



Development of a Plastics and Paper Waste Management System for a University Community

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Abstract. In Nigeria, poor waste management practices are evident in many urban centers. This study considered a University community as the model to explore the use of digital solutions in proper waste management. This study developed a web-based waste management system for the collection of plastics and paper in a University community. The framework developed utilized the use case and system block diagram. In this study, HTML, CSS, MySQL and Java programming language was used in the design of the web-based system. The result of this study was presented using screenshots. The web-based system had an interface to show profiles of the users, waste pickup information, incentive platform, and the admin dashboard to monitor and approve pickups and incentives. Past studies have indicated the success of using incentives to build sustainable behavioural change towards efficient waste disposal. Therefore, this study was able to introduce the incentive platform which converts weight of paper and plastics waste to points then to rewards for the users. The web-based waste management system for the collection of plastics and paper can be deployed for University communities to help reduce the number of paper and plastics that end up in landfills. Also, by picking the paper and plastics waste from source helps to prevent bin contamination.

Keywords: Paper · Plastics · University · Waste management · Web-based system

1 Introduction

Municipal waste is a challenge in most urban cities. This also the assertion in the study by [1], where it stated that most Nigerian towns and cities are confronted with the significant problems of poor solid waste management. The high level of urbanization and rural-urban migration has inhibited the ability of the appropriate waste management agencies' capacity to deal with the high levels of solid waste. The studies by [1–3]