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Retail Based CRM using Genetic Algorithm

B. Sathvik Kumar, K. S. Kousik, M. Karthik,
Undergraduate Scholar, Department of Information Technology, Anurag University, Hyderabad
K. Santhoshachandra Rao,
Assistant Professor, Department of Information Technology,
Anurag University, Hyderabad.

Abstract: *Retail Based CRM(CUSTOMER RELATIONSHIP MANAGEMENT) is a powerful website that helps predict the quantity of paint needed. The Homepage of this website includes close customer features such as appointments, contracts, categories of Paint and Electrical Services. Apart from that, it helps the customer to make decisions related to cost and design based on their needs using an Estimator.*

Keywords: Customer Relationship Management, Home page, Manager login, Staff login, Service men login, Admin login, Estimator, Categories, Database Management

I INTRODUCTION

In today's world, people lead busy lives and often don't have the time or resources to shop for raw materials and services required for painting their homes or commercial properties. They may also find it difficult to find reliable service men and contractors who can provide quality work at reasonable prices. This is where our Retail-Based CRM (Customer Relationship Management) website comes into play.

Our website offers a one-stop solution for all your painting needs. You can not only order the required raw materials such as paints and electricals from our website, but also make appointments with our experienced staff and managers to get guidance and support. We also have a network of reliable contractors and service men who can provide quality work at competitive prices.

To make the process even more convenient for our customers, we have integrated a feature where they can upload photos of their property and receive estimates from our team. These estimates are shared only with the customer, ensuring that they have complete privacy and control over the entire process. Additionally, we have a paint and electrical estimator feature that helps customers plan and budget in advance, allowing them to make informed decisions.

1. Admin login

Under Admin log in, the admin can edit categories such as paint and electrical service, Other than that the admin can accept or reject customer orders using the online ordering system. Secondly, Admin can also generate invoice and manage appointments with customers using Invoice Generator and Appointment Manager

2. User login

Under user login, people such as Staff, Service men and the Customers are authorized as users and are allowed to login. For instance, if the Staff logs in he can specifically edit the various Contractors and Painting Services information in addition to the online ordering system and invoice generation In Comparison, if the user is a Service men, he will be able to view contracts, and manage his own appointments. Finally, if the user is a customer you can select your product, contact service men, place order and generate invoice and quotation.

II PROBLEM STATEMENT

The problem that our Retail-Based CRM website seeks to address is the difficulty that people face when trying to find all the necessary resources and services required for painting their homes

or commercial properties. This includes the challenge of locating reliable service men and contractors who can provide quality work at reasonable prices, as well as the inconvenience of having to visit multiple locations to obtain the required raw materials. Our website seeks to solve these issues by providing a one-stop-shop for all the necessary resources and services, allowing customers to order the required raw materials and make appointments with experienced staff and contractors in one place. Additionally, our website offers privacy and convenience by providing photo-based estimates and paint and electrical estimators, helping customers plan and budget in advance.

III SYSTEM ARCHITECTURE

System architecture refers to the overall design and structure of a complex system, including the relationships between different components and how they work together to achieve the system's goals. A system architecture can be thought of as a blueprint that outlines the different subsystems, modules, and components that make up the system, as well as how they interact with each other.

A well-designed system architecture is critical for ensuring the system's reliability, scalability, and maintainability. It provides a framework for designing, building, and deploying the system, and enables developers to identify and address potential issues early in the development process. System architecture is an important aspect of system engineering and is often used in the design of large-scale, complex systems such as computer networks, software applications, and industrial automation systems.

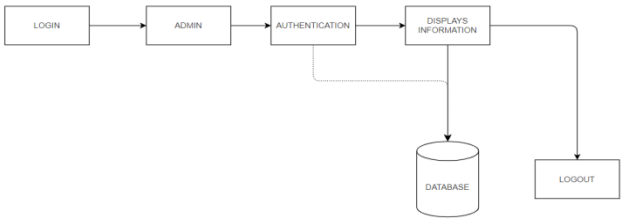

Fig 1: System Architecture of User Module

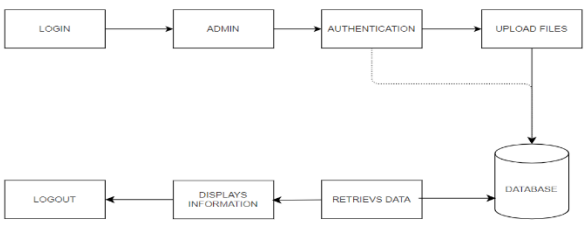

Fig 2: System Architecture of Admin Module

IV CONSTRAINTS

In Our application to provide the optimization we are using genetic Algorithm which is used to place the constraint based implementation.

