



**Sri Lanka Institute of Information Technology**

## **MOBILE PHONE SHOP MANAGEMENT SYSTEM**

### **PROJECT PROPOSAL**

**Information Technology Project (IT2080) 2023**

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## Introduction

### 1.1 Background

OneTel mobile accessories shop is one of the most successful and growing mobile businesses in Ja-Ela which was started before more than 10 years. This store has shown its excellence in all those years by treating each and every customer as special. Their customer service is well known since they do their best in finding the best deal for the customers.

They have all the mobile brand and cameras to sell in store and all the equipments in cameras as well. Also, they have newly introduced the service of renting some particular items as well.

For all the managements and maintenance, they have used a manual system but according to the present world's technology they have come to a conclusion to switch to an automated system for everyone's easiness.

The shop owner is interested in making solutions from the newly proposed automated system for the doubts that were raised in the manual system.

### 1.2 Problems and solutions

- Normally if customer wants to know the specification and other details of the selected item, customer have to browse one by one through the web site. Furthermore, the seller also have to spend their money to advertise the relevant details of the item.
  - The solution for the above problem is we introduce a QR system. From the QR system customer can easily view all specification of the relevant item. So that customer can know the details of the item that customer can know the details of the phone that customer wish to buy and it saves the time waste also.
- If a fault occurs after purchasing the item, the customer has to visit the place of purchase. It will waste the time of the customer and waste their money to reach the place that purchase the item.
  - The solution is the live chat. If customer have a problem, customer can easily join to the live chat and solve it easily. If the problem is manageable through the live chat it saves the valuable time of the customer.
- After ordering the mobile phone, the customer has no way of knowing its status.
  - From tracking system customer can solve it. In the tracking system, there are some steps in it. From it the customer can know the status of the ordered item.
- Some customers do not return items properly after renting them, which causes a big loss to the seller.
  - The solution for the above problem is, if customer wants to rent some item. They have compulsory to upload their ID photo and personal details to the system. Then seller can track the customer.

### 1.3 Motivation

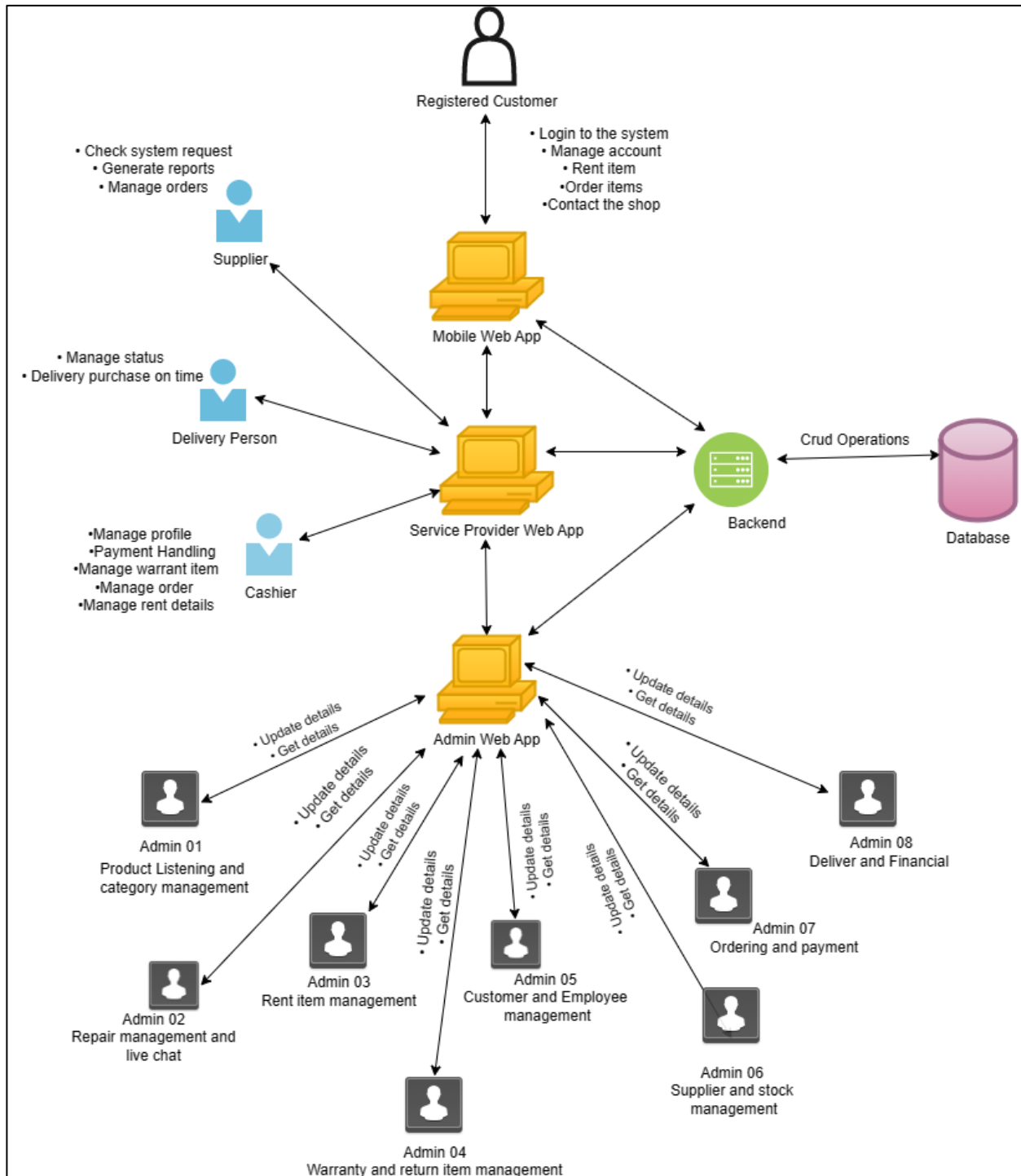
In our proposal, we are using a QR System on the selection portal of products of the business. Beyond getting harder for searching more details over the products, once you scan the QR code you can get any detail of a product as how you wish, before adding to cart. In the present, due to much hectic schedule of customers they are always willing to find easy ways. As well as to be aware of each product is making much convenience for all customers who are coming to take our service.

