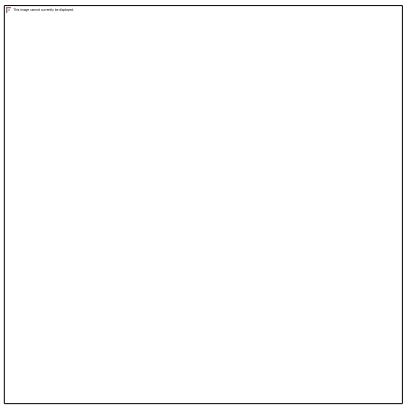
WebAge Recycling Marketplace: A Digital Platform for Sustainable Waste Management and Economic Opportunity at MSU-MCEST



As a course project presented to the

Faculty of the Department of Computer Science

Mindanao State University

Maigo College of Education, Science and Technology

In partial fulfilment of the course

CCC151 INFORMATION MANAGEMENT

2nd Semester 2025-2026

Kurt Martin Igot

Ainah Ampaso

Issy Marie Salvo

MAY 2025

Introduction

The increasing generation of waste worldwide has become a critical concern that demands innovative and practical solutions. In institutional environments such as Mindanao State University – Maigo College of Education, Science and Technology (MSU-MCEST), waste disposal and material reuse are ongoing challenges that impact sustainability goals. Traditional waste management methods are often inefficient, poorly monitored, or inaccessible to everyday users. As noted by the United Nations Environment Programme (UNEP), addressing the global waste crisis requires "transformative action that involves all sectors of society, supported by digital innovation and sustainable business models" (UNEP, 2021).

To respond to these needs, the WebAge Recycling Marketplace was conceptualized as a digital platform that simplifies the buying and selling of recyclable materials. The system aims to provide a user-friendly, transparent, and inclusive environment for individuals and businesses to exchange recyclables. WebAge is more than just a marketplace—it's a step toward fostering eco-conscious behavior, minimizing waste sent to landfills, and creating financial opportunities through sustainability. As emphasized by the World Bank, integrating circular economy principles in local communities can significantly reduce environmental impact while generating income and employment (World Bank, 2020).

WebAge is especially relevant in educational institutions like MSU-MCEST, where the student body and academic community play a pivotal role in leading sustainable practices. Through this system, students, faculty, and staff can engage in responsible material exchange, turning everyday waste into valuable resources. The platform embodies a proactive approach to environmental stewardship, combining technology and advocacy to support a cleaner, greener, and more economically vibrant community.

Statement of the Problem

Despite growing awareness of environmental issues, many individuals and organizations struggle to participate in recycling due to a lack of accessible, efficient platforms for trading recyclable materials. This study aims to address the following problems:

1. What solutions does the WebAge Management System offer to make recycling more accessible and efficient?

2. How does the platform encourage individuals and businesses to participate in recycling activities?

3. How can the WebAge Management System create economic opportunities through the buying and selling of recyclable materials?

Significance of the Study

The WebAge Recycling Marketplace is significant in several ways:

- **Environmental Impact**: By promoting recycling and reuse, the system reduces the accumulation of waste and conserves natural resources.
- **Economic Opportunity**: The platform enables individuals and businesses to earn income through the trade of recyclable materials.
- **Educational Benefit**: For students, WebAge offers a convenient and cost-effective way to recycle and reuse, fostering sustainability awareness.
- **Operational Efficiency**: For faculty, staff, and university departments, the system supports more effective waste reduction and material sourcing.
- **Institutional Advantage**: The University can benefit from reduced waste management costs while promoting eco-conscious practices campus-wide.

Objectives of the Study

• To support the reuse of materials, reducing dependence on raw materials.

• To allow individuals and businesses to earn through the sale of recyclable materials.

• To provide an easy-to-use online platform for the exchange of recyclables.

• To raise awareness and motivate the MSU-MCEST community to actively participate in recycling initiatives.

Entity Relationship Diagram (ERD)

References:

• United Nations Environment Programme (2021). Digital technologies for a sustainable future. www.unep.org

• World Bank (2020). What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. www.worldbank.org