The Design follows constraints as:-

- For every user, there is a mandatory 2D-authentication process to make secure login.
- Secure SQL Injection are built in option for a user. Even the database is stolen or hacked, the data or password of the user is invisible since it is completely encrypted.
- The user cannot have purchase or order more than 100 Items in a single month.
- When the teller generates the invoice the unique invoice number is attached to transaction as id. It brings optimization in retrieval of transaction or tracing the detail.
- Client can estimates the approximate price for every product as the user choice. Depends on the user requirement, the price will be predicted. Its saves clients time.
- In Safe_Painting_Service feature enables flexibility to the user to contact the painters as there wish instead of middle men.
- Using this website the work load of shop owner reduces, easiness in delivering the goods.
- The tellers need to accept the product or order when they receive then only the items are delivered or being shipped.
- If the user forgot their password then they can change using email authentication.
- The Estimator gives an 99% of Accuracy, but the price depends on the users color selection.
- GST Invoice is only created by tellers or manager.
- To prevent from SQL Injection the private data as passwords are completely encrypted.

These are the approaches using Genetic Algorithm which is very useful for reducing the workload or optimizing the website.

We have completely optimized by reducing the human power in the company or lively . This website is complete dynamic and uses AWS Cloud.

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V RESULTS AND DISCUSSION

The approach used in this system is the Incremental Model, which involves dividing the project into separate steps. Each phase is completed before moving on to the next, with the output of each phase serving as input for the next. This approach also allows for backward implementation, where updates or new requirements can be applied as needed.

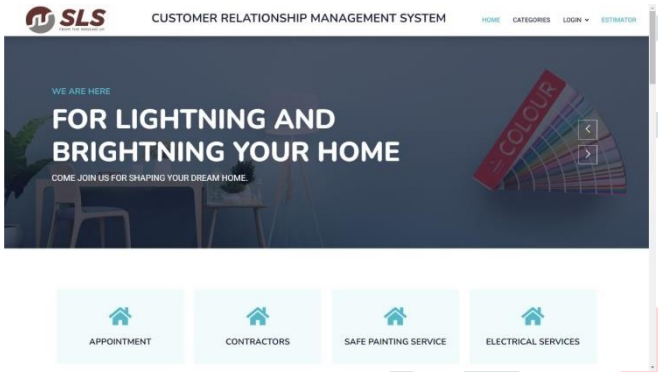

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Fig 3: Home page

The above image shows the home page after. The user can choose any of the options provided or simply login.

Fig 4: Manager login

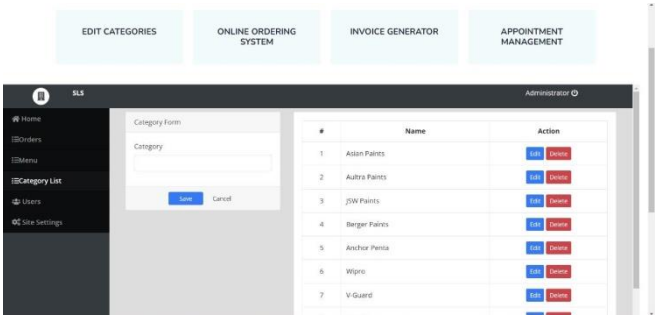


Fig 5: Manager operations

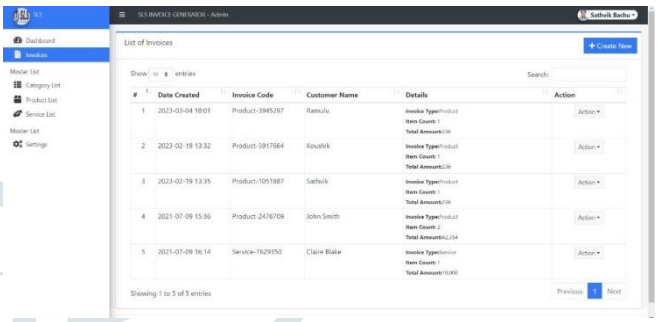


Fig 6: Manager Home Page actions

The above image shows the some example options available for a manager.

Fig 7: Service Men Home page

The above image displays the choices provided for the service men

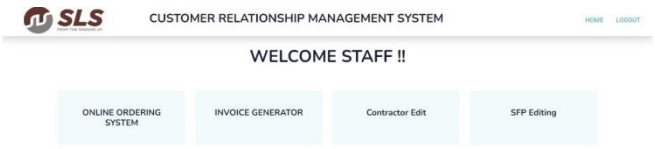


Fig 8: Staff Home Page

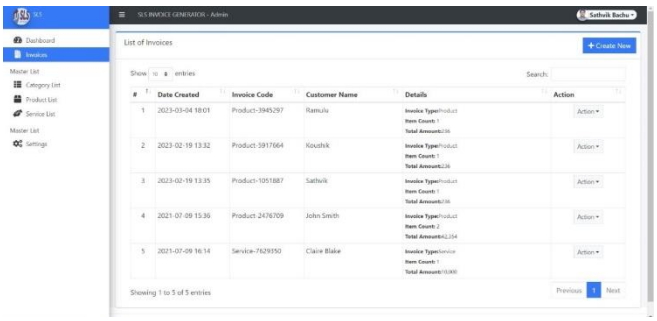
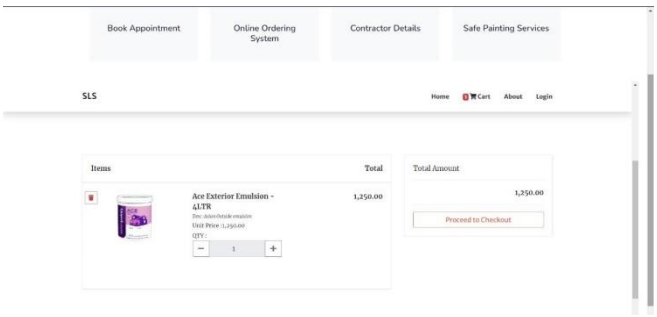


Fig 9: Staff Operations

The above image displays the operations the staff can perform after login.



