

# Digital purchasing System

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Digital Purchasing System is a solution to the time-consuming traditional shopping methods. The traditional shopping methods involve going to physical stores, selecting products, and waiting in long queues for billing. This process is time-consuming for both customers and salespersons. Additionally, salespersons have to handle multiple customers at once, making it challenging to manage the process efficiently. To overcome these issues, we designed a digital purchasing system that makes shopping easier for customers and salespersons. Also, the digital system allows customers to select products and make payments through their smartphones or computers. Salespersons can manage orders, track inventory, and process payments with ease. The digital purchasing system eliminates the need for customers to wait in long queues for scanning codes for the products, billing and allows salespersons to handle multiple customers simultaneously. The digital system makes the shopping experience hassle-free and less time-consuming for both customers and salespersons.

## I. INTRODUCTION

The era of digitization has transformed our daily life in different ways, and the way we shop is no exception. Shopping has become an integral part of our lives, but the traditional way of shopping can be time-consuming for both customers and salespersons. To address this issue, we have developed a digital purchasing system that will revolutionize the shopping experience for both customers and salespersons. Our digital purchasing system will enable customers to shop conveniently, while salespersons will be able to streamline their work processes and serve more customers efficiently. This system will also reduce the waiting time for customers in long queues, enabling them to make purchases quickly and hassle-free. In this project, we aim to develop a digital purchasing system that will simplify the shopping process and enhance the overall shopping experience for everyone.

Identify applicable funding agency here. If none, delete this.

## II. EASE OF USE

Salespeople can also benefit from the system's ease of use. They can easily access customer information, view order histories, all through a simple and intuitive interface. The system's automated billing and packaging features also save time and reduce the likelihood of errors.

Overall, the ease of use of our digital purchasing system makes easy the purchasing process for both customers and salespeople. The digital purchasing system we have developed is designed with ease of use in mind. With its user-friendly interface. Also from the database (where the history of customer's purchasing product store) customer's can exchange any product by seeing their purchasing history.

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## III. FEATURES AND OBJECTIVES

### A. Features

1. Auto scanning product to store all product's price of a customer. 2. Auto packaging all products. 3. Automatic Database Updating (will make auto-mated bill). 4. Store customers purchasing history.

### B. Objective

- Automatic conveyor to save energy cost.
- Make easy the process of scanning products and making bills.
- Less Human Moderation.

## IV. HARDWARE INSTRUMENT LIST AND ESTIMATED PRICE LIST

### A. Hardware Instrument List

- Arduino Uno.

- Motor.
- IR sensor.
- RFID.
- RFID card.
- Regulator.
- Relay.
- Wire.
- Additional DC power source.
- Conveyor belt set.

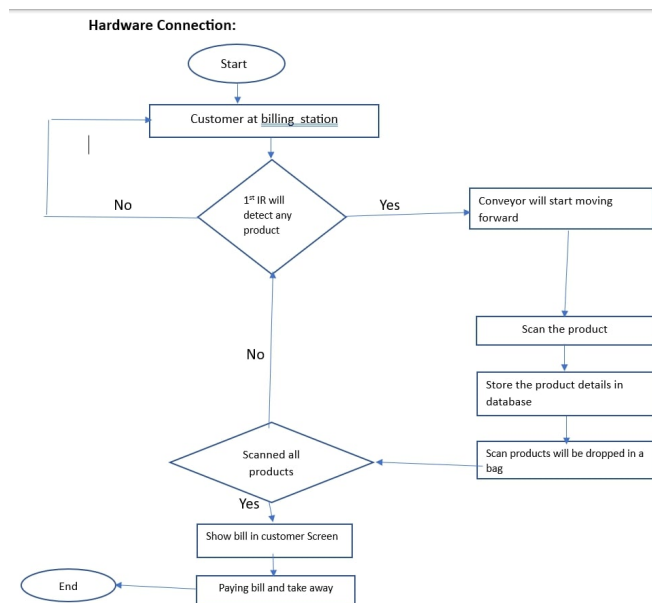
#### B. Estimated price List

Product name	Price
1.Arduino Uno	850
2.Motor	220
3.IR sensor	120
4.RFID	200
5.RFID card	120
6.Regulator	250
7.Relay	78
8.Wire	120

- Conveyor belt making cost 590 taka
- Additional DC voltage source from university

### V. HARDWARE CONNECTION

#### A. hardware connection of digital purchasing system



### VI. CODES

#### A. code for RFID with nodemcu

this RFID scan the code of the product and send the data to the database.

```

1 #include <ESP8266WiFi.h>
2 #include <WiFiClient.h>
3 #include <ESP8266WebServer.h>
4 #include <ESP8266mDNS.h>

