## **Test Plan**

**(Automatic Shopping Cart)**

**Purpose:**  
  
The test plan is created during the development or reverse engineering phase and identify all elements that are about to be tested. The test plan should explicitly describe what to test, what to expect, and how to do the testing. Subsequently it should be confirmed what was done, what was the result, and if the result was approved. The main purpose of writing this section is to test every feature of our project, including both the hardware,software aspects and security alarm system using RFID card access system and also performing different testing methodologies to test and check whether they are working optimally or not.

**Test objectives:**

* Finding problems which came up during the development process of the Cart Hardware.
* To test for Compatibility of the Different components of the Cart Hardware System and Security alarm and Web Based application.
* Gaining Confidence in and providing Information about the level of knowledge of the cart system.
* To Prevent surprise problems before rather than later in the Cart hardware system.
* To Ensure that the finished product met all the user requirements.
* To ensure that the Automatic Shopping Cart fulfill the system requirements specifications.
* To provide training and create confidence among the users of the Automatic Shopping Cart system by creating the impression that was tested and running successfully.
* To check the functionality of security alarm system using RFID card for authorized and Unauthorized access buzzer system

**Scope:**  
The purpose of this report is to find and fix bugs in the project in order to obtain user experience and make our project more effective and error-free. All application functionality has been checked to add products, upgrade products, uninstall items, scan products and search bills to the server feature. This included both the Cart Hardware software and the ASC Web-based program.

**Testing Methodologies:**

Software testing methodologies are the different approaches and ways of ensuring that a software application in particular is fully tested. Software testing methodologies encompass everything from unit testing individual modules, integration testing an entire system to specialized forms of testing such as security and performance. The purpose of developing these strategies is to ensure completeness when it comes to the project’s construction, that it includes all of the system features, is completed within the allotted timeline and budget, and allows for plans to scale the testing efforts even more. Testing strategy will affect test planning, test type, test script development, and test execution tasks.

**Black Box Testing:**

Black box analysis, also known as behavioral, opaque-box, closed-box testing, is a test method that analyzes the usability of the software / application without knowing much about the internal structure / design of the object being evaluated and compares the input value to the output value. It is a technique which ignores the system's internal mechanism and focuses on the output produced.

**White Box Testing:**

White Box Testing is a test of the internal coding and functionality of the software solution. It focuses primarily on enhancing security, the flow of inputs and outputs through application, and improving design and usability. White box testing is also known as Clear Box Testing, Open Box Testing, Structural Testing, Transparent Box Testing, Software Based Testing, and Glass Box Testing.

**Levels of Testing:**

Testing is the method of testing a code object to identify the variations between the input and the predicted output. Also to determine the functionality of the computer object. Analysis measures the quality of the product. Software testing is a process that should be carried out during the development process. In other words, code testing is a method of verification and validation The following test rates are p.

**Unit Testing:**

It includes testing different modules individually and ensuring the proper functioning of each module. Unit testing is a software testing method by which individual source code units, a set of one or more computer program modules, together with the associated control data, usage procedures and operating procedures, are tested to determine whether they are suitable for use.

**Modules Tested:**

* Wifi(hotspot) connectivity.
* products scan function in the Hardware.
* add product function in the Hardware.
* remove Button function in the Hardware.
* reset Button function in the Hardware.
* Sand Bill function in the Hardware.
* total amount function display in LCD.
* N# of products displays in LCD.
* Diff Bill ID for each Bill.
* Bill Generated in the System.
* Security alarm Buzzer(authorized access/unauthorized access).

**Integration Testing:**

This involves testing two or more modules together to ensure the compatibility of the various modules. This is the phase of software testing in which individual software modules are combined and tested as a group. It happens after system testing and before validation tests. Integration testing shall take as its input modules which have been unit tested, shall be grouped into larger aggregates, shall apply tests to define the component.

**Functional Testing:**

This type deals with the functional requirements or specifications of an application. By providing the input and comparing the actual output with the expected output, different actions or functions of the system are being tested here.

**Regression testing:**

Regression testing is the method of checking computer program improvements to ensure existing programming still functions with the new changes. It is done after software updates, improvements or any other system maintenance to verify that the current code has not been compromised.

**Hardware Testing:**

Hardware testing is conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. Each piece of hardware equipment is also individually tested to see if it works on its own.

**Performance Testing:**

Quality testing is the method of evaluating a system, network, software program or device's speed, responsiveness, and stability under a workload. Performance testing can require quantitative testing conducted in a laboratory or occur in specific scenarios in the production environment. Typical parameters include speed of transmission, data transfer frequency, network bandwidth, quality of work and reliability.