### 1.4 Aim & Objectives

Aim	To systematize the manual process they were following through these years and reaching potential customers.
Objectives	<ul style="list-style-type: none"><li>Widespread the business.</li><li>Improve the coordination of the business.</li><li>Reduce the cost of documentary materials.</li><li>Increase sales by improving customer satisfaction.</li><li>Increase the efficiency of tasks.</li></ul>

## 2. System Overview

### 2.1 System Chart



## 2.2 System Requirements

<b>Functional Requirements</b>	<b>Non-Functional Requirements</b>
Customers must register to the system before entering to the ordering process. After registering into the system customers must log in to the system using given username and password. System must validate users.	Availability
All registered customers and employee have to manage own profiles.	Performance
System gives online chat option for customers and suppliers.	User friendliness
System provide search facility for all users and non-registered customers also can view product list and details about products.	Usability
System provides online payment method as payment option.	Portability
System allows admin to manage users and generate reports.	Maintainability
Customer can view delivery status of delivery items and tracking.	Security
System must provide online warranty claim option to customers.	Scalability

### 3. Literature Review

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We can see many mobile shop management systems in Sri Lanka. They are very useful for the customers as well as to the shop owners. owners can easily do their business through these systems. But the question is whether these systems are changing in accordance with daily changes in the modern world. In the modern world, people also try to do new things and they always try to manage and save their time for a new thing. Because of that these systems should update according to the day-to-day things.

Usually, shop owners do not maintain these systems properly even though they are initially created and also, they do not update them. For all these problems, we have introduced a modern mobile shop management system for One Tel mobile.

In usual systems, there are many common problems.

Considering the details of a device, normally if a customer wants to know full details of a device, they have to browse through whole the web site. For that we have introduced a QR system. From the QR system, customers can easily scan it and can get the full details of the selected device.

If a fault occurs after purchasing an item normally the customer has to visit the shop. For that we have introduced a live chat system and from it, customer can easily solve the problem.

If a customer ordering a device, customer has a right to know its status. So that we have introduced a tracking system. From the tracking system the customer can easily get an idea about the ordered device.

So, after considering all these new things, we are developing a modern mobile shop management system to the One Tel mobile. It is our strong aim to create a very systematic and up to date system. And also, our aim to introduce this system as a very user friend system. It is our hope to create and complete this system that fulfills the needs of the customer properly and protect the privacy of the customer. Furthermore, we are hoping to design this system so as to facilitate the daily business activities of the store and to provide quality service to the customer.

