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**SRS DOCUMENT**

**MOBILE SHOP**

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**CHAPTER 1**

**INTRODUCTION**

The Mobile Store Management System is developed for desktop systems to facilitate

mobile shop owners’ management of customer details and inventory data, which will include

mobile phones and accessories. It can be used efficiently for physically separated shops in

different locations. This software will provide in a simple and easy to operate user interface,

which can be managed by any user without having prior in-depth knowledge of the computer

system. One can use this software to get a sales report. Administrators can pull data, from

any location from the server. This software is a complete package for small organizations

which will allow them to keep track of their sales and inventory, and provide a computerized

billing system. There are various applications with more complex implementation and

features available in the market, but they are generally very expensive. Therefore, creating an

application with the basic requirement of low cost is essential for small organizations. This

application will allow stores to manage customer details, keep inventory of all products and

purchase information, in a very simple way, using a state-of the-art software application. It

will automatically generate invoices and update inventory.

The rest of this document is organized into the following chapters:

**Chapter 2:** Background. This chapter discusses the background of mobile store

management system and targeted market.

**Chapter 3:** History, Relevant Literature and Survey. This chapter discusses the history

of mobile store management system. It also discusses different approaches for mobile

store management. At the end of chapter Survey results are included for the possible

use of the application by different businesses.

**Chapter 4:** Requirements. This chapter describes different requirements for this

application.

**Chapter 5:** Technology. This chapter provides an overview of the software and tools

used to develop this application.

**Chapter 6:** Design & Implementation. This chapter discusses the design approach for

the database and application. It also includes the implementation method for this

application.

**Chapter 7:** Functionality and Usage. This chapter provides information about details

of different functions available for this application and their usage.

**Chapter 8:** Future Work and Limitations. This chapter includes limitations of the

existing application and future scope.

**CHAPTER 2**

**BACKGROUND**

**2.1 NEED FOR A MOBILE STORE MANAGEMENT SYSTEM**

In today’s market, retailers and wholesale outlets should quickly adapt to the ever-changing

technology to minimize overhead, lower cost of operation, and help to stay

competitive. Everybody needs software, which can facilitate store operations and make their

day-to-day lives much easier.

Mobile Store Management System is application software designed to take advantage

of today’s technology and reduce or avoid the burden of storing data on paper and in files.

This facilitates moving purchase, sales, and customer information, as well as supplier and

company data, from paper to digital media on a secured server. Sales and purchase bills can

be generated as needed. Each store has an option to store their data on one remote central

database server. This will also allow stores to access information from other partner stores.

This would in turn lead to information sharing, so that all the stores are aware of each other’s

current inventory. It will be useful when ordering new purchases to avoid overstocking.

**2.2 BACKGROUND AND MOTIVATION**

The concept of the Mobile Store Management system has been around for a long

time, but it is still in the phase of discussion and design. Initially, all inventory and billing

reports were managed manually by shop owners/employers using ledger- based systems. This

requires a significant amount of time due to repeated access of the data. There is a high risk

of lost or stolen data in that system. Storing old data is also one big factor. Stores have to

spare one separate room to store this information. Paper- based documents might lose their

information with time, and after some years we can’t really read them at all. So the Mobile

Store Management System is designed to reduce paper- based data storage system and

provide digital touch to billing and inventory system.

**2.3MARKET**

This software application is targeted for small and medium retail stores who want to

transform their paper- based inventory, sales, and procurement system to a computer- based

system. This is an inexpensive and easy-to-use software application for easy transition to

digital media. Also, this system is simple to install and maintain in PC/Laptops, thus

avoiding huge investments on enterprise or other types of servers. Currently, there is only

one user for this application, who will also be the administrator. The system administrator

will have complete access to the system configuration and data. The system administrator

will also have access to other partner stores. The benefits drawn from the system and low

cost for installation and maintenance come as a huge advantage. The possible retail shops are

cell phone shops, jewelry shops, small carts in malls, family owned departmental and grocery

stores. The Mobile Store Management System requires working network to communicate

with mobile location. This does add some cost to the application. To gain an advantage of

managing inventory from a mobile location, the store would have the expense of an internet

service cost, if they do not have already.