**Usability Testing:**

Usability testing is important to develop strategies for finding out how systems work practically when they are delivered to customers.

* Testing Application item like buttons, different tabs.
* Application should be easy to understand
* Instructions provided should be very clear to the end user.

**GUI Testing:** Interaction between the various components of an application and the user will affect the product's overall efficiency, so this interaction, i.e. the software must also be checked and confirmed if there are no graphical bugs.

**Compatibility Testing:**

Compatibility Testing is a form of software testing to check if the code can run on different hardware, operating systems, applications, network environments or different devices. Testing for compatibility is a form of non-functional testing.

**System Testing:**

It is a level of software testing where a complete and integrated software is tested. The purpose of this test is to evaluate the system’s compliance with the specified requirements. This involves testing of the whole system. Here we tested whole Automatic Shopping Cart with web based application and security alarm.

**Test Cases Factors:**

1. **Test Entry / Exit Criteria**

It specifies the criteria that denote a successful completion of a test phase. The exit criteria are the targeted results of the test and are necessary before proceeding to the next phase of development. Example: 95% of all critical test cases must pass. *(StudyLib, n.d.)*

1. **Test Deliverables**

Test Deliverables is a list of all the documents, tools and other components that has to be developed and maintained in support of the testing effort.

There are different test deliverables at every phase of the software development lifecycle.

Test deliverables are provided **before** testing phase.

* Test plans document.
* Test cases documents
* Test Design specifications.

Test deliverables are provided **during** the testing

* Test Scripts
* Simulators.
* Test Data
* Test Traceability Matrix
* Error logs and execution logs.

Test deliverables are provided **after** the testing cycles is over.

* Test Results/reports
* Defect Report
* Installation/ Test procedures guidelines
* Release notes

## **Test Suspension / Resumption Criteria**

Specify the critical suspension criteria for a test. If the suspension criteria are met during testing, the active test cycle will be suspended until the criteria are resolved. Example, if our team members report that there are 40% of test cases failed, you should suspend testing until the development team fixes all the failed cases.

## **Test Environmental / Staffing / Training Needs**

A testing environment is a setup of software and hardware on which the testing team is going to execute test cases. The test environment consists of real business and user environment, as well as physical environments, such as server, front-end running environment.

## 

## 

## 

## 

## 

## 

## 

## 

## 

## 

## 

## 

## **Test Cases**

**(Automatic Shopping Cart)**

**Unit Testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information about all of the main components or building blocks of the application and hardware.

1. **Test Cases / Scenarios**

**Checking Connectivity WIFI (Hotspot)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Node MCU Module | Assign SSID Username and Password | Device should connect | Hotspot connected | Pass |

**Checking RFID Reader**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Scan the RFID Tags | RFID Tag | RFID Tags detail | RFID Tag Number | Pass |

**Checking Products detail of RFID tags Displayed in LCD**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Scan the RFID Tags | Product Name, Product Price, | Device should Display NOP, POP | Device should Display NOP, POP | Pass |

**Checking Total Amount of Products Added Displayed in LCD**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Scan the RFID Tags | Adding Products | Device should Show Total Amount | Total Amount Displayed | Pass |

**Checking Number of Products Displayed in LCD**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Scan the RFID Tags | No of Products | Device should Show No of Products | No of Products Displayed | Pass |

**Checking Complete Working of Remove Button**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Press Remove button | Mode (Negative) | Device should Mode (-) on LCD | Mode (-) on LCD | Pass |
| 2 | Scan the RFID Tags | Mode (-) Product Name, Product price | Device should Remove Product | Remove Product from Device | Pass |

**Checking Complete Working of ADD Button**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Press Remove button | Mode (Add) | Device should Mode (+) on LCD | Mode (+) on LCD | Pass |
| 2 | Scan the RFID Tags | Mode (+) Product Name, Product price | Device should ADD Product | ADD Product from Device | Pass |

**Checking Complete Working of Total Bill Button**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Scan the RFID Tags with Product Detail | Product Name, Product Price | Device should Display NOP, POP | Device should Display NOP, POP | Pass |
|  |  |  |  |  |  |
| 2 | Adding Products | Product Name, Product Price | Device should Show Total Amount | Total Amount Displayed | Pass |  |
| 3 | Press Total Bill button | Total Bill | Device should Show Total Bill | Device should Show Total Bill | pass |

1. **Test Suspension / Resumption Criteria**

If any scenario fails, it will be suspended or sent for resumption or for retry.

1. **Test Environmental / Staffing / Training Needs**

Proper environment should be set up, PC, laptop should be up to date and bug free.

**Integration Testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information about the integration and communication of main components of the application and hardware.

