AUTOMATIC BILLING MACHINE

CLASS: TE "B"
GROUP B1
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Need of Auto Billing Machine

- Shopping is easy but waiting at a billing counter after shopping is risky as we are more vulnerable to the COVID-19 due to the huge amount of rush. This innovative project which will be placed in the shopping trolley itself.
- Huge amount of rush plus cashiers preparing the bill with a barcode scanner is too time consuming and results in long queues.
- Hence this system is suitable for use in places such as supermarkets,where it can help in reducing crowd and in creating a better shopping experience for its customers.

Working

- The system consists of a RFID reader which is controlled by an NodeMCU. So whenever the shopper puts any product in trolley it is detected by the RFID module and it is displayed on LCD along with the price of the product. As the shopper adds more things it is detected by the module and the price according to that increases. In case if a customer changes his/her mind and doesn't want any product added in the trolley he can remove it and the price added will be deducted automatically. At the end of shopping the shopper will press the button which when pressed adds all the product along with there price and gives the total bill to be paid.
- At exit For verification the shopkeeper can verify the shopping with the help of website.
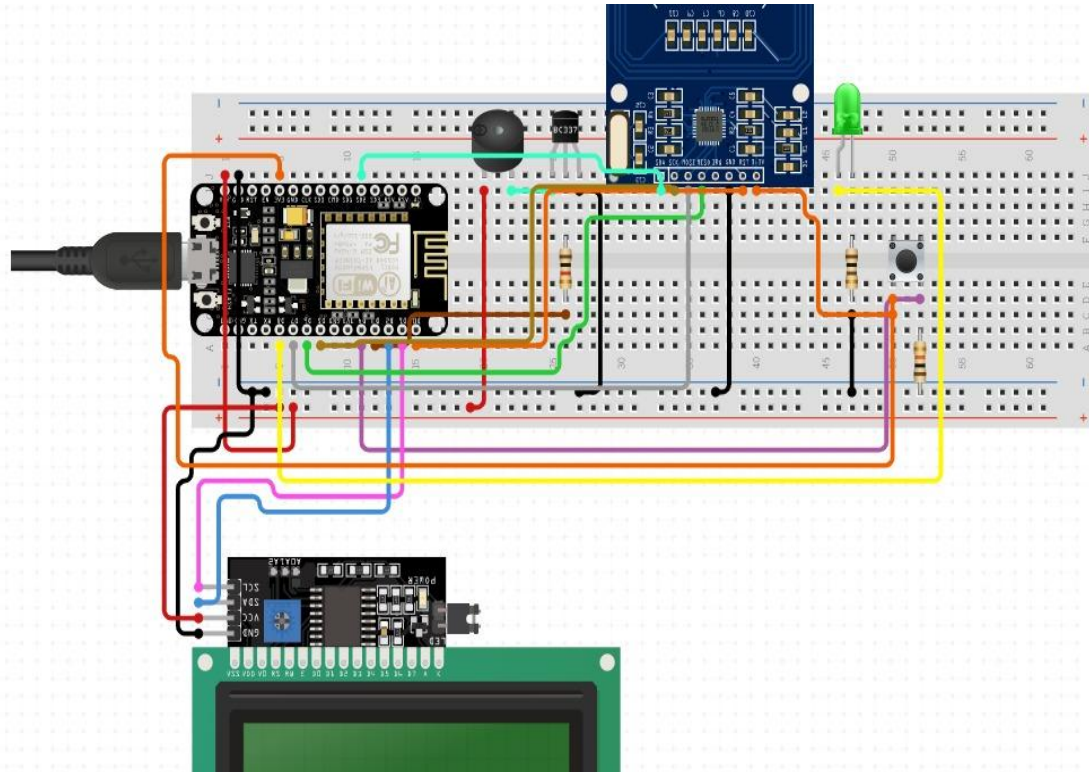
Hardware Specifications

- EM-18 RFID Reader Module
- RFID Cards
- LCD Display
- NODEMCU - ESP8266 Wifi Development Board
- Resistors
- Cables and Connectors
- Buzzer
- Push Buttons
- LEDs
- Software - C language :using Arduino libraries for ESP8266WiFi