**CHAPTER 3**

**HISTORY, RELEVANT LITERATURE AND**

**SURVEY**

**3.1 TRANSFORMATION FROM PAPER TO COMPUTERBASED**

**SYSTEM**

A modern digital inventory management system must have the ability to keep track of

sales and inventory. It should also provide communication means to contact suppliers as

needed. It should also allow the incorporating shop owner’s ideas to be implemented into the

system. Implementing the idea of the previous section is practical for an inventory system,

and requires combining many technologies into one common approach. The time taken by a

customer care representative of any mobile store to enter information in the computer

represents a base of the modern Mobile Store Management System .

Merchants used to write down inventory and sales details. They had to search their

paper records to estimate future needs and retrieve old sales information. They had to spend

significant amount of time every day for such work.

After the Industrial Revolution, efficiency and accuracy became the major factors of

business, along with significant change in positive customer care to increase sales. A team at

Harvard University designed the first modern check-out system in the early 1930s . That

system needed punch cards associated with items details. A system would gather information

from the punch card and send it to stored data. As the system that was used by that time was

too expensive for general merchants, this was the first time a store management system was

transformed to a computerized system. Although it was very expensive, as computer systems

during that time were relatively new and too expensive, this new innovation opened new

dimensions to a store management system. Yet, the shop owners knew that they would need

a better management system, and then different ideas for management systems were

introduced, such as bar code scanner, RFID- based scanning systems. Merchants knew they

needed a better system, and researchers created the forerunner of the modern bar-coding

system in the late 1940s and early 1950s . Bar code Scanners used ultraviolet ink and a

reader to detect items at the time of sale. But this system also required a significant computer

contribution, which was also expensive. The development of affordable laser technology in

the 1960s revived the concept, and lasers allowed smaller, faster and cheaper readers,

or scanners . The modern bar code, or the Universal Product Code (UPC), was born and

caught on just before the 1970s . The computers became cheaper and more affordable to

support UPC codes and manage inventory systems with a significant improvement.

During the mid to late 1990s, retailers began implementing modern inventory

management systems, made possible in large part by advances in computer and software

technology . The proper inventory management system ensures that customers would get

all their needs met, and merchants would get their profit at same time.

**3.2 POINT-OF-SALE SYSTEM:AN INNOVATIVE PROPOSAL**

During evolution from traditional management system, mechanical registers were

also replaced by point-of-sale (POS) systems. POS systems helped to build capabilities and

provide more important advantages. Historically, vendors of POS systems have focused their

marketing efforts on large chain stores, but now they have turned their attention to small

businesses because of their significant potential to grow and expand . Therefore, small

organizations are also encouraged to use more powerful computer systems and software

with a more attractive user interface that uses POS system instead of an old fashioned

mechanical register system. For small organizations, such as mobile shops, product suppliers,

and restaurant owners keeping transactions and inventory records is very hard and takes a lot

of effort. POS system can be very beneficial for small organizations by providing smooth

processes and functions.

**3.3WHY COMPUTERIZATION IS REQUIRED?**

Accuracy and efficiency are very important to be competitive in this ever-changing

market, given the advantages of technology. Computerization of any system will improve

efficiency and reduce the cost of operation. For every business, effective management of

inventory is one of the most important factors for success. Inventory management has

significance for any enterprise in an industry because effective practices in inventory

management will allow an enterprise to minimize inventory costs, and therefore avoid the

dire consequences that come with a shortage of resources .

Mantho (1994) . classified inventory management into three broad areas:

1. Inventory record keeping: due to the availability of computers at a reasonable price, it

is appropriate to automate inventory records through computerization .

2. Inventory decision-making: many models can be integrated into computer-based

inventory systems .

3. Material requirement planning (MRP) system: MRP is an IM information system

concerned with getting the right materials to the right place at the right time . (This

factor is not applicable for Mobile Store Management System).

The use of formal practices for managing inventories was also inadequate . Poor inventory

management practices are characterized by the lack of an integrated approach in the form of

the absence of links between physical stock and accounting system . Lack of appreciation

for inventory management among the entrepreneurs and lack of qualified staff are the two

major factors contributing to low inventory management practices.

Considering the above factors, we can conclude that formal practices for inventory

management are not efficient and accurate. At same time, they consume a lot of time, which

lowers the performance of store keepers. Use of a computerized inventory system will help

small businesses to grow and make good benefits from their efforts.

