The Reduce Advocates Co. – Final Prototype Report

**Project Description**

The Reduce Advocates Co. is a sustainability-focused mobile application designed to reduce plastic waste through a QR-code-based incentive system. Users scan branded recyclable packaging and earn points redeemable for rewards, encouraging eco-conscious behavior. Built in Java via Visual Studio Code, the app provides a gamified user experience with features like:

* QR code scanning and redemption
* Point-based reward system
* Brand-specific tracking and sustainability stats
* Educational content and articles
* User progress tracking interface

Target users include environmentally-conscious consumers, students, and community members interested in reducing waste through everyday habits.

**System Requirements**

|  |  |
| --- | --- |
| Requirement Type | Specification |
| Compatibility | Android Marshmallow and iOS 15 and above |
| Required Storage | 100 MB and higher |
| Memory (RAM) | 2 GB or higher |
| Internet | Requires internet to access the software |
| Bluetooth | Not supported |

**Overview**

To evaluate the prototype, user testing sessions were conducted both on-site and digitally. Evaluation was structured around:

* **Usability Specifications** – Timed tasks to gauge ease of use and performance
* **Heuristics Evaluation** – Review of interface elements using Jakob Nielsen’s 10 Usability Heuristics
* **Participant Survey & Feedback** – User ratings and written feedback collected post-use

**Tasks for Evaluation**

Participants were asked to perform the following:

* Setting up a profile
* Scanning a product QR code
* Accessing educational articles
* Viewing and interpreting point progress
* Navigating through the reward system
* Data Presentation

**Usability Specifications**

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Mean Time | Interpretation | Classification |
| Profile Setup | 2m 45s | Highly Acceptable | Successful |
| QR Code Scanning | 1m 00s | Highly Acceptable | Successful |
| Article Accessibility | 1m 10s | Acceptable | Successful |
| Redemption Recognition | 1m 55s | Highly Acceptable | Successful |

**Heuristic Evaluation**

Evaluation revealed strong adherence to usability principles, with minor areas needing polish:

* **Visibility of System Status:** Immediate feedback after scans and point updates
* **Match Between System and Real World:** Familiar eco-terms like “redeem,” “recycle,” and brand names
* **User Control and Freedom:** Ability to undo scans or navigate freely
* **Consistency and Standards:** Slight inconsistencies in UI icon placements across screens
* **Error Prevention:** Needs better prompts for invalid scans
* **Recognition Rather Than Recall:** Core functions clearly labeled and visible
* **Flexibility and Efficiency of Use:** Easy for both new and frequent users
* **Aesthetic and Minimalist Design:** Green tones, readable fonts, and uncluttered layout
* **Error Recovery:** Needs better plain-language messages (e.g., scan errors)
* **Help and Documentation:** Intro guides and help text are present

**Participant Survey & Feedback**

Average Results (out of 5):

|  |  |  |
| --- | --- | --- |
| Category | Score | Interpretation |
| Overall Experience | 4.8 | Highly Acceptable |
| UI Design | 4.6 | Highly Acceptable |
| Ease of Use | 4.4 | Acceptable |
| QR Scan Functionality | 4.5 | Highly Acceptable |
| Reward System Clarity | 4.2 | Acceptable |
| Motivation to Reduce Waste | 4.7 | Highly Acceptable |
| Brand Awareness Feature | 4.3 | Acceptable |
| Progress Tracking Display | 4.6 | Highly Acceptable |
| Navigation Experience | 4.5 | Highly Acceptable |

User Feedback Summary:  
Participants appreciated the gamified experience and clean interface. Some noted confusion around QR scan failures and requested clearer error prompts and instructional guides for first-time users.

**Design Implications**

Based on evaluation:

* Add tooltips or placeholders for QR input guidance
* Standardize icon and button positions across pages
* Improve error feedback for unrecognized scans
* Consider user tutorial or onboarding walkthrough

Critique and Summary

Advantages:

* Encourages sustainable habits through gamification
* Simple, clean, and motivating interface
* Successful reward tracking and brand-awareness implementation

Disadvantages:

* Error handling and feedback messaging need refinement
* Visual consistency can still be improved

Future Improvements:

* Add real-time brand data or dynamic challenges
* Introduce onboarding for first-time users
* Improve flexibility of point redemption process

**Final Thoughts:**

The Reduce Advocates Co. is a compelling prototype that marries environmental advocacy with mobile gamification. With high user satisfaction and strong heuristic performance, it’s well-positioned for further development into a public-facing platform promoting plastic reduction and brand accountability.