Synopsis

Group no. : - 77

Internal Guide :-
Prof.Mrs Shubhangi Chaudhary

Title of the Project   **: -** **Smart Shopping Cart**

Subject area   **: -** Internet Of Things

Nature of the Project   **: -** Hardware + Software

Sponsor   **: -** Inhouse

Group member information : - 1) **Kasture Dhanashree**   **4225**

2) **Pawar Mayuri**   **4258**

3) **Sarda Radhika**   **4261**

Year   **: -** 2020 - 2021

Department   **:-** **Electronics and Telecommunication**

Cummins College of Engineering for Women ,
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Problem statement of the Project :-

Design and implementation of smart shopping cart

1) Source of the Problem statement :-

Mobeen Shahroz , Muhammad Faheem Mushtaq ,Maqsood Ahmad, Saleem Ullah,Arif Mehmood,Gyu Sang Choi ,"IoT-Based Smart Shopping Cart Using Radio Frequency Identification", IEEE Access (Volume: 8)

2) Literature Survey : -

We all have waited in a queue for payment in shopping malls and other places, it's very tiring and wastes a lot of time in the billing process. To make our shopping easier by using the RFID tag and save time at the billing system. Make the system automatically. To provide an IOT based application. In previous years different methods were implemented. One of the most important types of information sensing devices is the radio frequency identification system (RFID), which is a form of technology that is automatic and uses radio waves to assist machines and computers with the identification of objects, recording of metadata, and control of individual targets . Various applications, for example smart software systems , e-health systems, wearable devices, etc., have been the focus of a large amount of IoT research. Each item will be equipped with an RFID tag instead of a barcode, and an RFID reader will be installed in the shopping basket so that when the item passes through the radius of the RFID reader, the item will be automatically identified the performance test of an algorithm, ID3 decision tree, is carried out because according to a study conducted by Jyh-Jian Sheu (2008) it is known that ID3 decision tree algorithm is a classification method that has a better level of accuracy and precision than naïve Bayes and KNN

The ID3 decision tree algorithm has better performance than the C4.5 algorithm and according to research when compared with the naïve Bayes and KNN classification algorithms, decision tree is the best method because it has a greater value of precision and accuracy. To overcome the problems of the consumer queue at the cashier and serve to scan the shopping items taken by consumers when placed into a shopping basket through RFID technology as described in the journal . First method has been conducted to make smart shopping carts and create automated systems central bills at shopping centers so that bills on each shopping basket are automatically registered on the system centrally, besides that consumers can pay bills using a debit / credit card . Another method was conducted to compare the performance of the ID3 decision tree algorithm with the C4.5 decision tree based on the values of precision, recall and accuracy in determining spam email classification. The purpose of this test is to measure the performance of the ID3 decision tree algorithm based on precision, recall, accuracy and f1-score because these parameters are commonly used for classification problems .

3) Objective of the Project : -

The objective of the project is to make the shopping experience more exciting and easier by providing :
  ➢ A system where each product will have RFID card on it and it will store information of that product
  ➢ A application for a customer - to create their shopping list
                                   - to provide the map of shopping center
                                   - for billing
        phase1: To make dummy module
        phase2: Design Web application. GUI of the system and then work on the backend.
        phase3: Perform testing on that module.

4) Methodology proposed :

When the customer comes for shopping, the customer needs to initialize the android mobile application By using login ID and password

The registered customers have to login to the system to enjoy special discount offers and promotions as a member of the supermarket.

Non-registered customers do not need to login to use android mobile application services. But they cannot enjoy those offers and promotions which are currently available in the supermarket.

After login successfully, the customer became able to see the sections of the products display to the customer on the map of the supermarket.

Customers can pick the desired product and put it into the smart shopping cart. RFID reader reads the RFID tag of the product then the android mobile application fetches the data of the product from the database according to this product RFID and displays product details on the mobile device.