**3.4 SURVEY OF CURRENT INVENTORY SYSTEMS IN**

**STORES**

A survey was undertaken to find out the existing inventory systems used in the stores

by the different merchants. Each of these stores is using different software based on their

requirements. Although there are several benefits, many small businesses don't track their

inventory using software. Some of the small businesses don't track their inventory manually

at all. In a survey conducted by "WAPS Barcode" company 23% of the customers had not

used any kind of inventory tracking system. 30% turned to pen and paper based inventory

tracking system and 32% are using excel or other general purpose database to track their

inventory

**3.5 PROJECT NEEDS**

The Mobile Store Management System is software that can be integrated with

multiple stores' requirements with some customizations as per store type and needs. We do

not need to create new software for different businesses. Many stores surveyed either didn't

have a proper inventory management or they do not track their inventory at all due to high

cost of available software in market. The store would just need a decent internet connection

to use this software. Each store can track their inventory status in real-time with the use of

this software from remote location as well. The Mobile Store Management System is cost

effective and very easy to implement on computer system.

**CHAPTER 4**

**REQUIREMENTS**

This project is targeted to help small companies to organize their inventory and

billing system in digital form. There are several categories of requirements associated with

this project.

**4.1 TECHNOLOGICAL REQUIREMENTS**

The technological requirements include the frontend programming tool and the

backend database system. The application should be easy to use, and it should be easily

managed by any person with little knowledge of computers. The database should be easy to

install and configure. At the same time, it should be portable and independent so that we can

use the database anywhere and install it on any laptop or PC. This application should be very

easy to install on any machine. Finally, this application should not require higher

configuration on any machine.

**4.2 USER INTERFACE REQUIREMENTS**

The application should be very simple and easy to use by any employee. Below are

the basic requirements of general user interface:

 The application shall be easy to use.

 The application shall take few inputs from user.

 The understanding time of the application shall be very small.

**4.3 FUNCTIONAL REQUIREMENTS**

The functional requirements of the application are as follows:

 The application shall have all required functionality which is necessary for mobile

store inventory and billing system management.

 The application shall have ability to print bills and invoices.

 The application shall have functionality to be used by different stores from one

location.

 The application shall have user name and password protected security system.

**CHAPTER 5**

**TECHNOLOGY**

Selecting technologies to develop any application is the very first step in order to

complete an application successfully. After considering various factors, I have decided to use

Visual Basic and SQL Server to develop Mobile Store Management System. Many low cost

projects employ Visual Basic to develop application and access database. However, SQL

Server is chosen as the technology for this project because of the needs to centralize data

storage when used by multiple stores. SQL Server Express is freely available from the

Microsoft website.

**5.1 VISUAL BASIC**

VISUAL BASIC is a high level programming language evolved from the earlier DOS

version called BASIC. BASIC stands for Beginners' All-purpose Symbolic Instruction Code.

The program codes in Visual Basic resemble English language. VISUAL BASIC is a visual

and events driven Programming Language. These are the main divergences from the old

BASIC. In BASIC, programming is done in a text-based environment, and the Program is

executed sequentially. In VISUAL BASIC, programming is done in a graphical Environment

.

Visual Basic is sometimes called Rapid Application Development (RAD) system

because it enables programmers to quickly build prototype applications .

***Advantages of Visual Basic*:** The graphical user interface of the VB-IDE provides

intuitively appealing views for the management of the program structure in the large scale

and the various types of entities (classes, modules, procedures, forms) .

***Powerful Front-End Tool*:** Event driven concept equipped with advanced features of

object oriented programming along with user friendly IDE makes Visual Basic a powerful

programming and front-end tool. Visual Basic can accomplish simple to complex business

requirements in a very productive and efficient manner. It has wonderful chemistry with

multiple databases, including DBMS (Database Management System), like Microsoft

Access, RDBMS (Relational Database Management System), like Microsoft SQL Server and

Sybase, and ORDBMS (Object Relational Database Management System) like Oracle. It can

also work with Flat Text file and Microsoft Excel data files .

