# ****EcoHome – Student-Led Recycling and Waste Management Web Application****

**Summary**

EcoHome is an eco-friendly web application created by students with the aim of encouraging recycling and waste management in school and at home. The aim is to have a platform where users, particularly students, are educated on segregation of wastes, track recyclables, and earn themselves eco-points from gamified modules. The application has a recycling tracker, learning materials, and an admin panel for reporting and user management. It is made to be responsive and mobile-friendly as well as desktop-friendly, so you can use it anywhere, be it at home or in class. EcoHome fosters environmentally conscious habits and proactive engagement in green initiatives.

**Project Overview**

**Objectives**

Develop a friendly-to-students recycling web application that raises environmental awareness.

Deliver educational materials on waste segregation and recycling best practices.

Enable users to report environmental problems such as full bins or unauthorized dumping.

Implement gamification to encourage users via eco-points and leaderboards.

Ensure the application operates well on both smartphones and laptops, in school or at home.

**Scope and Limitations**

**Scope**

The app will have:

A recycling tracker to record recyclable products and gain eco-points.

An educational portal with tutorials and tips on waste segregation.

An admin dashboard for teachers and eco-student leaders to monitor reports and users.

Environmental reminders and updates notifications.

**Limitations**

The reward system will be implemented school-wide at this point.

The app is mobile-based but not necessarily on older devices or offline.

Future releases could expand to barangay-level programs as well as real-time data features.

**Literature Review**

Initiatives such as Eco-Schools and EcoBricks demonstrate the potential of student-initiated environmental initiatives. Apps such as Recycle Nation and iRecycle allow users to find recycling information and locations. Research further indicates that gamification—using points, badges, and leaderboards—can drive user engagement in green-related apps.

For this project, we decided to use HTML, CSS, and JavaScript for the frontend, and Firebase or JSON for back-end data. These technologies are easy, free, and efficient for student developers

The importance of trash management and recycling has increased dramatically in the modern context of environmental sustainability. This chapter explores the proactive role that students have in leading programmes that focus on recycling and trash management. The chapter begins with an examination of the many waste typologies, which include hazardous, inorganic and organic categories. This gives readers a basic grasp of the waste environment. Additionally, the chapter describes several waste management strategies, from conventional ones like burning and landfilling to cutting-edge ones like anaerobic digestion and composting. The growing problem of managing electronic waste is given special attention, highlighting how crucial it is to handle electronic garbage appropriately in the digital era. A thorough analysis of recycling, which explains the complex procedures involved in converting waste materials into useful resources, forms the core of the discussion. The chapter also explains how students may actively support recycling and garbage management by organizing educational campaigns, involving the community, and coming up with creative solutions, which will help to cultivate a culture of resource conservation and environmental responsibility.