

BAB VI

KESIMPULAN DAN SARAN

6.1. Kesimpulan

Berdasarkan seluruh tahapan penelitian yang telah dilakukan, penelitian ini berhasil merancang dan mengimplementasikan sistem deteksi keaslian cat mobil yang mengklasifikasikan kondisi Repaint dan Non-Repaint menggunakan pendekatan Machine Learning berbasis Support Vector Machine (SVM). Sistem dikembangkan untuk mengatasi kesulitan identifikasi kondisi cat pada mobil bekas akibat perbedaan visual yang sangat halus, dengan memanfaatkan ekstraksi fitur warna, tekstur, dan gradien dari citra permukaan cat. Hasil evaluasi menunjukkan bahwa model SVM global mencapai nilai akurasi sekitar 84,8% dengan F1-Score di atas 0,84, serta performa terbaik diperoleh pada citra mobil berwarna putih, diikuti oleh warna hitam dan silver. Selain itu, penerapan pendekatan multi-crop voting pada tahap inferensi dan implementasi model dalam bentuk prototipe berbasis web menggunakan Streamlit memungkinkan sistem digunakan secara langsung untuk melakukan prediksi kondisi cat mobil sesuai dengan tujuan penelitian.

6.2. Saran

Berdasarkan hasil penelitian dan keterbatasan yang ditemukan selama pengembangan serta pengujian sistem, diperlukan beberapa langkah lanjutan untuk meningkatkan kinerja dan penerapan sistem deteksi keaslian cat mobil berbasis Machine Learning. Dari sisi data dan model, disarankan untuk memperluas jumlah dan variasi dataset, terutama dengan menambahkan kondisi pencahayaan, sudut pengambilan, dan karakteristik permukaan cat yang lebih beragam guna meningkatkan performa model, khususnya pada warna dengan reflektansi tinggi seperti silver. Dari aspek akuisisi dan lingkungan pengambilan citra, penggunaan perangkat kamera dengan kualitas optik yang lebih baik serta pengaturan pencahayaan yang terkontrol dan merata diharapkan dapat menghasilkan citra

dengan representasi warna dan tekstur yang lebih optimal. Selain itu, sistem prototipe yang telah dikembangkan dapat ditingkatkan ke tahap deployment pada lingkungan produksi, seperti integrasi ke dalam layanan web atau API berbasis cloud, agar dapat dimanfaatkan secara lebih luas oleh pengguna.



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LAMPIRAN

Lampiran 1. Pengambilan Data Di Lapangan dan Diskusi Dengan Tenaga Ahli Dalam Membedakan Warna Mobil Yang Mengalami Pengecatan Ulang.



Lampiran 2 Proses pengecatan ulang dilakukan.



Lampiran 3 Pengambilan Data Di Lapangan Bursa Mobil.