***Standalone and Distributed Applications***: You can create standalone as well as

distributed application with Visual Basic. Standalone refers to a program, which runs on your

single desktop, and your machine acts as both server and client. In distributed types, you can

install multiple copies of your program or work with single installation in COM+

environment on corporate network.

**5.2 SQLSERVER**

SQL Server provides database to store information on remote location. We will see

introduction of SQL server before we start detail functionality of the SQL Server.

**5.2.1 What is SQL?**

SQL Server is a database management system. SQL is an acronym for “Structured

Query Language” and as mentioned previously, SQL is a standard computer language

for maintaining and utilizing data in relational databases.SQL is a language that allows

users to communicate with relational databases. The American National Standard Institute

(ANSI) introduced its very first version of standards for the language in 1986. After that

first release we have seen several revisions of the language.

It is also described that the SQL language has three major components . The first

component is DML (Data Manipulation Language), which allows you to add, delete, update,

or retrieve data within a database. The second component is DDL (Data Definition

Language), which allows you to create, delete, or modify the database. It also allows to

provide update statement, which allows you to modify the tables in the database. The third

component is DCL (Data Control Language), which maintains proper security for the

database. It means it provides security feature to the database, which makes SQL so

important .

**5.2.2 How is it Different from Other Languages?**

We have also seen discussion of this question, which gives a good overview of the

differences between SQL and other languages. Let’s see a comparison with Visual Basic

or C++, which are much more familiar languages. These languages are procedural in nature.

Procedural nature means that those languages allow users to specify particular procedures to

achieve a desired goal. On the other hand, SQL is declarative in nature. SQL needs

declaration with a single statement to achieve the desired goal. SQL has simple structure, as

it is only concerned with relational databases rather than the entirety of computer systems.

**5.2.3 SQL Server**

Microsoft SQL Server is available in several versions and editions. Available editions

run from a basic Express edition to a fully featured Enterprise edition. The Express edition is

free but still has an abundance of features that allow you to get started with full-fledged

database development. The Enterprise edition includes many sophisticated database

management features, plus complex business intelligence components .

SQL Server is a more robust database management system. SQL Server was designed

to have many hundreds, or even thousands of users accessing it at any point in time.

Microsoft Access, on the other hand, doesn't handle this type of load very well.

SQL Server is a database application to look after the backend of a system (storing

the data, controlling transactions, etc.). There are many options available, ranging from SQL

Server Express Edition (formally MSDE) which supports 5-10 simultaneous users, to SQL

Server Enterprise Edition.

Having a centralized place to store data is a great benefit to SQL Server users.

Centralization is the primary SQL Server benefit that means that everyone is using the same

data source. As a result, there is no need to merge information together in order to receive an

accurate version of a record. With centralized data, every time that you retrieve a record, you

will be confident that you have the latest information.

**CHAPTER 6**

**FUNCTIONALITY AND USAGE**

We have discussed technologies, system design, requirements and architecture. Now

we will discuss the different functionalities and use of the Mobile Store Management System

application. This application is designed using VB for a frontend user interface.

**6.1 LOGIN PAGE**

The Mobile Store Management System is a secure application, and a user needs to

enter the proper combination of Username and Password to access application. Currently this

application has only one Username and one Password, but we can implement multiple users

with user- wise limitation and access control

**6.2 USER CONTROL PANEL**

We have discussed earlier that this application is developed in Visual Basic. Visual

Basic is commonly used for standalone applications. We can create a package, which can be

installed on any system easily. Visual Basic provides a simple and attractive user interface to

the user. Any user can easily manage the application using this interface.

**6.3 USER FORMS**

These are the different pages, which are known as forms in Visual Basic. These forms

will be majorly used by the user during daily work using this application. There are several

forms available based on requirement of application. We will see different forms and their

detail in next section.

**6.3.1 Manage Supplier Information**

The supplier Information form has information related to any supplier we have on

record. This is basic information about the supplier in case we need to contact that supplier in

the future for further purchases or inquiry about past purchases.

**6.3.2 Manage Product Information**

Product information is very important for any store. We have to look at product

details at any point of purchase or sales. We need to check its original purchase price or

manufacturing/purchase date. We have all the basic details which are required for any

product. This form has different data entry fields related to the product then supplier. The

form has product ID, name, company, manufacturing date, and rate at which the products

were purchased.

