## Case Study # 03: Recycling Machine Application

**Functional Requirements:**

| **No.** | **Requirement Name** | **Description** |
| --- | --- | --- |
| 1 | **Item Recognition** | The system shall identify the type of item returned (bottle or can) automatically when inserted. |
| 2 | **Quantity Recording** | The system shall record the number of bottles and cans returned during each customer session. |
| 3 | **Deposit Value Calculation** | The system shall calculate the refund amount based on the deposit value of each returned item type. |
| 4 | **Receipt Generation** | Upon customer request, the system shall generate a printed receipt showing item details, deposit values, and total refund. |
| 5 | **Transaction Recording** | The system shall store transaction details including item type, quantity, and total refund for each session. |
| 6 | **Daily Summary Report** | The system shall generate a daily report showing total bottles and cans returned during the day. |
| 7 | **Deposit Value Configuration** | The system shall allow operators to modify deposit values for different item types. |
| 8 | **Machine Monitoring** | The system shall continuously monitor the machine’s status (e.g., item jam, receipt paper level). |
| 9 | **Alarm Notification** | The system shall trigger an alarm when a malfunction occurs (e.g., can stuck, paper finished). |
| 10 | **Operator Maintenance Access** | The system shall allow operators to access maintenance functions and resolve system issues. |

**Non-Functional Requirements:**

| **No.** | **Requirement Name** | **Description** |
| --- | --- | --- |
| 1 | **Performance** | The system should recognize and record returned items within seconds to ensure fast customer interaction. |
| 2 | **Reliability** | The system must operate continuously throughout the day without frequent failures or data loss. |
| 3 | **Usability** | The interface should be user-friendly for both customers and operators, with clear instructions and messages. |
| 4 | **Security** | Only authorized operators should be allowed to modify system settings or access daily reports. |
| 5 | **Maintainability** | The system should be easy to update and maintain, allowing quick fixes for issues like jammed cans or printer errors. |