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N Journal of Emerging Trends in Engineering and Applied Sciences - Design and development of waste sorting machine

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Abstract

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Nigeria is yet to develop a comprehensive scheme which is required to solve the current and persisting problem of waste management in the country. Whereas the crude methods of sorting wastes practiced may be efficient, it wastes useful time; hence the need for a mechanized sorting machine. An attempt has been made to develop a waste sorting machine, which is conceptualized to sort wastes into light materials, ferrous metals and other heavy materials. The machine is designed with the major components being the fan, the belt conveyor and the magnet. Tests carried out on the machine successfully classified wastes into light materials and heavy materials with inability to sort ferrous metals. Samples of wastes tested weighed 1.15kg and 3.53kg. The wastes consisted of an average of 32% of light materials and the time to sort the waste was 65 minutes per unit mass. This machine separates light materials such as paper, nylon, textile and heavy materials similar to

nylon, ferrous and non ferrous metal, glass and paper sorted by the machine developed by Falayi et al. (2007) and the machine designed by Adzimah and Anthony (2009).

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