**6.3.3 Manage Customer Information**

Customer Information is essential in order to provide enhanced customer care facility.

We can call a customer after we sell any product to get there, or we can provide a discount if

a customer is frequently purchasing from our shop.

**6.3.4 Manage Purchase Information**

Purchase information is usually provided by Supplier, but it is not in the same format

we need for our records. So we can enter product and supplier details, along with purchase

details, and keep an invoice for our records. We can also print that invoice for any purpose.

This form has more data fields than other previous forms. As we have discussed in previous

chapter, the supplier name is being populating from the supplier information table, and the

product name and company are being populating from the product table. The user needs to

select this information from a drag down menu. The user can enter purchase ID, quantity of

number of products purchased, rate at which it was purchased. A subtotal will be calculated

automatically, and then the user can enter tax percentage applicable for the product and

discounts in dollars received from the supplier. The final total will be automatically

calculated using the subtotal, tax, and discount. As the information for purchases is large, we

need to accommodate that information into another form. If you press the detail button, it

will pop up another window and provide details of existing data in database. We can also

print the invoice for any purchase made by pressing the Print button on the form.

**6.3.5 Manage Sales Information**

Sales information is the most important part for any store. They always need this

information at any point in the future for different purposes. Transitioning to a computerized

system will provide the most advantages to a billing system. We can keep our sales record

for years without losing any data. We can also print a sales receipt.

**6.4 FUNCTIONALITY**

Each user form contains some command buttons to perform targeted functions. Add,

Delete, Update, Retrieve and Clear are those main functions.

**6.4.1 Add**

This command will add existing data into the database. It will add different fields to

the appropriate table using a connection provided within that command.

**6.4.2 Delete**

This command will delete all records available with the given ID. This is required

when we don’t need any information for future reference and want to clean up our system.

Our application does not support return inventory management, so we can delete that

returned item sale from our system.

**6.4.3 Retrieve**

This is very important and the most advantageous function of this application.

Entering any data or deleting any data is not too complicated and time consuming, but

searching any data from existing information is time consuming and needs more expertise in

a paper- based inventory and billing system. However, in this application we have

implemented a search function in such a way that a user just needs to enter an ID and click

on the Retrieve button. It will fetch all the information for the user.

If a user is trying to retrieve any information, which does not exist in the system, then

the application will notify the user that this particular information is not available.

**6.4.4 Update**

This is also a very necessary function of this application. If any information for

customer, produce, supplier, sales or purchase is changed after its original entry, we can

update that information very easily using this function. We just need to edit existing data and

click on Update button.

**6.4.5 Clear**

This function is provided for comfortless of the user. There are many occasions that

the user wants to erase all existing data available in different fields. The user can clear all

information using this function so the use doesn’t need to remove information individually

from each data field.

**CHAPTER 7**

**TEST PLAN FOR APPLICATION**

**7.1WHY IS TESTING IMPORTANT?**

This is the most important part of the software life cycle. It provides better quality of

software to end users; therefore, those end users won't come across software issues. Testing

of any software is very important for validating functionality of the software. Testing will

provide the following information:

 It finds issues during early phases, which can be fixed before finalization.

 It assures stability and reliability of software in different conditions.

 It helps to provide issue- free software for delivery.

Any application must be tested with different methodologies. If the application is not

tested properly, then some faulty application will be delivered to customers. Delivering such

quality of application will reduce credibility, and the customers will be not delighted with

application.

Testing is usually conducted by development and quality assurance teams. This

testing validates the functionality of the application. There are different kinds of testing that

are needed to perform to validate a specific module of application. A database is the main

module of this application, so it will act as the main role in functionality of the application.

**7.2 TESTING METHODOLOGY**

There are mainly two different types of methodology used by quality assurance

teams.

**7.2.1 White Box Testing**

White Box testing is the type of testing for which we need knowledge of internal

implementation of the system. It is also called “open-box” . testing, as system

implementation is open to the tester. For database testing we can consider functional tests,

which will validate the working functionality from the white box test methodologies family.

**7.2.2 Black Box Testing**

Black box testing is the type of testing for which we don’t need any knowledge of

internal implementation of the system. We just need to know inputs and expected outputs.

We can include unit tests, security tests, and basic performance tests . from the Black Box

test methodologies family.

