Abstract

The need for an automated sorting system cannot be overemphasized due to the growing needs for high throughput and accuracy. Manual sorting method may achieve good accuracy, but at the expense of throughput. This study formulates an automated plastic wastes identification model to overcome the limitation of the manual sorting method. The proposed identification model employed singleton Sugeno fuzzy model, image processing and template matching techniques as its classifier using physical properties of plastics such as power spectrum of sound, plastic average area and plastic recycling code as feature set. The model was developed and simulated in the MATLAB R2012a environment. The performance evaluation of the model was carried out using three performance metrics, namely, accuracy, precision and recall. The model obtained average accuracy of 0.88, average precision value of 0.77 and average recall value of 0.25, respectively for the plastic types (PET, HDPE, LDPE, and PP) used in this study.
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Index Terms

Computer Science  
Applied Sciences

Keywords

Plastic wastes  inference system  sorting  resin code.