1. **Test Cases / Scenarios**

**Checking Complete Pairing of Devices**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Node MCU Module | Assign SSID Username and Password | Device should connect | Hotspot connected | Pass |
| 2 | Pairing with the module | Pairing local IP address | Pair should be successful | Devices paired | Pass |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 4 | Transferring commands to Node MCU | Commands sent via Node MCU ESP2866 connection | Node MCU ESP2866 should acknowledge command and act | Node MCU ESP2866 acts | Pass |

1. **Test Suspension / Resumption Criteria**

If any scenario fails, it will be suspended or sent for resumption or for retry.

1. **Test Environmental / Staffing / Training Needs**

Proper environment should be set up, PC, laptop should be up to date and bug free.

**Functional Testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information about all of the main components and the functionalities of the application and hardware.

1. **Test Cases / Scenarios**

**Checking Functionality of Node MCU ESP8266 With Web Page**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Connecting Web page with NodeMCU via Esp2866 | WIFI module and signals | WIFI should connect devices | Devices Paired | Pass |
| 2 | Signals send via Web Page | Node MCU should recognize Local host IP address | Commands should executed by RFID Reader | Command executed properly | Pass |

**Checking failed Functionality of Bluetooth Command Recognition**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Connecting Web page with NodeMCU via Esp2866 | WIFI module and signals | WIFI should connect devices | Devices Not Paired | Fail |
| 2 | Signals send via Web Page | Node MCU should recognize Local host IP address | Commands should execute by RFID Reader | Command not executed properly | Fail |

1. **Test Suspension / Resumption Criteria**

If any scenario fails, it will be suspended or sent for resumption or for retry

1. **Test Environmental / Staffing / Training Needs**

Proper environment should be set up, PC, laptop should be up to date and bug free

**Regression testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information about all of the main components their updates and condition after the upgrades.

1. **Test Cases / Scenarios**

**Testing Device After Upgrading Battery/ Power Bank**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Replacing the 7V battery with a higher capacity 5V one | Re-establishing connections via the wires | Node MCU should power up | LED powers up | Pass |
| 2 | Battery should give a longer duration of function | High capacity of battery | The hardware should stay powered up for longer | The hardware endures for longer | Pass |

1. **Test Suspension / Resumption Criteria**

If any scenario fails, it will be suspended or sent for resumption or for retry

1. **Test Environmental / Staffing / Training Needs**

Proper environment should be set up, PC, laptop should be up to date and bug free. Safety measures should be taken as we are dealing with hardware.

**Hardware Testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information about all of the main hardware components and their condition.

1. **Test Cases / Scenarios**

**Testing Device Connection via Wires**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Powering up the Node MCU via battery/ power Bank | Establishing connections to the Node MCU via Soldering with Wire | Node MCU LED should power up | LED power ups | Pass |

**Checking Connectivity WIFI (Hotspot)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Node MCU Module | Assign SSID Username and Password | Device should connect | Hotspot connected | Pass |

**Checking RFID Reader**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Scan the RFID Tags | RFID Tag | RFID Tags detail | RFID Tag Number | Pass |

**Testing Node MCU Code Uploading**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Powering up Node MCU | Establishing connections to the Node MCU via wires | Node MCUs LED should power up | LED power ups | Pass |
| 2 | Connecting the Node MCU with a laptop via USB cable | USB ports and cable | The laptop should recognizes Node MCU | Node MCU recognized | Pass |
| 3 | Using the Arduino IDE to interact with the board | Uploaded code to the Arduino IDE | Code should be uploaded to the  Arduino IDE | Code uploaded | Pass |
| 4 | Checking functionality of uploaded code | Commands sent to the Arduino to check uploaded code | Node MCU should perform its programmed functionalities | Functionalities performed | Pass |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Connecting RFID Reader to a preprogrammed Node MCU with an LED | Connecting the RFID Reader to via wires | RFID Reader should be connected properly | RFID Reader connected | Pass |

**Testing Battery Rating**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Using a multimeter to measure specification of battery | Battery | The voltage and ampere rating of battery should be revealed(5V) | Specifications are revealed completely | Pass |

1. **Test Suspension / Resumption Criteria**

If any scenario fails, it will be suspended or sent for resumption or for retry

1. **Test Environmental / Staffing / Training Needs**

Safety measures should be taken as we are dealing with hardware.

**Performance Testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information about responsiveness and load bearing capabilities of the application and hardware.