**7.3WHAT KIND OF TESTING IS IMPORTANT?**

As the Mobile Store Management System is developed with a concentration on the

data tier, there are various types of test methods we need to apply for the application test. In

general practices there are two types of test methodologies that need to be used for database

testing. They are the unit test and the functional test.

***Unit tests*:** Unit testing is a black box test that verifies the contracts exposed by

interfaces . For a unit test there are certain inputs, and the procedure should return the

correct outputs from the application. The pass or fail criteria need to be defined. For this the

applicable procedure is not important. A unit test is defined as pass if output provides

expected valid values in a correct format. Phrased another way, unit tests test the ability of

interfaces to communicate with the outside world exactly as their contracts say they will .

***Functional tests*:** It is a white box test that verifies the functionality of the application

that is being tested . A functional test covers all kinds of tests of the application and tests

that different pieces of the application work correctly. In this type of test, procedure as well

as output are considered for the pass or fail criteria. That means we need to consider

procedure also for validating the application. The logic required for this kind of validation

means that a functional test is a white box test in the database world, compared to the black

box of unit testing .

From various types of testing, we need very few methods of testing for database

validation. Those are listed below:

**Interface consistency** should be validated in order to guarantee that applications

have a stable structure for data access . This testing is required for the Mobile Store

Management System application to ensure we have a properly constructed database and are

connected properly.

**Data availability** and **authorization tests** are similar to interface consistency tests,

but are more focused on who can get data from the database than how the data should be

retrieved . This testing is also required for the application in order to assure data

connectivity.

**Authentication tests** verify whether valid users can log in, and whether invalid users

are refused access. These kinds of tests are only important if the database is being used for

authenticating users . This testing is always necessary for any application which connects

with secured database.

**Performance tests** are important for verifying that the user experience will be

positive, and that users will not have to wait longer than necessary for the data .

Performance testing may involve **load tests**, which monitor the performance of the database

under a given load; **saturation tests**, which attempt to overwhelm the system by constantly

adding load and/or removing resources from it until it breaks; and **endurance tests**, which

place a continuous demand on the database over a sustained period of time . For this

application a performance test is not necessary as it is not targeted for heavy usage

simultaneously.

**Regression testing** covers every other type of tests, but generally focuses on

uncovering issues that were previously fixed . A regression test is a test that validates

that a fix still works . This is a very important testing methodology as there are very high

chances to catch uncovered issues.

**CHAPTER 8**

**FUTURE WORK AND LIMITATION**

**8.1 LIMITATION**

The Mobile Store Management System has some flows and limitation due to different

requirements and time constrain. As this application will be used on the computers so the end

user must have the basic knowledge of the computers. Currently only one item’ information

can be enter in the system at a time. The user has to enter information for different items. The

system currently has only one combination of username and password credentials, every user

has to share same credentials. The search function only supports search using ID number.

The user has to get ID number of customer, sales, purchase, product, or supplier to search

within the system.

**8.2 FUTURE EXPANSION**

We can add multiple usernames and passwords with user- wise separate access and

authorities. We can implement search function using different information also. It is also

possible to integrate an employee’s time card and a payroll management system in this

application. There is another idea to implement SIM card management system. Using bar

code scanner and smart card reader, we can minimize manual data entry, which will

potentially decrease the amount of time to enter data. But at the same time it will increase the

cost of this application.

**CHAPTER 9**

**CONCLUSION**

In this dissertation we have studied different management systems used during

evaluation and presented a low cost store management system application with the help of

that study. A survey was also conducted to get current needs of small businesses which could

be willing to migrate to the Mobile Store Management System application. The

implementation of this system as a single solution for different businesses was challenging. I

have learned a lot about document writing during this progression. The process of writing

thesis document, which is a research paper, was not familiar to me, but of great benefit. The

application Mobile Store Management System is created to help small businesses to transfer

their records from paper-based system to computerized system, even with a low budget. At

the same time, the requirements of a basic store have been taken care of, and a few features

that can make the application easier to use and easy to understand to the user with beginner

level knowledge of computers have been added. I hope that Mobile Store Management

System fulfills all basic requirements for stores with intention of transferring to computerized

billing and inventory system. The survey of real world small businesses helped me to

understand current practice, and possible needs.