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# 1. Purpose

1.1 Intended Audience

This SRS document describes the System Requirements and Software Design for Supermarket Self-Checkout System and the target audience are customers at a supermarket.

1.2 Intended Use

This SRS defines the overall System Architecture and Requirements as well as the Software Architecture and Design. This document also contains the definition of the System Requirements which shall be used as the input for System Test cases and Software Unit Test cases.

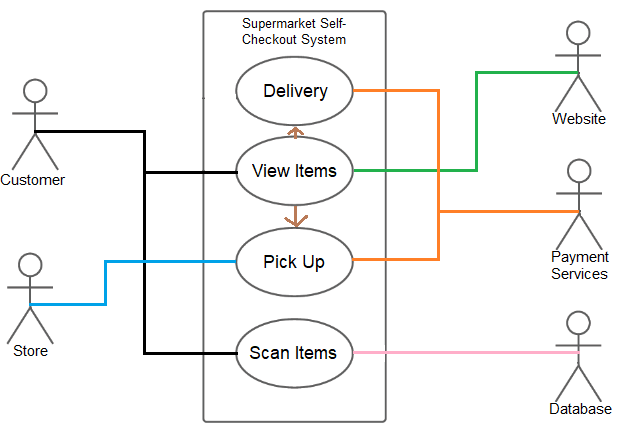
1.3 Scope

1.4 Definitions and Acronyms

|  |  |
| --- | --- |
| **Acronym** | **Description** |
| LED | Light Emitting Diode |
| RFID | Radio-Frequency Identification |

