

Comparison of Human Segmentation using Thermal and Color Image in Outdoor Environment

¹Ezrinda Mohd Zaihidee, ¹Kamarul Hawari Ghazali, ²Ali Abd Almisreb

¹Faculty of Electrical & Electronics Engineering, Universiti Malaysia Pahang, Pekan, Malaysia

²Faculty of Electrical Engineering, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia
ezrindamz@gmail.com

Abstract— Nowadays video surveillance system are very important in an urban and rural area that can operate day and night, in all weather conditions. It is a challenging task to detect human due to body size, occlusion, lighting conditions, cluttered background, cloth texture and similarity of the human body/clothing with the background. Hence, in this paper, thermal and color images are utilized to evaluate the performance of the proposed method for single human segmentation in outdoor environment. The evaluation of the segmentation process is carried out based on OTCBVS Benchmark Dataset. The approach use morphological operation, global thresholding and edge detection as the main step in segmentation process. For quantitative analysis, 100 images for color and thermal respectively are analyze using Jaccard Similarity Coefficient where we compare the resulting image with its ground truth. From the results, human segmentation using thermal images are better compared to color image where 88% show a good segmentation result and only 4% cannot get a human figure correctly.

Index Terms— Human segmentation, Thermal image, Jaccard Similarity Coefficient, OTCBVS.