

Automatic Billing Machine

Overview

This project aims to automate the billing process in supermarkets using RFID technology and NodeMCU. The system detects products placed in a shopping trolley using an RFID reader, displays the product price on an LCD, and allows verification of the bill at the exit via a website. This project was developed as a mini-project for the Electronics Telecommunication Engineering Department at AISSMS Institute of Information Technology, Pune.

Features

- **Automatic Product Detection:** Uses an EM-18 RFID reader to detect products placed in the trolley.
- **Real-time Billing Display:** LCD displays the name and price of each product added to the trolley.
- **Dynamic Price Update:** Automatically updates the total price as items are added or removed.
- **Cloud Verification:** Allows the shopkeeper to verify the bill using a website.

Hardware Components

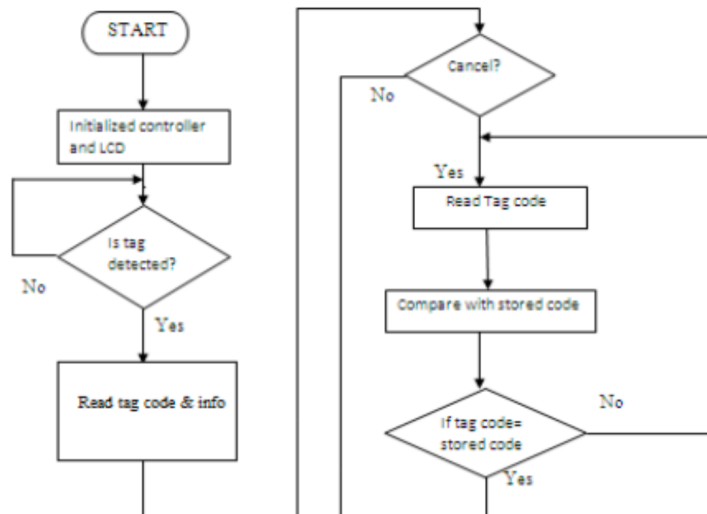
- **EM-18 RFID Reader Module**
- **RFID Cards**
- **16x2 LCD Display**
- **NodeMCU - ESP8266 Wi-Fi Development Board**
- **Buzzer**
- **Push Buttons**
- **LEDs**
- **Resistors**
- **Cables and Connectors**

Software Requirements

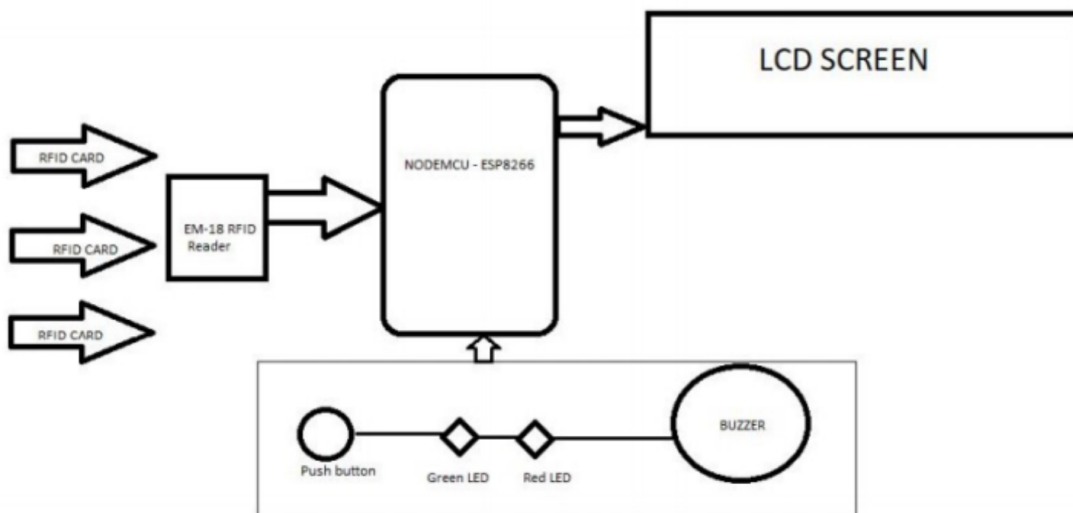
- **Arduino IDE**
- **ESP8266WiFi Library**
- **LiquidCrystal_I2C Library**

Software Design

Flowchart :



Block Diagram



Working

1. **Initialization:** The system initializes by displaying a welcome message on the LCD.
2. **Product Scanning:** Products are detected using the RFID reader and their details are displayed on the LCD.
3. **Price Calculation:** The total price is updated as products are added or removed.
4. **Bill Generation:** The final bill is generated and can be verified by the shopkeeper via a website.

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