2. Overall System Description

2.1 Use Case Diagram



2.2 System Architecture



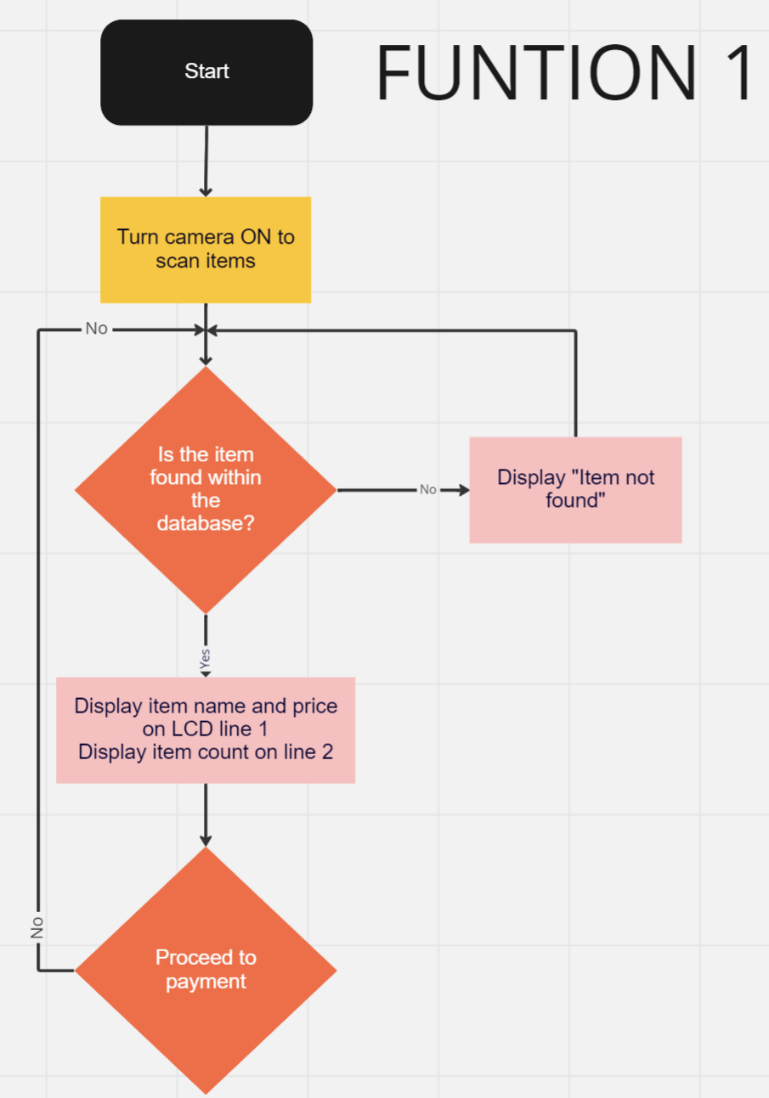
## Functional Requirements

### 2.3.1. Start Up and Main Menu

|  |  |
| --- | --- |
| **REQ\_ID** | **Requirement** |
| REQ-01 | When the machine is turned on, the main menu will display  “Enter ‘start’ to begin” |
| REQ-02 | Given the menu defined in REQ-01, if the option “Start” is selected, then the following text is displayed on the LCD screen  Line 1 = “Scan on RFID” |

2.3.2. In-store purchase

|  |  |
| --- | --- |
| **REQ\_ID** | **Requirement** |
| REQ-03 | If the user presses start, the ~~camera~~ RFID reader will be turned on and allow items to be scanned, which will follow the flowchart in Figure 1. |