Block Diagram
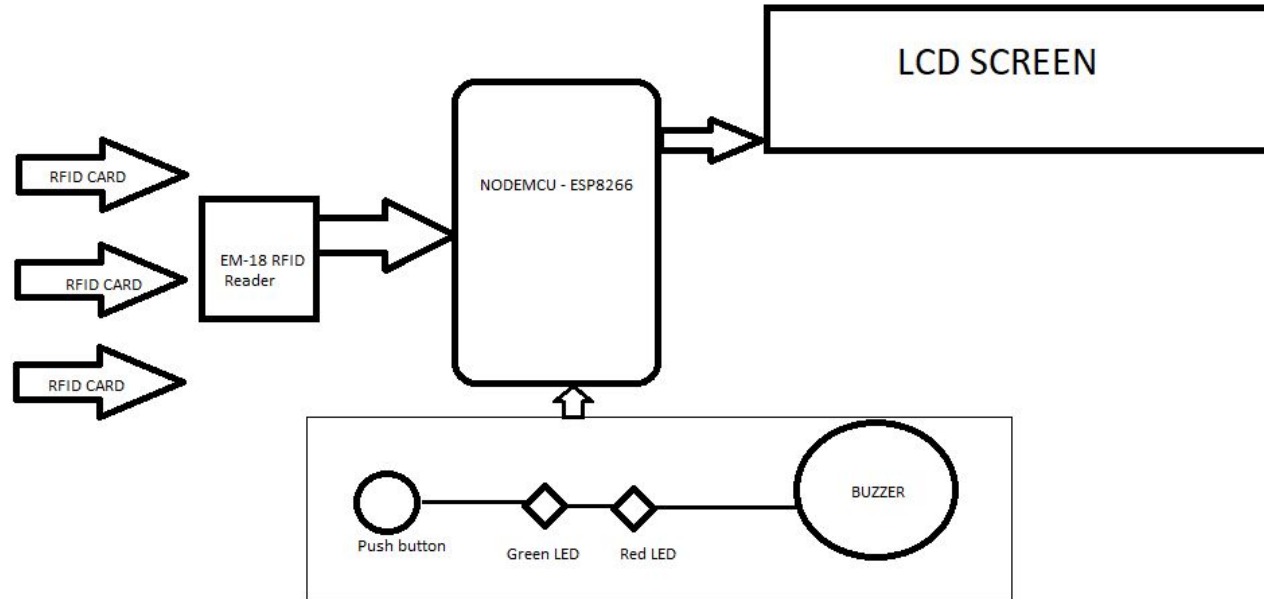
Circuit Diagram

Program

```cpp
#include<ESP8266WiFi.h>
#include<WiFiClient.h>
#include<ESP8266WebServer.h>
#include<LiquidCrystal_I2C.h>
#include<Wire.h>
LiquidCrystal_I2C lcd(0x27, 20, 4);

const char* ssid = "rishabh";// network SSID
const char* password = "12345";// network password

ESP8266WebServer server(80);
char input[12];
int count = 0;
int a;
int p1=0,p2=0,p3=0,p4=0;
int c1=0,c2=0,c3=0,c4=0;

double total = 0;
int count_prod = 0;
void setup()
{
  pinMode(D6,INPUT_PULLUP);
  pinMode(D0,OUTPUT);
  pinMode(D3,OUTPUT);
  pinMode(D4,OUTPUT);

  Serial.begin(9600);
  WiFi.begin(ssid, password);
  Wire.begin(D2, D1);

  lcd.begin();
  lcd.backlight();
  lcd.setCursor(3, 0);
  lcd.print("  WELCOME TO  STORE");
  lcd.setCursor(2, 1);
  lcd.print("RISHABH");
  delay(2000);
  lcd.clear();
  lcd.setCursor(2, 0);
  lcd.print("  IoT");;
  lcd.setCursor(6, 1);
```

```cpp
  lcd.print("  IoT");
  lcd.setCursor(6, 1);
  lcd.print("  SMART CARD");
  delay(2000);
  lcd.clear();
  while (WiFi.status() != WL_CONNECTED)
  {
    delay(500);
  lcd.setCursor(3, 0);
  lcd.print("WiFi Connecting...  ");
  }
  Serial.print(WiFi.localIP());
  lcd.setCursor(3, 0);
  lcd.print("WiFi Connected");
  lcd.setCursor(3, 1);
  lcd.print(WiFi.localIP());
  delay(2000);

  lcd.setCursor(3, 0);
  lcd.print(" PLZ SCAN ITEMS     ");
  lcd.setCursor(3, 1);
  lcd.print("    TO CART          ");

}
void loop()
{
  int a=digitalRead(D6);
  if (Serial.available())
  {
    count = 0;
    while (Serial.available() && count < 12)
    {
      input[count] = Serial.read();
      count++;
      delay(5);
    }
    if (count == 12)
    {
      if ((strncmp(input, "4000355181A5", 12) == 0) && (a == 1))
      {
        lcd.setCursor(3, 0);
```

```cpp
  {
    delay(500);
  lcd.setCursor(3, 0);
  lcd.print("WiFi Connecting...  ");
  }
  Serial.print(WiFi.localIP());
  lcd.setCursor(3, 0);
  lcd.print("WiFi Connected");
  lcd.setCursor(3, 1);
  lcd.print(WiFi.localIP());
  delay(2000);

  lcd.setCursor(3, 0);
  lcd.print(" PLZ SCAN ITEMS     ");
  lcd.setCursor(3, 1);
  lcd.print("    TO CART          ");

}
void loop()
{
  int a=digitalRead(D6);
  if (Serial.available())
  {
    count = 0;
    while (Serial.available() && count < 12)
    {
      input[count] = Serial.read();
      count++;
      delay(5);
    }
    if (count == 12)
    {
      if ((strncmp(input, "4000355181A5", 12) == 0) && (a == 1))
      {
        lcd.setCursor(3, 0);
        lcd.print("milk Added");
        lcd.setCursor(3, 1);
        lcd.print("Price(Rs):24.00      ");
        p1++;
        digitalWrite(D0,HIGH);
        digitalWrite(D4,HIGH);
```