1. **Test Cases / Scenarios**

**Testing Load Time for Login Web Page:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Launching web page | (CARTIGO)login page with username and password | login web page should launch | login web page launches | Pass |
| 2 | Measuring time taken for application to launch | Time taken to load | Web page should launch faster | The launch is fast | Pass |

**Testing for Username and Password is Valid :**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | enter valid username and password in login page | username and password | logged in to Homepage | login to Homepage | Pass |
|  |  |  |  |  |  |

**Testing for Username and Password is not valid :**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | enter incorrect username and password in login page | username and password | Redirect to Login page | Redirect to Login page | Pass |
|  |  |  |  |  |  |

**Testing add products to Database:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Navigate to Add product from Homepage | add new products | display add product box | add product box displayed | Pass |
| 2 | Enter RFID, Name,price | RFID,Name and Price | product should be added to database | product added to Database | Pass |

**Testing Update products to Database:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Navigate to Add product from Homepage | update products | display update product box | update product box displayed | Pass |
| 2 | Update RFID, Name,price | RFID,Name and Price | product should be Updated to database | product Updated to Database | Pass |

**Testing Delete products from Database:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Navigate to Add product from Homepage | delete products | product should be deleted from database | product deleted | Pass |

**Testing search products through ID from Database:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Navigate to Search product from Homepage | product ID | display product information | Products information displayed | Pass |

**Testing Searching Bill through ID from Database:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Navigate to Search Bill from Homepage | Bill ID | display ID and amount of BIll | BillID and amount displayed | Pass |

**Testing Get Bill with Bill ID from via total bill Button in Hardware:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Navigate to get Bill from Homepage | bill ID, total amount, time/date | should display bil formatl | Bill displayed | Pass |

1. **Test Suspension / Resumption Criteria**

If any scenario fails, it will be suspended or sent for resumption or for retry

1. **Test Environmental / Staffing / Training Needs**

Proper environment should be set up, PC, laptop or smartphone should be up to date and bug free. Safety measures should be taken as we are dealing with hardware.

**Usability Testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information on how it is easy for a user to use the application and hardware.

1. **Test Cases / Scenarios**

**Checking Apparel of Navigation of web page:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Checking Interface of web page | Login,Navigation tab and buttons on webpage | It should be easy to understand | Interface is simple | Pass |

**Checking Apparel of Navigation pages:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Checking Navigation of pages on web page | Text used on buttons or tabs | Text should be plenty and not obscured | Text are clear to understand | Pass |

**Checking Relevancy of Information**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Webpage having data from database in search product and search Bill | product details and bill details | Application should show relevant information | Information is relevant | Pass |

1. **Test Suspension / Resumption Criteria**

If any scenario fails, it will be suspended or sent for resumption or for retry

1. **Test Environmental / Staffing / Training Needs**

Proper environment should be set up, PC, laptop or smartphone should be up to date and bug free.

**GUI Testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information about the interface, design and style of the application.

1. **Test Cases / Scenarios**

**Checking Alignment of Elements**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Checking Alignment of buttons | Buttons on pages | Buttons should be of same size and alignment | Buttons are properly aligned | Pass |
|  |  |  |  |  |  |

**Checking Alignment of tabs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Checking Alignment of tabs | tabs on Homepage,search , and search Bill | tabs should be of same size and alignment | Tabs are properly aligned | Pass |
|  |  |  |  |  |  |

**Checking Visibility of Elements**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Checking Visibility of buttons | login,homepage, search products, search bill | Buttons should be clear | Buttons are properly visible | Pass |
|  |  |  |  |  |  |

**Checking Visibility of Elements**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Checking text display of tabs used for switching screens | Tabs on the bottom and top of the application | text tabs should be clear and appropriate | tabs are proper | Pass |
|  |  |  |  |  |  |

1. **Test Suspension / Resumption Criteria**

If any scenario fails, it will be suspended or sent for resumption or for retry

1. **Test Environmental / Staffing / Training Needs**

Proper environment should be set up, PC, laptop or smartphone should be up to date and bug free.

**Compatibility Testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information regarding the devices that can support the application and hardware.

1. **Test Cases / Scenarios**

**Testing Application working and failure on Various Devices**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Open webpage on Google chrome | Login form | Google chrome should run without trouble | Login form  Displays  Application runs | Pass |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Open webpage on Internet explorer | Login form | Internet explorer should run without trouble | Login form  Displays  Application runs | Pass |

**Checking Working Slow and Success**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Open webpage on Opera Mini | Login form | Google chrome should run without trouble | Login form  Displays  Application runs slowly | Pass |

1. **Test Suspension / Resumption Criteria**

If any scenario fails, it will be suspended or sent for resumption or for retry

1. **Test Environmental / Staffing / Training Needs**

Proper environment should be set up, PC, laptop or smartphone should be up to date and bug free. Safety measures should be taken as we are dealing with hardware.