It is our hope to create a successful system by providing proper solutions to all the problems mentioned above. Our system is divided into 8 sub-sections and their operation is briefly mentioned below.

## 1) DELIVERY AND FINANCIAL MANAGEMENT

This phone shop has introduced a delivery system to their customers to make their service more efficient for their customers. The customers can get their orders from their doorstep through this delivery service.

Here, the customer has to enter personal details like name, address, ID Number to the system. Then customer proceed to payment page.

So, the system has its own user interface for the delivery men to log in to the system by using their own credentials then the delivery men can check their duties from the system and add all their delivery information to the system. Once the order gets delivered to the customer, they can rate the delivery from the website.

And also, the customer can view the order status and track the order. This is a new thing that we have added to this system.

Admins can log in to the system and view all the delivery service-related information from the system and, they can search, delete, add and update them.

Also the admins in the system maintain an expenses report monthly in order to maintain the financial side of the system. Additionally, the admins also can view, add and delete the financial reports.

## 2) PRODUCT LISTING AND CATEGORY MANAGEMENT

This has all the available items on the website. The registered and unregistered both types of customers can view all the items which are available in the system. If any of the items aren't available at the moment it is mentioned in the system by saying that the "item is out of stock."

If there is an unavailable item, the customer can add it to the wish list. Then the customer can order it when it is available. Here, if a customer wants to remove it from the wish List, they can easily do it through the system.

In here they have introduced a new feature as "scan the QR". Each item has its own QR code so the customers can scan it and view all the details of the relevant item.

Admins of the system can handle/maintain all the items and their quantities by observing the availability of the items.

So, the admins can add, remove items when they are newly bought or when they are available for no more.

System admins usually create a product listing and category management report for the efficiency of the system.



### 3) ORDERING AND PAYMENT MANAGEMENT

Here this function has the ordering feature which the customers can log in to the system and view the items that are available on the website. Cart is another special feature on this website which allows the customers to add all their preferred items to it.

Also, they can remove the added items from it whenever they want to. At the end the customers can proceed toward to the payment function after they are selecting the items. In here the payment page consists of the order details of the customer and also it includes the payment methods such as Cash on delivery and bank deposits. So, the customers can simply choose the payment method they like.

Furthermore, if a customer wants to cancel the order, the customer can put a message through the live chat and asks admin to cancel the order. The Order ID and the name of the customer are mandatory to do this thing. And also, if a customer has already done the payment to the order, customer can request to refund money back. There also Order ID and the name of the Customer are mandatory and after confirming these details, admin asks to enter the Account details of the customer to refund the money to the customer.

There's also a tracking system in the system which the customers can track their orders. Also, the customers can add a statement of feedback about their order.

Payment admins can view, search, update or delete the payment details, item detail.

### 4) CUSTOMER AND EMPLOYEE MANAGEMENT

In the system registered customers can simply log in to the system by their username and password. Unregistered customers can create their own account and then log in to the customer as a registered customer.

While all the customers have their own kind of entering the system employees also have their own way. Employees can log in to the system by their logging credentials.

If the admin wants to delete an employee detail, admin can delete it. But these all details are sync to another database. It helps to maintain a memory for each employee that has been deleted from the system.

Furthermore, a confirmation message is auto generated through the system to the customers' mobile number or email, while a customer login to the system or register to the system. This is a new thing we have added to this system.

All the details of the customers and the employees are stored in the system so the admins can search, add, update, or delete those.

## 5) WARRANTY AND RETURN ITEM MANAGEMENT

If any problem occurs during the warranty period of the device the customers can request a warranty claim for their purchased item. When receiving a warranty claim the admin should be able to view all the details of the warranty claim. Then, the admin can accept or deny the warranty claim according to the terms and conditions. After that the customer can view the status of the warranty request whether it is accepted or deny.

If accidentally a customer has received a wrong order the customer must submit a return form to return the item. Then the admin response to the request and contact the customer. After the customer returns the package, the admin should collect the returned requested item and also should store all the details of the returned item.

The reports of both warranty items and the returned items should be generated by the admins. Also, admin should be able to refer to the item and category reports of the relevant item.

## 6) SUPPLIER AND STOCK MANAGEMENT

This system has a separate user interface for the suppliers. So, the suppliers should login to the system using their own logging credentials.