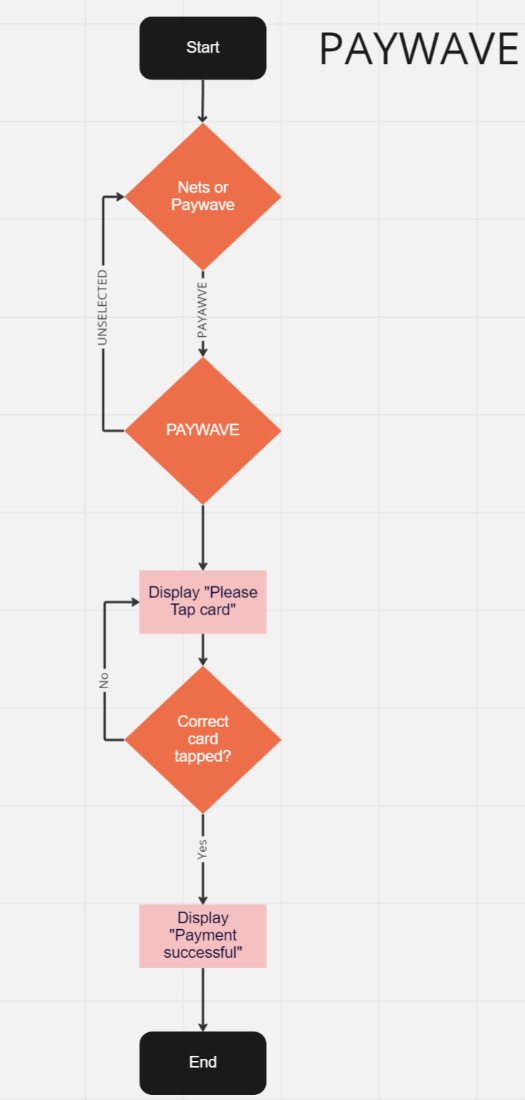


**Figure 1**

### 2.3.3. Payment method:

### 2.3.3.1 Paywave

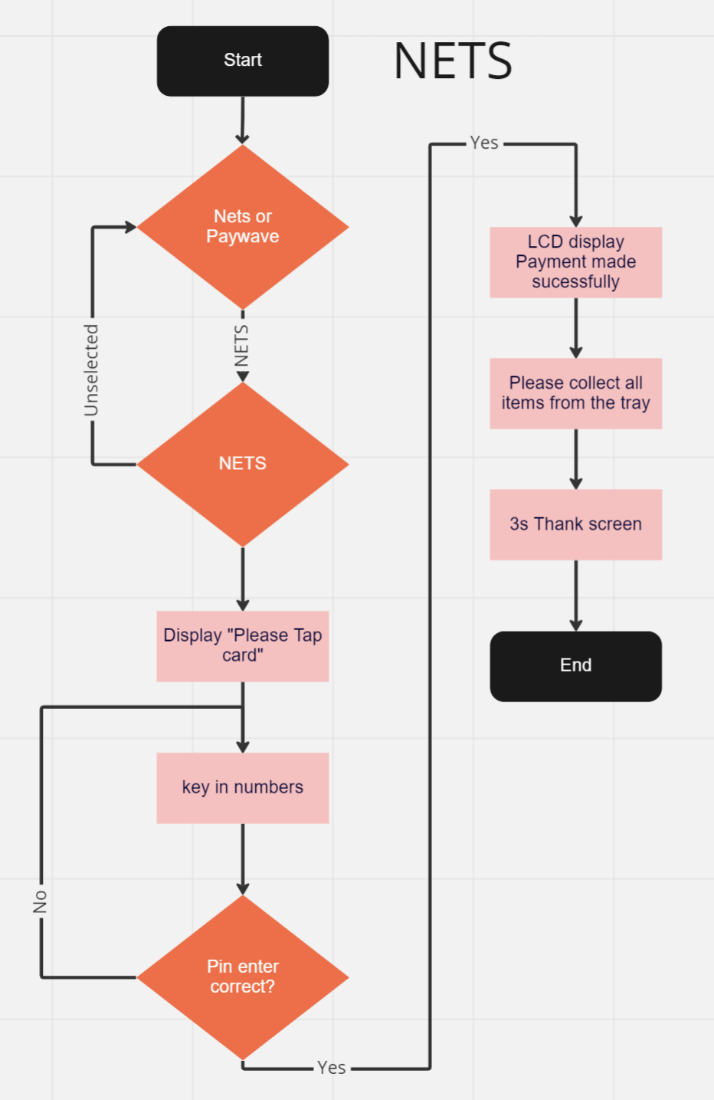
|  |  |
| --- | --- |
| **REQ\_ID** | **Requirement** |
| REQ-04 | After the user has finished scanning the items, they are able to proceed to payment and at that point, the user can select “1. Paywave” then it checks that the card is a valid card that has been tapped. If it is a display “payment successful”  Otherwise, it will request user to select whether or not they would like to retry payment. |



**Figure 2**

### 2.3.3.2 Nets

|  |  |
| --- | --- |
| **REQ\_ID** | **Requirement** |
| REQ-05 | After the user has finished scanning the items, they are able to proceed to payment and at that point, the user can select “2. Nets” where they will have to enter their pin, and if the pin is correct, it will prompt “Payment successful” on serial monitor and “Thank you for your purchase” on the LCD. |



**Figure 3**

### 2.3.4 Website

The Supermarket will have an online store to automate more purchases so that customers can self-checkout quicker.

|  |  |
| --- | --- |
| **REQ\_ID** | **Requirement** |
| REQ-07 | The user will be able to enter the website to the Supermarket self-checkout system to view a webpage which will prompt them to ‘start’ button to start a session, it will then bring the customer over to the next page where the main groceries are. |
| REQ-08 | The customers will be able to select items for purchase, before they finalize their purchase, they must select whether they want their groceries to be picked-up by themselves or directly delivered to their homes but with an extra cost of $4. |
| REQ-10 | After finishing their payment if they chose the pick-up option:   * Receive a QR code for them to scan at the cashier when they go to the supermarket. |

### 2.3.5 Retrieval of groceries

For users who have chosen to pick-up their groceries were all given a QR code to show the supermarket staff, once verified they would be able to collect their items.

|  |  |
| --- | --- |
| **REQ\_ID** | **Requirement** |
| REQ-11 | Customers will have to show the pi-camera their QR code (raspberry pi camera) once the pi-camera detects that the QR code is valid it will display the list of items and customers will then be able to collect their items. |

1. Software Architecture

3.1. Static Software Architecture

Software Architecture defines the various Software Components that are developed to realize the implementation of the system requirements.

Graphical user interface, diagram

Description automatically generated

**Figure 4**