**System Testing**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information about all of the main components working together as an end product.

1. **Test Cases / Scenarios**

**Checking Overall Navigation**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | login to Webpage | logo image on Home screen | Webpage should loads without any issues | loads successfully | Pass |
| 2 | Navigating through screens | Symbols/text or tabs for all three interfaces | Navigation should be without any issue | Navigation is successful | Pass |
| 3 | adding products | product name and price and RFID tags | should add products | products added | Pass |
| 4 | update products | product name and price and RFID tags | should update products | products updated | Pass |
| 5 | delete products | product name and price and RFID tags | product deleted | products deleted | Pass |
| 6 | search products | product ID | should display product information | products information displayed | Pass |
| 7 | Search Bill ID | Bill ID | should display bill information | Bill ID and amount displayed | Pass |
| 8 | get Bill | get bill with products, price and , quantity and RFID tags | should print bill format | print bill format | Pass |
| 9 | Logout | Logout button | should logout from webpage | logged out from webpage | Pass |

**Checking Software and hardware Reliability**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Loading webpage with hardware in other device | Login form and connectivity with Hardware | webpage and Hardware should connect without any issues | connectivities problems | Fail |

**Checking overall Status of components**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Supplying power to the Automatic Shopping Cart via power bank | Connecting the power bank to the hardware | Hardware should power up | Hardware powers up | Pass |
| 2 | Checking supply to Cart | LED on of ASC Cart | LED should light up | LED lights up | Pass |
| 3 | Checking supply to Node MCU | LED on of WIFI node MCU module | LED should light up | LED lights up | Pass |
| 4 | Checking status of adding products to Cart | scanning the products to add | products should be added by scanning | Products added to Cart | Pass |
| 5 | Checking status of removing products to Cart | press the remove button then scan products | product name and price should be reduced accordingly | Product and product price is reduced from the amount and cart | Pass |
| 6 | Checking status of total bill to the Cart | products, price quantity,total amount and Bill ID | get the print bill with bill ID accordingly | print bill with Bill id and products | Pass |

**RFID Security Alarm System:**

**Hardware Testing:**

1. **Test Entry / Exit Criteria**

All of the components should be working for passing entry criterial. Exit criterial will only happen if the scenario passes tests.

1. **Test Deliverables**

Information about all of the main hardware components and their condition.

1. **Test Cases / Scenarios**

**Checking security alarm system working (Idea):**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Connecting the USB cable connection | Connecting the USB cable to the hardware | Hardware should power up | Hardware powers up | Pass |
| 2 | Checking Arduino IDE port connection | connect with port which will let LED & Buzzer on | LED should light up and buzzer initialize | LED light up and Buzzer initializes | Passl |
| 3 | Giving RFID Card authorized Number are in the program | RFID Number Access | RFID number given in authorize access should run on authorize condition accordingly | Buzzer run in authorize conditions applies | Pass |
| 4 | Giving RFID Card Unauthorized Number that are not in the program | RFID Unauthorized Card | RFID number has no access should run on Unauthorize condition accordingly | Buzzer runs in Unauthorize condition applies | Pass |

**Checking Overall security Alarm system(Idea);**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step No.** | **Test Step** | **Test Data** | **Expected Result** | **Actual Result** | **Status (Pass/Fail)** |
| 1 | Connecting the USB cable connection | Connecting the USB cable to the hardware | Hardware should power up | Hardware should power up | Pass |
| 2 | Checking Arduino IDE port connection | connect with port which will let LED & Buzzer on | LED should light up and buzzer initialize | LED light up and Buzzer initializes | Passl |
| 3 | Verifying the Bill | Bill with Bill ID and products | Bill should have the products added in the cart | Bill with associated cart products have authorize card | Pass |
| 4 | Driving Cart through the person given Card should be scan in hardware | Authorized access | Buzzer will buzz normal | Buzzer buzz 2(low) and message:access | Pass |
| 5 | Driving Cart through the person given Card should be scan in hardware | Unauthorized access | Buzzer will not buzz normal | Buzzer buzz 3(HIGH)and alert message:not-  acces | Pass |
| 6 | Driving Cart through the person can scan any RFID Card in hardware | Unauthorized access | Buzzer will not buzz normal | Buzzer buzz 3(HIGHand alert message:not-  acces) | Pass |
| 7 | ARduino IDE is connected with Hardware | Arduino IDE,Port ,Serial Monitor | System connected and Buzzer should run when Card scanned alert message generated in arduino IDE | System connected and Buzzer run when Card scanned and alert message generated in arduino IDE | Pass |