

Software Requirements Specification (SRS)

Recycling Machine Application

1. Introduction

1.1 Purpose

The purpose of this document is to describe the requirements of the Recycling Machine Application. The system accepts recyclable items, calculates refunds, prints receipts, stores reports, and allows system operators and system admins to manage machine operations.

1.2 Scope

The system will:

- Accept items from customers
- Recognize item type
- Record transactions
- Calculate refunds
- Print receipts
- Allow operators to check daily usage, generate reports, update values
- Allow system admins to initialize, shutdown, and maintain the system

1.3 Definitions

- **Customer:** The person returning items.
- **Operator:** Person who manages daily operations.
- **System Admin:** Person who manages system-level tasks.
- **Refund:** Money returned for recyclable items.

2. Overall Description

2.1 Product Perspective

The system is a standalone application running on a recycling machine. It includes sensors for item recognition and software for calculations and reports.

2.2 Users

- **Customer:** Returns items and gets refund.
- **Operator:** Generates reports, updates deposit values, solves issues.
- **System Admin:** Performs system initialization, shutdown, and maintenance.

2.3 Constraints

- Machine must be powered and initialized.
- System requires updated item deposit values.
- Sensors must be functional.

3. Functional Requirements

3.1 Return Items

- System shall allow customers to insert recyclable items.

3.2 Recognize Item Type

- System shall identify item type using sensors.

3.3 Record Transaction

- System shall store each item transaction in the database.

3.4 Receive Refund

- System shall calculate total refund based on deposit values.
- System shall display or dispense the refund.

3.5 Request Receipt

- Customer may request a receipt.
- System shall print the receipt.

3.6 Check Daily Usage (Operator)

- Operator shall view daily usage summary.

3.7 Generate End-of-Day Report

- Operator shall generate daily report.
- System may trigger an alarm if abnormal activity occurs.

3.8 Update Deposit Values

- Operator shall update values for bottles, cans, etc.

3.9 Resolve Technical Issues

- Operator shall troubleshoot system errors shown on the machine.

3.10 Initialize System (Admin)

- Admin shall start up the system for daily use.

3.11 Shutdown System (Admin)

- Admin shall shut down system safely.

3.12 Perform Maintenance

- Admin shall perform maintenance operations.

4. Non-Functional Requirements

4.1 Performance

- System shall recognize items within 2 seconds.
- Report generation shall complete within 5 seconds.

4.2 Usability

- Interface shall be simple, with clear instructions.
- Receipt request must be one button.

4.3 Reliability

- System shall run continuously during operation hours.
- System shall store all transactions even during power loss.

4.4 Security

- Only operators and admins shall access management functions.

5. Use Case Summary

- **Customer:** Return Items, Receive Refund, Request Receipt
- **Operator:** Check Daily Usage, Generate End-of-Day Report, Update Deposit Values, Resolve Issues

- **Admin:** Initialize System, Shutdown System, Perform Maintenance

6. Appendix

6.1 Assumptions

- Users understand basic machine usage instructions.
- Admin has technical knowledge.