PRAGATI ENGINEERING COLLEGE (A)

Surampalem

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ECO-FRIENDLY SHOPPING ADVISOR

SUBMITTED BY:

PATAMSETTI BHAGYA SRI	-	25A31A0589 (Team Lead)
PATHIVADA POOJITHA	-	25A31A0590
PODARADA SYAM SUNDAR	-	25A31A05AX
RAGHUPATI HEMANTH SAI	-	25A31A05AY

Under the Guidance of:

Mr. Y. MANAS KUMAR

Assistant Professor

CSE Department

1. PROJECT DESCRIPTION

Project Overview

The Eco-Friendly Shopping Advisor is a web application designed to help consumers make environmentally conscious purchasing decisions. The platform provides sustainability ratings, environmental impact information, and eco-friendly alternatives for everyday products, empowering users to reduce their carbon footprint through informed shopping choices.

Key Features

- **Product Sustainability Scanner:** Users can search for products or scan barcodes to receive comprehensive sustainability scores based on factors like carbon footprint, packaging waste, manufacturing processes, and ingredient sourcing.
- **Personalized Recommendations:** The system suggests greener alternatives to conventional products, comparing price points, availability, and environmental benefits to help users make practical switches.
- **Impact Tracker:** A dashboard that tracks users' cumulative environmental impact over time, showing metrics like CO2 saved, plastic waste avoided, and water conservation achieved through their purchasing decisions.
- **Brand Transparency Database:** Detailed profiles of brands and manufacturers, including their sustainability certifications, ethical practices, supply chain transparency, and environmental commitments.
- **Community Reviews and Tips:** A social feature where users can share their experiences with eco-friendly products, exchange sustainability tips, and participate in green living challenges.
- **Shopping List Optimizer:** An intelligent tool that analyzes shopping lists and suggests ecofriendly swaps, local alternatives, and package-free options available in the user's area.

Technical Implementation

Built using modern web technologies with a responsive design for mobile and desktop access.
Integrates product databases, environmental impact APIs, and barcode scanning functionality.
Features user accounts for personalized tracking and recommendations.

Impact Goals

Reduce consumer waste , promote sustainable brands, increase awareness about product environmental impacts, and make eco- friendly shopping accessible and convenient for everyone .

2. SYSTEM ARCHITECTURE

The Eco-Friendly Shopping Advisor follows a modular and structured system architecture designed to evaluate a user's product choices and generate sustainability recommendations. Each module performs a specific task and communicates with other components to produce an Eco Score and suggestions. The overall architecture ensures clarity, scalability, and efficient processing.

1. User Interface (Menu Selection)

This is the point where the user interacts with the system.

The interface displays menus, accepts user inputs such as:

Product name

Product type (Organic, Recycled, Plastic, etc.)

The UI forwards this input to the Logic Engine for further processing.

2. Input Buffer (User Choice)

The Input Buffer temporarily stores all the user selections.
It acts as a holding area that ensures:
Clean data transfer
Error-free input handling
Consistent communication between UI and program logic
This prevents direct dependency between input and processing units.

3. Logic Engine (C Program)

The Logic Engine is the core processing component written in C language.
It:
Retrieves user data from the Input Buffer
Performs conditional checks
Applies scoring rules based on sustainability criteria
Sends calculated scores to the Scoring System
This module ensures that the system behaves according to programmed logic.

4. Scoring System (Conditionals)

This unit evaluates the product using a predefined scoring model.
Conditions like:
Whether the item is organic
Whether it is biodegradable
Whether it is plastic-based
control how scores are assigned.

Depending on the conditions, the score falls into:
High Score → Best Choice
Medium Score → Good Choice
Low Score → Avoid

5. Output Layer (Recommendations)

Based on the score, the Output Layer generates:
Eco Score result
Category (Best / Good / Avoid)
Suggestions for greener alternatives

It displays user-friendly messages that help consumers choose eco-friendly products.The system follows a modular architecture where the User Interface interacts with a Logic Engine to calculate scores based on input selection.