Program

```
  digitalWrite(D0,HIGH);
  digitalWrite(D4,HIGH);
  delay(2000);
  total = total + 24.00;
  count_prod++;
  digitalWrite(D0,LOW);
  digitalWrite(D4,LOW);


}
else if ((strncmp(input, "4000355181A5", 12) == 0) && (a == 0))
{
  if(p1>0)
  {
  lcd.clear();
  lcd.setCursor(3, 0);
  lcd.print("Milk Removed!!");
  digitalWrite(D0,HIGH);
  digitalWrite(D3,HIGH);
  delay(2000);
  p1--;
  total = total - 24.00;
  count_prod--;

  digitalWrite(D0,LOW);
  digitalWrite(D3,LOW);
  }
  else
  {
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("Not in cart!!!        ");
  digitalWrite(D0,HIGH);
  digitalWrite(D3,HIGH);
  delay(2000);
  digitalWrite(D0,LOW);
  digitalWrite(D3,LOW);

  }
}
else if ((strncmp(input, "4000350ABAC5", 12) == 0) && (a == 1))
{
```

```
  delay(2000);
  digitalWrite(D0,LOW);
  digitalWrite(D3,LOW);

  }|
}
else if ((strncmp(input, "4000350ABAC5", 12) == 0) && (a == 1))
{
  lcd.clear();
  lcd.setCursor(3, 0);
  lcd.print("Biscuits Added          ");
  lcd.setCursor(3, 1);
  lcd.print("Price(Rs):10.00         ");
  total = total + 10.00;
  digitalWrite(D0,HIGH);
  digitalWrite(D4,HIGH);
  delay(2000);
  p2++;
  count_prod++;
  digitalWrite(D0,LOW);
  digitalWrite(D4,LOW);


}
else if ((strncmp(input, "4000350ABAC5", 12) == 0) && (a == 0))
{
  if(p2>0)
  {
  lcd.clear();
  lcd.setCursor(3, 0);
  lcd.print("Biscuits Removed!!");
  digitalWrite(D0,HIGH);
  digitalWrite(D3,HIGH);
  delay(2000);
  p2--;

  total = total - 10.00;
  count_prod--;
  digitalWrite(D0,LOW);
  digitalWrite(D3,LOW);
  }
  else
```

```
  digitalWrite(D0,LOW);
  digitalWrite(D3,LOW);
  }
}


else if (strncmp(input, "4000351B7B15", 12) == 0)
{

  lcd.clear();
  lcd.setCursor(3, 3);
  lcd.print("Total Price:");
  lcd.setCursor(15, 3);
  lcd.print(total);

  digitalWrite(D0,HIGH);
  digitalWrite(D4,HIGH);
  delay(5000);

  lcd.clear();
  digitalWrite(D0,LOW);
  digitalWrite(D4,LOW);
  lcd.setCursor(3, 0);
  lcd.print("   Thank you       ");
  lcd.setCursor(3, 1);
  lcd.print("  for Shopping          ");
  lcd.setCursor(7, 3);
  lcd.print("Total:-");
  lcd.setCursor(15, 3);
  lcd.print(total);
  digitalWrite(D0,LOW);
  digitalWrite(D4,LOW);
  }
  }
  c1=p1*24.00;
  c2=p2*10.00;
  c3=p3*20.00;
  c4=p4*35.00;
  }
server.handleClient();
}
```

Estimated cost of the project

Component	Cost(₹)
RFID reader module(EM-18)	250
RFID Card	25
LCD display	160
NodeMcu-ESP8266 Wi-Fi	395
Buzzer	30
Push button	17
LEDs (Green & Red)	40
Resistors	10
Cables and Connectors	150
TOTAL	**₹721**

THANK-YOU