**Waste Recycling Management App**

*Project progress report submitted to*

**MANIPAL ACADEMY OF HIGHER EDUCATION**

*For Partial Fulfillment of the Requirement for the Award of the Degree*

*of*

**Bachelor of Technology**

*in*

**Information Technology**

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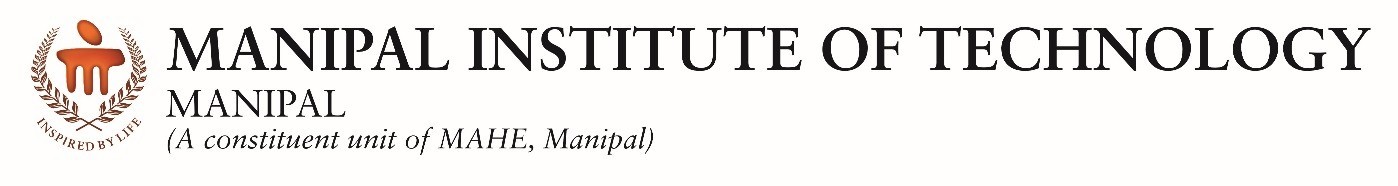
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**March 2023**

# 1. Introduction

The growing population and urbanization have led to a surge in the amount of waste produced, which poses a significant threat to the environment. The lack of effective waste management systems has further aggravated the problem, resulting in increased pollution levels. Recycling is a sustainable solution that can help mitigate the waste problem and reduce pollution. However, managing waste can be challenging, especially in densely populated areas.

To address this problem, we propose the development of a waste recycling management app that can efficiently manage waste. The app will enable donors to fill out a form with details about the waste, such as its location, quantity, and description, using an android studio app. The receiver can access the waste history, which includes the type and quantity of waste collected. The waste recycling management app will be an essential tool for managing waste effectively. It will enable donors to donate their waste efficiently and provide receivers with a platform to collect and recycle the waste. The app's use of Google Maps API and Firebase Realtime Database will facilitate the efficient management of waste, reducing pollution levels and promoting sustainability.

In conclusion, the waste recycling management app will be an effective solution to the growing waste problem. The app's use will lead to effective waste management, reducing pollution levels, and promoting sustainability.

# 2.Literature Survey

# Environmental integrated production and recycling management

# Author links open overlay panelTh. Spengler, H. Püchert, T. Penkuhn, O. Rentz

# Environmental integrated production and recycling planning is of great importance for the competitive position of production enterprises. Due to increasing disposal costs for industrial byproducts and waste as well as stronger emission standards, companies will be required to set up and control advanced, environmentally friendly production technologies, so that emissions and byproducts will be reduced drastically. Nonavoidable byproducts and used products at the end of their lifetime have to be recycled by the producers. The complexity of the resulting decision problems requires adequate operations research methods. The following paper deals with the development of sophisticated operations research models for two selected planning problems: recycling of industrial byproducts and dismantling and recycling of products at the end of their lifetime. The models have been applied successfully to large industrial problems in practice in the fields of recycling of demolition waste in a German- French region and byproduct management in the steel industry. The presentations of these two applications follow a case study point of view.

# Waste management, informal recycling, environmental pollution and public health

# Hong Yang, Mingguo Ma, Julian R Thompson, Roger J Flower

# The production of garbage is rising at an unprecedented rate due to fast population expansion, particularly in low- and middle-income nations. For instance, between 2010 and 2018, the yearly worldwide garbage produced by discarded electrical and electronic equipment alone rose from 33.8 to 49.8 million tonnes. Landfilling still accounts for the majority of garbage disposal in low- and middle-income nations, despite incineration and other waste treatment methods. These nations typically lack the financing necessary for proper waste management, and adoption of more cutting-edge waste treatment technology is weak. Many landfills pose major risks if they are not managed properly, as demonstrated by the landslip that occurred in Shenzhen, China, on December 20, 2015. Over 15 million individuals participate in informal trash recycling worldwide, mostly for plastics, metals, glass, and paper, in addition to formal waste recycling programs. This study looks at new public health issues related to the informal economy, especially in low- and middle-income countries. While though informal recyclers support trash reduction and recycling, their use of rudimentary methods and careless handling of secondary pollutants worsen environmental contamination of the air, land, and water. Even worse, a lack of occupational health protections puts employees in the informal garbage industry at risk for accidents, infections, respiratory and dermatological conditions, and other major health problems that shorten life expectancy. By integrating the informal and formal sectors, waste management might be improved while addressing these grave problems with livelihood and health. In numerous Latin American nations, where the integration of the informal and formal sectors has had a favorable impact on waste management and poverty alleviation, progress in this area has already been achieved.