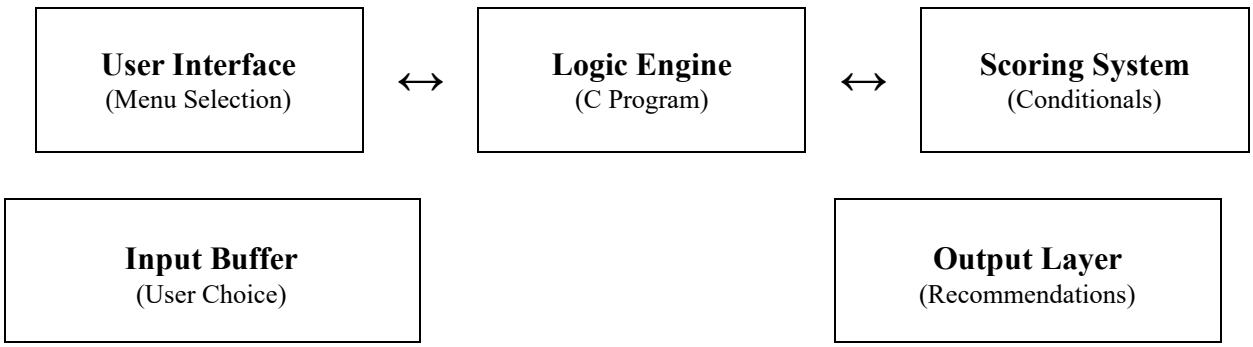

Fig:system architecture diagram

3. OPERATIONAL FLOWCHART

The following flowchart illustrates the control flow from user input to final output.

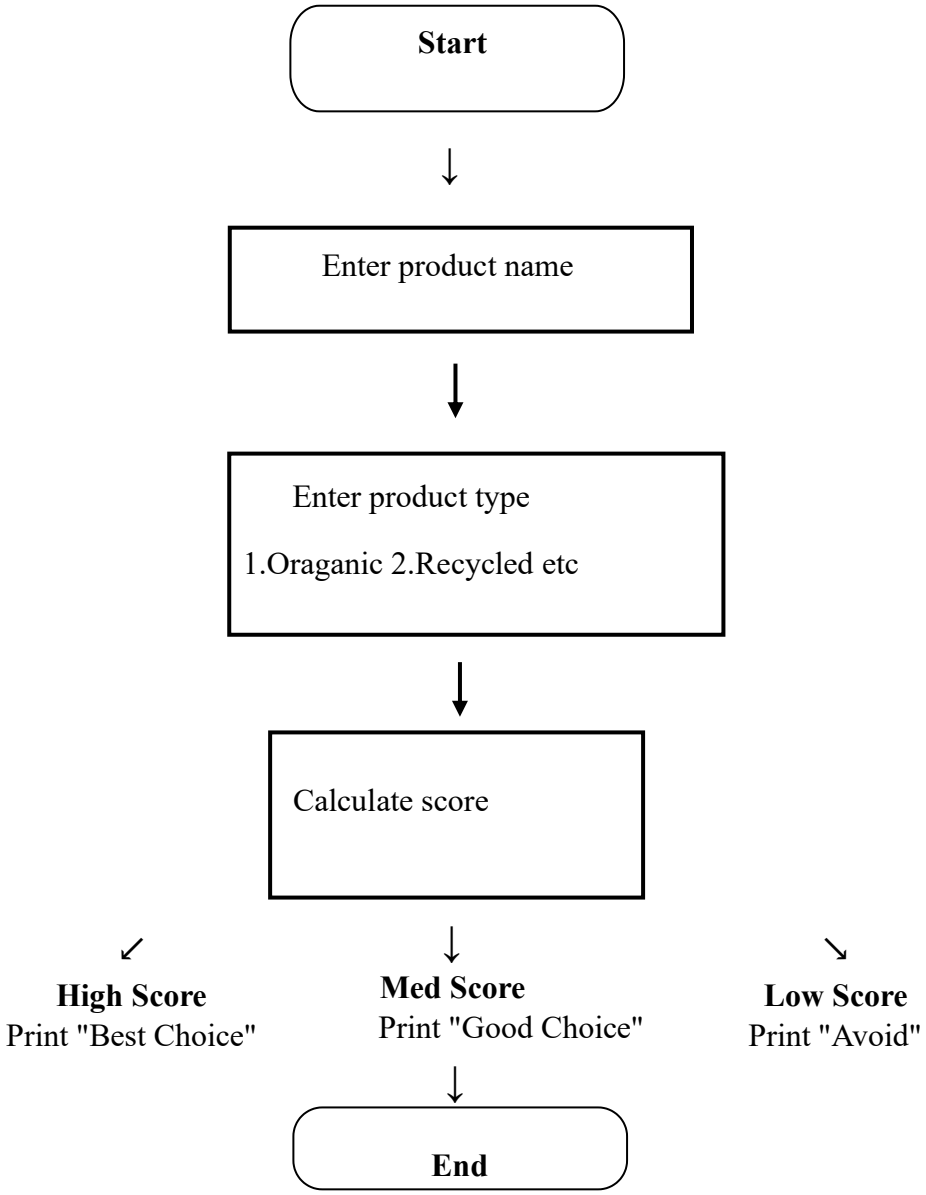

Fig 3.1: Process Flowchart