There is a Bluetooth module connected with Arduino Uno that provides wireless communication between the mobile device and Arduino Uno.
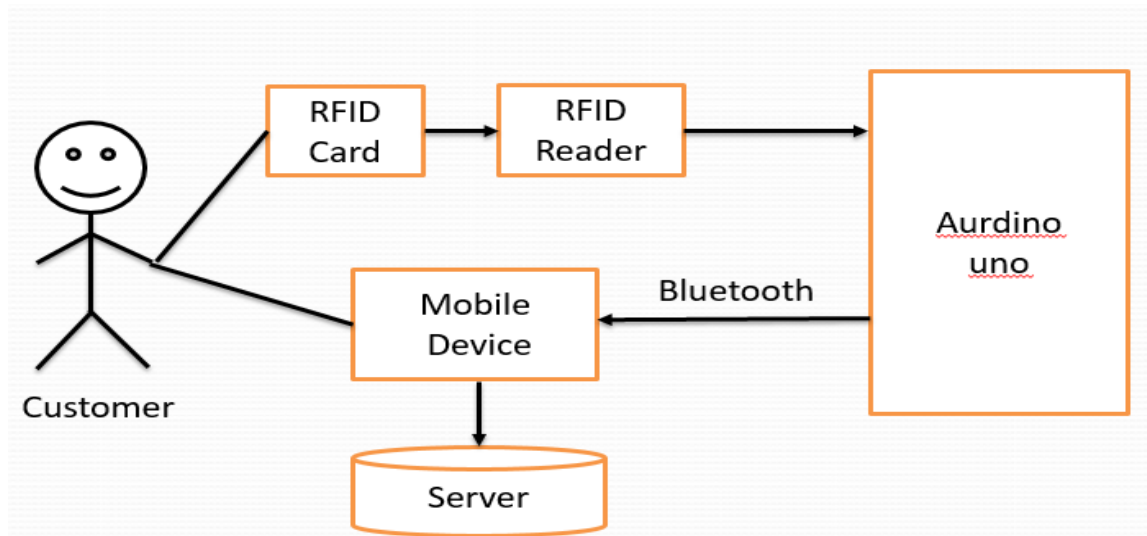

Fig. Methodology of the proposed system

5) Possibility of demonstrating the Project's working in the College premises at the time of Final exam .

YES.
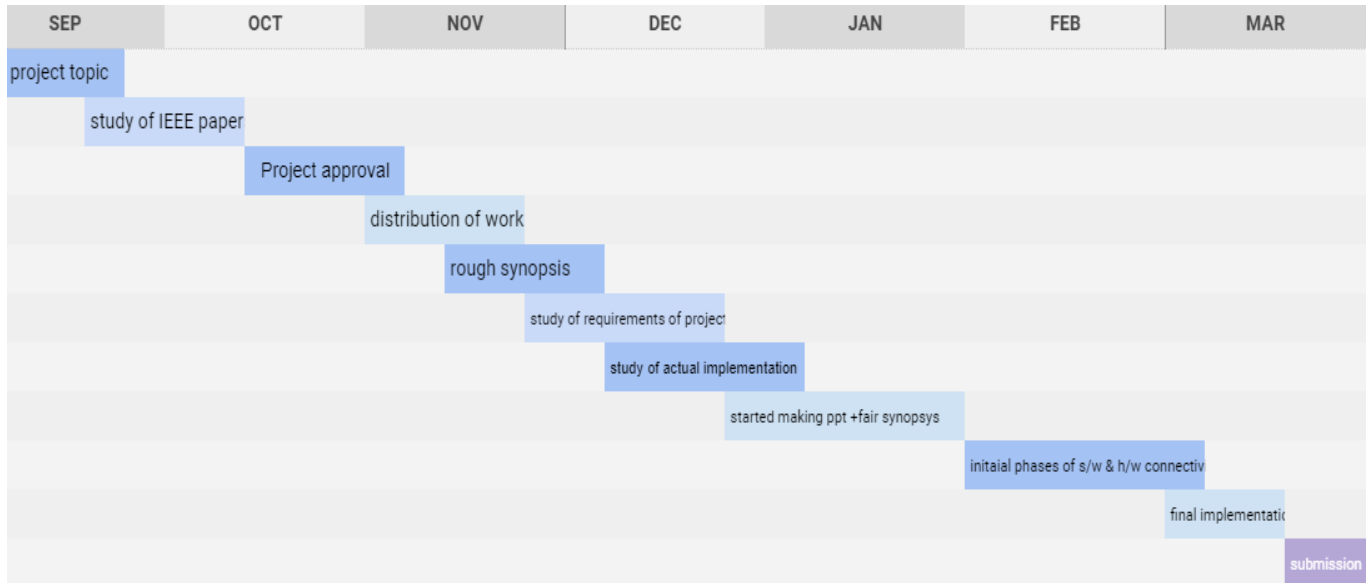
6) Resources required : -

a) Hardware

➢ Arduino board

➢ RFID (EM-18)

➢ USB Cable (type A)

➢ Connecting Wires

➢ Bluetooth Module (HC05)

➢ Shopping Cart

b) Software

➢ Arduino IDE 1.8.13.

➢ Mobile Application for Coding (MIT APP INVENTOR)

7) Approximate time required to Complete the Project : -

https://docs.google.com/spreadsheets/d/1ha4raFE7ikHexMBIwNpgjFqRGdJ7QPAcityoFQus1-U/edit#gid=1709744959

8) Approximate bill amount for project :-

Sr. no.	Component Name	Quantity	Total Cost (Rs.)
1	Arduino Uno	1	500
2	USB cable	1	60
3	RFID reader	1	700
4	RFID card	1	50
5	Connecting wires		50

TOTAL COST (including Hardware & Software portions) = 1360

9) Full names of the students : -   1) Kasture Dhanashree   4225

2) Pawar Mayuri   4258

3) Sarda Radhika   4261

10) Full name of the person guiding the Project : - Prof.Mrs Shubhangi Chaudhary