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**Software Design Document**

**On the**

**Open Source Software  
“ZERO Qmart”**

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# **1. Introduction**

## **1.1 Background**

This is an Android Mobile Application, “ZeroQ” which tries to avoid the above-mentioned limitations by avoiding people to stand in a long checkout line, sharing the generated invoice directly to cloud, helping them in finding things quickly inside of a big store, tracking purchases and limiting expenses. W

## **1.2 Purpose**

People do shopping on both weekdays and weekends, but most people find free time during the weekends to get groceries, household items. Studies [1] show that around 40 million people are shopping on the weekends in the USA. The most inconvenient part of the shopping after spending a lot of time in buying things is waiting in a long line to checkout for billing the items. With attractive deals, coupons and discount offers, people tend to go shopping very often and that is increasing day by day, especially on weekends. Though people do shop online, the need for traditional shopping has not been reduced. During holiday seasons we can see a substantial number of people inside the store, searching for items and their availability, information and later waiting in a long line to check out after their shopping.

## **1.3 Scope**

Currently, there exist many applications which are similar to “ZeroQ” but not exactly what it does. Android applications like atQ, QLess, LINE HERE help us to know our waiting time in a checkout line after shopping. However, we should still wait for making payment. This feature is fulfilled by “ZeroQ” and helps people in saving their time. Also, there are applications like Barcode Scanner, QR & Barcode Scanner which are helpful in scanning the barcode that is present on any item. It simply scans the barcode number and the same is displayed on the screen but not any information or details about the item when we scan it. But, “ZeroQ” provides complete information or details about the items when we scan the barcode on it, which is one of the challenging features of the project..

## **1.4 Audience**

This document is intended primarily for software engineers building or maintaining the software, but will also be of interest to users of application.

## **1.5 Overview**

This is an Android Mobile Application, “ZeroQ” which tries to avoid the above-mentioned limitations by avoiding people to stand in a long checkout line.

## **2. System Description:**

### **2.1 Objectives**

The objective of design document is to give detail understand of the system which can be understand by managers and programmer.

### **2.2 System Architecture:**

The system is a local application. In this project, the ZeroQ Android application helps people avoid having to stand in a long queue by:

(1) allowing them to scan (the barcode) on the items they want as they are putting them into their (physical) shopping cart,

(2) confirm which scanned items they wish to purchase,

(3) confirm the purchase and pay their bill using PayPal (or cancel purchase/payment), and

(4) generate a receipt for the purchased items. Once the payment is made, a confirmation email is sent to the customer with an e-bill.

### 2.3. Design Approach

This project is based on the functional design approach, which helps in understanding the design of the project in a simpler way by explaining its flow, use cases, and implementation more like a modular approach. For example, there are different modules in this project which have separate functionality and, other sub functionalities/modules. All the modules are designed, implemented and integrated together to make a flawless working application.

**2.4 Detailed Design** The detailed design including modules and sub modules of the application is as follows:

1. **User Registration:** If the user wants to use the ZeroQ, they must download the application from the play store, install and register it by providing login information. Once, they registers the registered information is stored on the server and can be validated, checking the valid credentials for the next time he logs in with the application.
2. **Instant Search:** The instant search helps in finding whether the item is available in the store or not. This could help the users save time by searching for the item which is out of stock. 10 International institute of professional studies Devi ahilya vishwa vidhyalaya, Indore
3. **Scan the Item:** This feature helps people by allowing them to scan the barcode that is available on the item. Once the user scans the item, they can see all the information about the item like barcode number, name, quantity, price, net price, and serial number. Users can scan any number of items they wish and keep adding to their physical shopping cart. Later, they can purchase any item they want by checking the items in the cart. Suppose if the stock is not available for any items, "stock not available" message is also shown.
4. **Checkout and Payment:** Checkout is made in an easy step to avoid hassle in this application. The user can just check in with the checkbox from the cart. Depending upon the quantity of the items, the payment is calculated along with the tax rate (Ex: 8%). If the user wishes to purchase, they can proceed by clicking the "PayNow" button or they

can cancel the purchase at this stage and proceed with shopping for other items or they can exit the application.

5. Invoice Generation and Uploading: Once, the user confirms the purchase and pays the amount, the invoice is generated at the same time and we can share it instantly to cloud (share to drive, send email)

6. Tracking Purchase: The application allows us to track purchases by adding the various expenses we 11 International institute of professional studies Devi ahilya vishwa vidhyalaya, Indore spent and view them in the form of charts (pie chart) as for other charts like line graphs, bar graphs

### **3 User Interface Design**

User Interface Design for any application should be very simple. We should have only a few clicks or navigation among the features when using the application to avoid hassle. In this application, there are two main screens, the Login and Home screens. The login page is the first page which appears when the user uses the application. In that page, if he is a new user, he can sign up or if he is an existing user, he can login with the credentials. 14 International institute of professional studies Devi ahilya vishwa vidhyalaya, Indore The next screen is the homepage where the users can select features and use the app. The following image is the home screen. As seen from the image, this screen has all the key features.



#### **4.1 Hardware Environment:**

- ZEROQ MART is intended to be platform independent. Therefore no specific hardware is excluded. you just some internet to proceed.

#### **4.2 Software Environment**

- The program releases will be OS portable. Ideally, they should run on all major OSes including Unixes, BSDs, Linuxes, Windows family etc.

#### **4.3 Network Environment:**

The system will use:

- Network protocols for program update information.
- System I/O protocols for local file acces.

## 5. Database Design

The database should be designed in such a way that it should be easy to access and manipulate. Database definition and database manipulation operations should be performed accordingly to add, delete, and update values. In this project, I have used a MySQL database which is an open source database, easy to install and use. The database server could be installed by providing user credentials such as username and password. The created database is hosted remotely and I am accessing the database using SOAP web services. Web services act as the interface between the Android application and the database. It acts as a service between two electronic devices and they are communicated via HTTP protocol (using, World Wide Web). As the Android application cannot connect directly with the database server, we are using Web Services. The information to be transferred or fetched could be in XML or JSON formats. In this project, when we scan the item, the information is sent via web services in JSON format and displayed to users from MySQL database (products.db). The following figure, explains how the process takes place.

**\*\* END OF SDD \*\***