```

```

5 #include <SPI.h>
6 #include <MFRC522.h>
7
8 #define RST_PIN D3
9 #define SS_PIN D4
10 MFRC522 mfrc522(SS_PIN, RST_PIN);
11
12 const char* ssid = "UIU-STUDENT"; //wifi
    name
13 const char* password = "12345678"; //wifi
    password
14 char server[] = "10.10.248.134"; // wifi
    's ip address
15
16
17 WiFiClient client;
18
19
20 void setup()
21 {
22     Serial.begin(9600);
23     while (!Serial);
24
25     SPI.begin();
26     mfrc522.PCD_Init();
27     Serial.print("Connecting to ");
28     Serial.println(ssid);
29
30     WiFi.begin(ssid, password);
31
32     while (WiFi.status() != WL_CONNECTED) {
33         delay(500);
34         Serial.print(".");
35     }
36     Serial.println("");
37     Serial.println("WiFi_connected");
38     Serial.println("Server_started");
39     Serial.println(WiFi.localIP());
40     delay(100);
41     Serial.println("Start_Scanning...");
42 }
43 void loop() {
44     if (mfrc522.PICC_IsNewCardPresent() &&
        mfrc522.PICC_ReadCardSerial()) {
45
46         byte productID[4]; // declare a byte
            array to store the scanned ID
47         for (byte i = 0; i < mfrc522.uid.size
            ; i++) {
48             productID[i] = mfrc522.uid.uidByte[
                i]; // store the scanned ID in
                    the array
49         }
50         Serial.println();
51         Sending_To_phpmyadmindatabase(

```

```

        productID); // call the function
        and pass the ID as a parameter
53
54    mfrc522.PICC_HaltA();
55    mfrc522.PCD_StopCrypto1();
56 }
57 }
58 void Sending_To_phpmyadmindatabase(byte
    productID[]) {
59     Serial.print("Scanned_product_ID:_");
60     for (byte i = 0; i < 4; i++) {
61         Serial.print(productID[i] < 0x10 ? "_"
            0" : "_");
62         Serial.print(productID[i], HEX);
63     }
64     Serial.println();
65
66     if (client.connect(server, 80)) {
67         String postData = "product_id=";
68         postData += String(productID[0], HEX)
            ;
69         postData += String(productID[1], HEX)
            ;
70         postData += String(productID[2], HEX)
            ;
71         postData += String(productID[3], HEX)
            ;
72
73         client.println("POST_http://localhost
            /%23micro_project/insert_data.php_
            HTTP/1.1");
74         client.println("Host:_" + String(
            server));
75         client.println("Content-Type:_
            application/x-www-form-urlencoded"
            );
76         client.println("Content-Length:_" +
            String(postData.length()));
77         client.println();
78         client.println(postData);
79
80         while (client.connected() && !client.
            available()) {
81             delay(1);
82         }
83
84         if (client.available()) {
85             String response = client.
                readStringUntil('\r');
86             Serial.println(response);
87         }
88
89         client.stop();
90
91         Serial.println("Data_sent_to_server."
            );

```

```

    } else {
92         Serial.println("Connection_to_server_
            failed.");
93     }
94 }
95 }

```

#### B. Code for IR:

this IR sensor when senses any obstacle or any product in front of it it starts the conveyor belt running.

```

int irSensorPin = 2;
int outputPin = 3;

void setup() {
    Serial.begin(9600);

    pinMode(irSensorPin, INPUT);
    pinMode(outputPin, OUTPUT);
}

void loop() {

    int irSensorValue = digitalRead(
        irSensorPin);

    Serial.println(irSensorValue);

    if (irSensorValue == 0) {
        digitalWrite(outputPin, LOW);
        delay(1000);
    } else {
        digitalWrite(outputPin, HIGH);
        delay(2000);
    }
}

```

## VII. PICTURE AND VIDEO

#### A. picture and video of Digital purchasing system

[https://drive.google.com/file/d/1VbX3tf5x5Qzkxscjiv3YZGXyrYgtZgHw/view?usp=share\\_link](https://drive.google.com/file/d/1VbX3tf5x5Qzkxscjiv3YZGXyrYgtZgHw/view?usp=share_link)



## VIII. FUTURE WORK

A. Future work will include more features to the project like Auto packaging and update the billing system that every customer will get their billing copy as soft copy in their given phone num or in mail. So that if they lost the billing receipt, they can keep their billing description in their SMS or mail to use it for their need in exchanging products.