# METHODS OF AUTOMATION AND MANAGEMENT OF WASTE RECYCLING IN THE DIGITAL ECONOMY

# The implementation of a new mechanism based on information and communication technologies (ICT) is an essential step towards addressing the global waste crisis. The development of innovative projects and the creation of necessary products from unnecessary products can greatly contribute to the reduction of waste and the preservation of the environment. In order to successfully introduce new technologies in the waste processing enterprise, it is important to identify the factors that encourage and hinder their adoption. This requires a thorough understanding of the existing processes and technologies, as well as the potential benefits and challenges associated with the integration of ICT. Some of the factors that encourage the adoption of new technologies in waste processing include increased efficiency and productivity, cost savings, improved quality of end-products, and reduced environmental impact. On the other hand, factors that hinder the adoption of new technologies include high costs of implementation and maintenance, lack of technical expertise, resistance to change, and regulatory barriers. To overcome these barriers and successfully implement ICT-based waste processing solutions, it is important to develop a comprehensive strategy that takes into account the specific needs and challenges of the enterprise. This may involve training and upskilling of staff, collaboration with technology partners, regulatory advocacy, and investment in research and development.

# Waste recycling in Malaysia: problems and prospects

# Mohd Nasir Hassan, Rakmi Abdul Rahman and Muhamad Awang

# Solid waste recycling should be incorporated into both current and future waste management strategies in order to preserve natural resources, save fossil fuels, and extend the life of disposal facilities. The current state of garbage recycling in Malaysia and its potential for the future are covered in this essay. Although though Malaysian wastes have a high potential for recycling, fewer than 5% of the total (almost 10,000 t d-1) are actually sorted and recycled. Waste plastics, paper, and glass are in high demand and sell for roughly US$60 t-1, US$44 t-1, and US$32 t-1, respectively. It is anticipated that recovering just 5% of the waste plastics, paper, and glass will bring in a total of around US$3.4 million each year. Recommendations to increase recycling are discussed in the paper.

# Behavioral reasoning theory (BRT) perspectives on E-waste recycling and management

# Author links open overlay panelAmandeep Dhir a b c, Nitin Koshta d, Raman Kumar Goyal e, Mototaka Sakashita f, Mohammad Almotairi g

# Each year, millions of tons of electronic waste (or e-waste) are generated worldwide, thus, fueling concerns among scholars, practitioners, policymakers, and governments about e-waste recycling and management. The past few years have witnessed a growing interest among scholars to examine the behavioral issues concerning e-waste recycling. However, most of the existing studies have focused on adopting e-waste recycling and related innovations. It is already known that ‘reasons for’ and ‘reasons against’ the adoption of any innovation are quantitatively different. The current study bridges this gap by utilizing a novel consumer behavior framework called behavioral reasoning theory (BRT) to study e-waste recycling attitudes and intentions. The study examined the relative influence of ‘reasons for’ and ‘reasons against’ in predicting attitude and intentions within the context of e-waste recycling by using a single framework. The developed model was tested using structural equation modeling with 774 Japanese consumers. The study also examined the moderating role of environmental assessment and environmental concerns in influencing the studied associations. The results suggest that ‘reasons for’ was positively associated with attitude and intentions. The consumer values shared negative associations only with ‘reasons against.’ The study findings offer interesting insights for service providers, policymakers, and governments.

