pengguna.

Kata Kunci: Android, Klasifikasi Ikan Konsumsi, MobileNetV2, Rapid Application Development, TensorFlow Lite

ABSTRACT

The lack of understanding amongst the general public in Indonesia, as well as difficulties in identifying edible fish species, still occur frequently, in particular with fish that look similar. This study aims to develop an Android application to classify nine types of edible fish in Indonesia and provide dietary information for each fish. The classification model was developed using the MobileNetV2 architecture with a transfer learning approach on 2,700 images. The application was developed using the Rapid Application Development method through the stages of requirements planning, system design, development, and implementation. The model was converted to the TensorFlow Lite format using dynamic range quantization and integrated into a Java-based application with a Model-View-ViewModel architecture to enable offline inference. Test results showed that the model achieved an accuracy of 92.96% on 270 test data. The application achieved an average classification time of 85.57 ms on the test device. All 18 black-box testing scenarios were successfully passed, while User Acceptance Testing (UAT) achieved an acceptance rate of 90.6%, which was rated as “very good.” These results indicate that the application successfully integrates MobileNetV2 for offline fish classification, meets its primary functional requirements, and has received positive feedback from users.

Keywords: *Android, Edible Fish Classification, MobileNetV2, Rapid Application Development, TensorFlow Lite*