After that the suppliers can see the items which the shop is in need of and then they can directly contact the admins through the live chat. So the suppliers provide the details of the items which they can supply and then the admins will accept or refuse it.

If the customer's request their needs, the admin can request these needs from the suppliers. It is a very good thing that we have added to this system. From it, shop owners can protect customers' trust in the shop.

If the admins accept any items from the suppliers, then the admins should store all the details of the suppliers and the items.

Also, if any items are bought from any supplier the admins can update, the stock management and the admins should create supplier and stock reports.

## 7) RENT ITEM MANAGEMENT

This system has the feature of renting mobile accessories for their customers. Specifically, Cameras, Camera lenses etc. Users can view the rent item list separately and then they can send a request for the admins by mentioning the items they want to rent. So, the admins can either accept the request or decline. After that if the request gets accepted then the customers can choose their preferred method to get the rented item either delivery method or pick up from the shop.

The admins should store all the details of the rented items and the customers.

If a customer wants to rent an item, customer should put 40% deposit of the value of the item. After returning that rented item, customer can get the deposit amount.

Also, in order to assurance of the rented items the admins must take a copy of the identity card of the customer and the other specific personal information related to the renting. Moreover, the admins can update, insert, delete rent item details. And also related to that customer also can should create reports for the renting items.

## 8) REPAIR MANAGEMENT AND LIVE CHAT

This system has the service of repairing devices. In there, if customer has a problem about the bought device, customer can easily solve the problem through the live chat. Here customer can describe the problem and get an idea of that problem from the admin. Furthermore, customer can get more details about repairs through the live chat available for the customers to contact the admin panel of the system directly. If there is a fault in relevant device customer should come to handover the device and after repair the device, also should come to pick up it. In the live chat customer have to give contact details like name, address, telephone number through it. If customer does not like to give the details, customer must come to the shop to give that relevant device.

After getting the details of the customer, admin get all the details like model, brand, manufacture year of the device. If customer enter invalid details, customer can edit it. For that system gives 2 hours additional time is given from the time the information is first entered. In that time customer can edit or cancel the order.

In addition to that the admins should create a report on repairs. Live chat is a fabulous feature this system has introduced to the customers so that the customers can directly contact the admins whenever they want.

To make the live chat service more successful they have added a chatbot to respond to the customers in more efficient way. So, the chat will provide some solutions for the common problems that'll occur for the customers.

## 4. Methodology

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### 4.1 Methods

#### System Development Methodology

The Agile Methodology was used as the system development methodology when developing this website. The agile approach is a well-liked one today. There are typically six phases in the Agile methodology (Anon., 2022). They are:

##### 1. Analysis and Needs

All the requirements that must be incorporated into the system were gathered and examined at this point. We can learn a lot about the undertaking from this, and we can begin working with a solid understanding.

##### 2. Design

During this step, the system was designed using ER and UML diagrams in accordance with the specifications.

##### 3. Development

The project's development was started in this stage after the requirement analysis and design.

##### 4. Testing

This step involved testing the entire system, evaluating its functionality, and identifying any errors. then fixed the flaws that were found in the system.

##### 5. Deployment

The product has reached this level and has been released onto the market.

##### 6.Feedback

The project's feedback was received at this point. Maintaining and processing the input after that.



#### Advantages of using Agile methodology

- [Error can be fixed in the middle of the project.
- Testers and developers work together.
- Every iteration has its own testing phase. It allows implementing regression testing every time new functions or logic are released.
- Projects become much easier to manage as a result, and you'll also be able to complete your job more quickly.
- Real-time course correction is much simpler than waiting until your squad is almost finished.

#### 4.1.1 Software testing method

### Test-Driven Development (TDD)

A software development approach known as test-driven development (TDD), also known as test-driven design, integrates unit testing, scripting, and source code refactoring. Extreme Programming (XP), a more comprehensive approach to software design that is a component of the Agile software development process, is where test-driven development first gained popularity.

### Procedures for test-driven development

The programmer must first build a failing unit test before writing any new code. The coder, or pair, or mob, then produces just enough code to meet that demand. The programmer can refactor the design after the test passes to make enhancements without changing the functionality.