The above image displays example of how a client can make appointment and place an order.

Fig 13: Customer actions

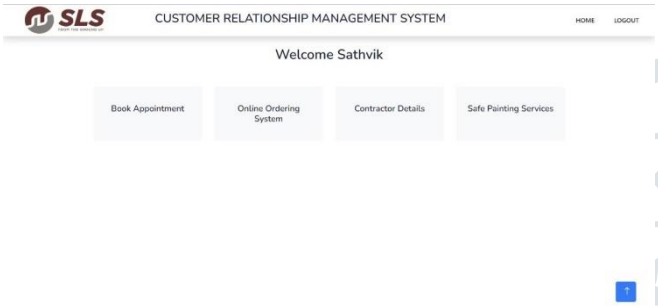


Fig 10: Customer Home Page

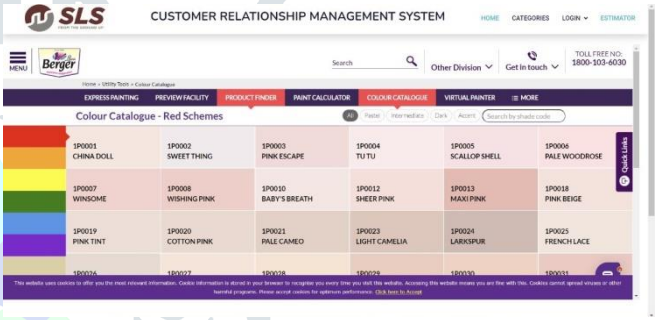


Fig 14: shade selection

The above image shows the customer can select the shade of their preferred choice.

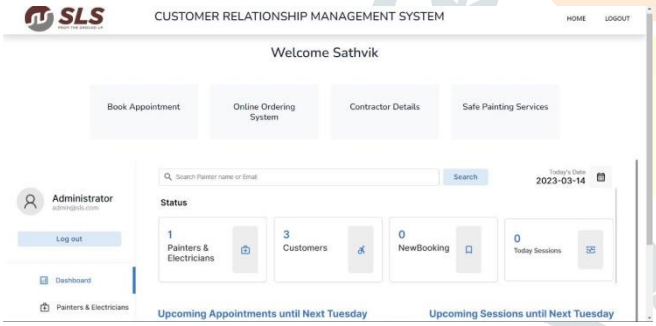


Fig 11: Appointment page

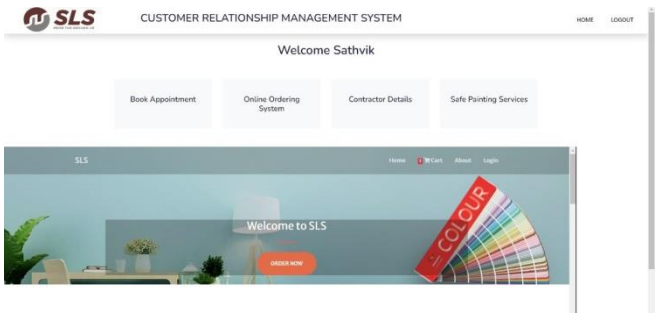


Fig 12: Ordering Page

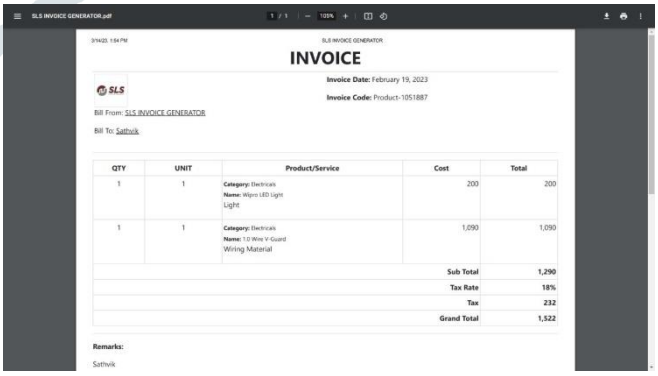


Fig 15: Invoice Details

The above image shows the invoice generated after consumer has placed an order.

VI CONCLUSION

In conclusion, our project is a Retail-Based CRM website designed to provide a comprehensive solution for customers who require painting-related services. It offers a one-stop-shop for all necessary resources, including raw materials and services from experienced staff, contractors, and service men. Our website also provides features such as paint and electrical estimators, which help customers plan and budget in advance. Our goal is to simplify the process of painting for customers, while ensuring that they receive quality products and services at reasonable prices. Through our website, we strive to offer a seamless and hassle-free experience for our customers, ultimately helping them to achieve their desired painting outcomes with ease.

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