

ABSTRAK

Proses penyortiran pelat baterai adalah tahap akhir untuk menentukan kualitas pelat baterai yang *ok* (standar), *recharge* maupun *reject* (tidak standar). Pelat baterai disortir dengan manual menyebabkan proses sortir memakan waktu yang tidak efisien. Oleh karena itu, pada penelitian ini diterapkan computer vision untuk automasi sortir kualitas pelat baterai dengan klasifikasi *Fuzzy Inference System Tsukamoto*. *Computer vision* digunakan untuk mendeteksi citra pelat baterai dengan metode *GrabCut*. Hasil proses *GrabCut* mampu mendeteksi pola citra pelat baterai dengan akurasi sebesar 90%. Kemudian pola citra diklasifikasi dengan *Fuzzy Inference System (FIS) Tsukamoto* untuk menentukan pelat baterai *ok*, *recharge* maupun *reject*. Kualitas pelat baterai ditentukan berdasarkan jumlah piksel putih pada citra pelat baterai. Citra pelat *ok* memiliki nilai piksel putih $<30\%$, pelat *recharge* $30\%-60\%$ dan pelat *reject* $>60\%$. Berdasarkan hasil pengujian FIS *Tsukamoto* mendapat akurasi 95% dari 20 sampel pelat baterai.

Kata Kunci: akurasi, *computer vision*, *fuzzy inference system tsukamoto*, *grabcut*, pelat baterai.

ABSTRACT

The battery plate sorting process was the final step to determine quality of battery plates were *ok* (standard), *recharge* or *reject* (non-standard). Battery plates were sorted manually made the sorting process time-consuming and inefficient. Therefore, in this studied, the computer vision was applied to the automation of battery plates quality sorting with the *Fuzzy Inference System (FIS) Tsukamoto* classification. The computer vision uses to detect battery plate images with the *GrabCut* method. The result of the *GrabCut* process was able to detected the battery plate image pattern with an accuracy of 90%. Then the image pattern was classified with the FIS *Tsukamoto* to determine a battery plates were *ok*, *recharg* or *reject*. The quality of the battery plates were determined based on the amounted of white pixels in a battery plate image. An *ok* plate image had white pixels value $<30\%$, *recharge* plate $30\%-60\%$ and *reject* plate $>60\%$. Based on the resulted of testing the FIS *Tsukamoto*, it's got 95% accuracy from 20 battery plate samples.

Keywords: accuracy, battery plate, computer vision, fuzzy inference system *tsukamoto*, *grabcut*.