# 3. Problem Definition

The problem with waste management is that there is often a lack of effective and sustainable waste disposal practices, which leads to pollution, environmental damage, and health hazards. In many areas, waste is not disposed of properly, leading to the accumulation of waste in landfills and the environment. In addition, there is often a lack of awareness about the importance of waste reduction and recycling, which can lead to a lack of participation in recycling programs and waste reduction initiatives. This, in turn, leads to an increase in the amount of waste generated, which puts a strain on the environment and natural resources. Furthermore, existing waste management solutions often suffer from several drawbacks, including limited availability of waste management facilities, inadequate integration with other stakeholders such as recycling facilities, NGOs, and government agencies, poor user experience, and inadequate safety measures. The inefficient collection and transportation of waste also lead to inefficiencies in the waste management process, resulting in additional environmental harm and reduced resource efficiency. Therefore, a waste management app that addresses these issues can promote sustainable waste management practices, raise awareness about waste reduction and recycling, provide more convenient and efficient waste disposal solutions, and ultimately help to reduce the negative impact of waste on the environment and public health.

# 4.Objective

# The objective of this project is to develop a comprehensive and user-friendly mobile application that will serve as a one-stop solution for effective waste management and recycling practices. The app will enable individuals and organizations to connect with each other to facilitate the efficient reuse and recycling of waste products, reducing the amount of waste that ends up in landfills and promoting sustainable production and consumption practices. The app will provide users with a range of features, such as an easy-to-use interface for reporting and tracking waste, and a system for identifying and connecting with potential recycling or reusing partners. Users will be able to upload information about their waste products and search for nearby recycling or reusing partners, making it easier for them to manage their waste and reduce their environmental impact. In addition to promoting waste reduction and recycling, the project will also aim to raise public awareness about the importance of proper waste management and the positive impact it can have on the environment. A communication strategy and awareness materials will be developed to this effect, which can help to educate people about the importance of waste reduction and encourage them to take action. Through this project, we hope to contribute to a cleaner and more sustainable future by addressing the problem of improper waste management and promoting sustainable practices. The mobile application can provide a convenient and efficient way for people to manage their waste and recycle, which can have a positive impact on the community and society as a whole.

# 5.Methodology

# The waste management recycling app will be developed for Android platforms. The app will require users to create an account by providing their personal information such as name, email, phone number, and address. The app will use Firebase for data storage and management. Once a user logs in, they can access the main dashboard where they can view different categories of waste materials and their respective recycling methods. The development of the waste recycling management app will follow the Agile development methodology, which involves iterative and incremental development. The app will be developed using the Android Studio IDE, which is a popular development tool for Android applications. The app will use Google Maps API to display the location of the waste donor. The receiver can view the wastes which the donor wants to donate and also track the waste history. The app will also use Firebase Realtime Database to store the data entered by the donors and to allow the receiver to access the waste history.

# The primary objective of the app is to promote sustainable waste management practices and encourage users to take responsibility for the waste they generate. By creating a user-friendly and informative app, we aim to raise awareness about the adverse effects of improper waste management on the environment and public health.

# 6.Work Done so far

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# To date, we have designed the registration page, the login page, the about page and the authentication setup with firebase. We have also worked on design and implementation of the donor and receiver modules. The work is divided equally among the 3 team members.

# 7.Remaining work

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# The integration of the google maps API has not been done yet. The history of the donations and the receiver view is still pending. The donor is not charging a fee yet, but we intend to add a fees for giving out the recyclable donations to the receiver.

# 8.Scope

# The waste recycling management app will be developed for Android devices. The app will allow donors to fill out a form with details about the waste, including its location, quantity, and description. The receiver can access the waste history, which includes the type and quantity of waste collected. The app will use Google Maps API to display the location of the waste and to allow the receiver to track the waste history. The app will also use Firebase Realtime Database to store the data entered by the donors and to allow the receiver to access the waste history.

# The app will allow donors to donate their waste effectively and for receivers to collect and recycle the waste. The app will use Google Maps API to display the location of the waste and to allow the receiver to track the waste history. The app will also use Firebase Realtime Database to store the data entered by the donors and to allow the receiver to access the waste history. The development of this app will be a step towards effective waste management and reducing pollution level .

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