## 4.2 Tools & Technologies

### 4.2.2 Tools

IDE	VS code
Version Control	Git/GitHub
Wireframing Tool	Figma
API Testing	Postman
Browser Tool	Chrome developer tool
Project Management	Kanban board

#### 4.2.3 Technology

Frontend development Implementation	<ul style="list-style-type: none"> <li>• HTML5,CSS,JavaScript,Bootstrap5</li> <li>• ReactJS (JSX)</li> </ul>
Backend development Implementation	NodeJS, Express, NPM, Yarn
Database Approach	MongoDB
Protocols	HTTP/REST
Integration	Through shared database

## 4.3 Project Plan

	6 feb to 12th	13 feb to 19th	20 feb to 26th	27 feb to 5 march	6 march to 12th	13 march to 19th	20 march to 26th	27 march to 2 April	3 april to 9th	10 april to 16th	10 april to 16th	17 april to 23th	24 april to 30th	1 may to 7th	8 may to 14th
<b>Definition and requirement analysis</b>															
<b>Planning</b>															
<b>Page UI design</b>															
<b>Database design</b>															
<b>Coding the structure</b>															
<b>Development</b>															
<b>Testing</b>															
<b>Lunching the web application</b>															



#### 4.4 Work breakdown structure

Sandanayake H.D	DELIVERY AND FINANCIAL MANAGEMENT	<ul style="list-style-type: none"> <li>Implementing the delivery service.</li> <li>Create separate user interface for the delivery employees.</li> <li>Implementing update, insert, search, delete delivery details and financial details.</li> <li>Create a method to rate the delivery service for the customers.</li> <li>Creating the delivery and financial reports.</li> </ul>
Wijenayake J.M.A.P	PRODUCT LISTING AND CATEGORY MANAGEMENT	<ul style="list-style-type: none"> <li>Implementing update, insert, search, delete in product listing and category management.</li> <li>Create a method to show the availability of the items.</li> <li>Create a method using QR code to include item details.</li> <li>Create the product and category report.</li> </ul>
Chandrasena R.H.V	ORDERING AND PAYMENT MANAGEMENT	<ul style="list-style-type: none"> <li>Implementing update, insert, search, delete in ordering and payment management.</li> <li>Create a method to only the registered customers be able add items to the cart and to remove items whenever they want.</li> <li>Create methods to choose the payment methods.</li> <li>Creating the tracking system.</li> <li>Creating a method to add feedbacks for the customers about the orders.</li> <li>Creating orders and payment reports.</li> </ul>

Chamod S.G.K	CUSTOMER AND EMPLOYEES MANAGEMENT	<ul style="list-style-type: none"> <li>• Implementing update, insert, search, delete in customer and employee's management.</li> <li>• Creating methods to login to the system for customers and employees separately.</li> <li>• Creating a method for the unregistered customers to register for the system.</li> <li>• Creating customer and employment details reports.</li> </ul>
Wickramaarachchi W.A.N.D	WARRANTY AND RETURN ITEM MANAGEMENT	<ul style="list-style-type: none"> <li>• Implementing update, insert, search, delete in warranty and return management.</li> <li>• Creating a method to send warranty claims.</li> <li>• Creating a method to submit a return form.</li> <li>• Creating warranty and return item reports.</li> </ul>
Wijerama H.J.K.S.R	SUPPLIER AND STOCK MANAGEMENT	<ul style="list-style-type: none"> <li>• Implementing update, insert, search, delete in supplier and stock management.</li> <li>• Creating a separate user interface for the suppliers.</li> <li>• Creating a method to show the needed items for the suppliers.</li> <li>• Creating a live chat for the suppliers to connect with admins.</li> <li>• Creating supplier and stock reports.</li> </ul>

Wickramasinghe W.A.R.M	RENT ITEM MANAGEMENT	<ul style="list-style-type: none"> <li>• Implementing update, insert, search, delete in rent item management.</li> <li>• Creating an interface for the users to view the renting items.</li> <li>• Creating a method to send requests.</li> <li>• Creating a method to accept or deny the request.</li> <li>• Creating a method to choose the way to get the rented item.</li> <li>• Creating rent item report.</li> </ul>
Gunathilaka K.A.R	REPAIR MANAGEMENT AND LIVE CHAT	<ul style="list-style-type: none"> <li>• Implementing update, insert, search, delete in repair management and live chat.</li> <li>• Creating the live chat for the customers to contact the admins.</li> <li>• Adding a chatbot for the live chat.</li> <li>• Creating repair item report.</li> </ul>

## 5. References

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- <https://www.mongodb.com/>
- <https://www.npmjs.com/>