**⚙️Functional Requirements**

| **No.** | **Requirement Type** | **Description** |
| --- | --- | --- |
| 1 | Start Session | The system must allow a customer to start a new recycling session. |
| 2 | Insert Item | The system must accept returnable items (bottles or cans) from the customer. |
| 3 | Identify & Record Item | The system must identify the type and count of each inserted item and record it. |
| 4 | Request Receipt | The system must allow the customer to request a printed receipt. |
| 5 | Print Receipt | The system must print a receipt showing details such as item type, quantity, and refund amount. |
| 6 | Provide Refund | The system must provide a refund amount to the customer based on returned items. |
| 7 | Monitor Machine | The system must continuously monitor machine operations and detect any faults or errors. |
| 8 | Trigger Alarm | The system must trigger an alarm in case of technical issues or system malfunctions. |
| 9 | Notify Operator | The system must automatically notify the operator when a malfunction or error occurs. |
| 10 | View Reports | The operator must be able to view daily, weekly, or monthly reports. |
| 11 | Modify Settings | The operator must be able to modify system settings such as refund rates or accepted item types. |
| 12 | Handle Errors | The operator must be able to manage or resolve system errors and restart operations. |
| 13 | Generate Daily Report | The system must generate a daily report summarizing transactions, refunds, and errors. |

**⚙️ Non-Functional Requirements**

| **No.** | **Requirement Type** | **Description** |
| --- | --- | --- |
| 1 | Security | The system must ensure secure storage of transaction and refund data to prevent tampering. |
| 2 | Reliability | The system must operate reliably to avoid downtime and ensure consistent performance. |
| 3 | Performance | The machine must process each item identification and refund transaction within 5 seconds. |
| 4 | Usability | The user interface must be simple and easy for customers to understand without assistance. |
| 5 | Availability | The system must be available 24/7 except during scheduled maintenance. |
| 6 | Maintainability | The system should allow easy updates for software, refund rates, and supported item types. |
| 7 | Scalability | The system should support multiple machines operating in different locations. |
| 8 | Accuracy | The system must correctly identify and count every returned item and calculate accurate refunds. |
| 9 | Auditability | The system must log all transactions, refunds, and operator activities for reporting and audits. |
| 10 | Fault Tolerance | The system should recover safely from power loss or hardware failure without data loss. |