WEBSITE FOR SASIK SERVICE STATION

Higher National Diploma in Software Engineering

Final Project Documentation

23.2F



School of Computing and Engineering
National Institute of Business Management
Kurunegala

Contents

CHAPTER 01: INTRODUCTION	3
1.1 INTRODUCTION OF THE ORGANIZATION	3
1.2 ORGANIZATION STRUCTURE	4
1.3 CURRENT OPERATIONS IN THE ORGANIZATION	5
1.4 USERS AND RESPONSIBILITIES ORGANIZATION	6
1.5 PROBLEM DEFINITION	8
1.6 PROPOSED SOLUTION	9
1.7 CHAPTER SUMMARY	10
CHAPTER 02: METHODOLOGY	11
2.1 INTRODUCTION	11
2.2 DATA COLLECTION METHODS	11
2.3 SOFTWARE PROCESS MODEL	12
2.4 SOFTWARE DEVELOPMENT TOOLS	13
2.5 TESTING STRATEGIES	13
2.6 IMPLEMENTATION PLAN	15
2.7 CHAPTER SUMMARY	16
CHAPTER 03: ANALYSIS	17
3.1 INTRODUCTION	17
3.2 UML Diagram	18
i Use Case Diagram	18
ii Class Diagram	19
iii Sequence Diagrams	20
3.3 ER Diagram	21
3.4 Chapter Summery	22
CHAPTER 04: SOLUTION DESIGN	23
4.1 INTRODUCTION	23
4.2 INTERFACE DESIGN	23
i Software	23
ii Website	32
4.3 DATABASE DESIGN	36
CHAPTER 05: CONCLUSION	37
REFERENCES	37
ADDENIDICEC	20

CHAPTER 01: INTRODUCTION

1.1 INTRODUCTION OF THE ORGANIZATION

Established in 2001, Sasik Service Station has been a cornerstone of automotive care

and customer service excellence for over two decades. Located at Puttalam Road,

Bambaragammana, Wariyapola (opposite SLTB bus depot), Sasik Service Station has

built a reputation for reliability, quality, and a commitment to customer satisfaction.

With a strong foundation and years of experience, we are now poised to take the next

step in our evolution.

This project proposal outlines our plans to enhance the service efficiency and customer

experience at Sasik Service Station. By implementing advanced technologies,

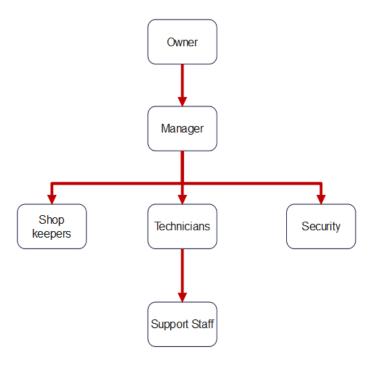
optimizing our processes, and focusing on customer-centric strategies, we aim to

solidify further our position as a leading service station in the industry.

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1.2 ORGANIZATION STRUCTURE

Sasik Service Station has a well-defined organizational structure to ensure efficiency and accountability. The structure is as follows:



- ➤ Owner:- The Owner is responsible for the overall strategic direction, financial oversight, and long-term planning of Sasik Service Station.
- ➤ Manager:- The Manager is responsible for the daily operations, ensuring that all aspects of the service station run smoothly and efficiently.
- ➤ **Technicians**:- Technicians are responsible for performing maintenance, diagnostics, and repair work on vehicles.
- > Shop Keeper:- The shopkeeper manages the inventory of automotive parts and service equipment ensuring their availability for the service operations.
- > Security:- The Security Personnel are responsible for ensuring the safety and security of the premises, staff, customers, and assets at Sasik Service Station.
- > Support Staff:- Support Staff includes various roles such as cleaning staff who assist in the smooth operation of the service station.

1.3 CURRENT OPERATIONS IN THE ORGANIZATION

Sasik Service Station offers a comprehensive range of services to meet the diverse needs of our customers. Here is a concise overview of our current operations:

Cleaning Vehicles

- Exterior Cleaning: Hand washing, pressure washing, waxing, and polishing to maintain the vehicle's appearance.
- Interior Cleaning: Vacuuming, upholstery cleaning, dashboard and console cleaning, window cleaning, and odor removal.

Full Service

- Routine Maintenance: Oil and filter changes, fluid checks, brake inspections, tire rotations, battery testing, and replacements.
- Comprehensive Inspections: Vehicle health checks, diagnostic testing, and safety checks.

• Spare Parts and Retail Products Sales

- Inventory Management: Stocking genuine parts and maintaining strong supplier relationships.
- Customer Assistance: Helping customers identify and order the correct parts.

• Vehicle Painting and Repairs

- Painting Process: Applying primer, base, and clear coats.
- Finishing Touches: Polishing, buffing, and conducting quality inspections to ensure a flawless finish.
- Repairs: Addressing engine, transmission, suspension, and exhaust system issues.

1.4 USERS AND RESPONSIBILITIES ORGANIZATION

- Customers are responsible for Scheduling vehicle maintenance appointments.
 Providing accurate information about their vehicles, reviewing and approving service estimates, and providing feedback on service quality, and ensuring timely payment for services rendered.
- Technicians are responsible for diagnosing and repairing vehicle issues. ,
 communicating effectively with customers regarding repairs. , maintaining
 cleanliness and organization in their work areas, keeping up-to-date with
 advancements in automotive technologies, and adhering strictly to safety
 protocols and guidelines.
- Manager oversees supervising daily operations and staff performance, addressing and resolving customer complaints effectively, coordinating schedules and workloads for optimal efficiency, ensuring compliance with safety regulations and standards, and assisting customers with billing and financial transactions, coordinating communication between customers and technicians and, ensuring a positive and satisfactory customer experience.
- The Spare Parts Shopkeeper is responsible for managing and organizing the inventory of spare parts, ordering necessary parts and maintaining supplier relationships, assisting technicians in identifying and acquiring required parts, recording all parts transactions and maintaining detailed inventory logs, and conducting regular audits to ensure inventory accuracy and availability.

- Support Staff (Administrative and Cleaning) responsibilities include ensuring cleanliness and hygiene standards throughout the service station facilities and assisting in maintaining a clean and organized work environment for staff and customers.
- Security Personnel duties involve monitoring and overseeing surveillance
 activities across the premises, promptly responding to incidents, alarms, or
 emergencies, and assisting customers with safety concerns or queries and
 enforcing safety regulations, and maintaining a secure environment for all
 stakeholders.

This breakdown ensures clarity and delineates the specific responsibilities of each role within Sasik Service Station, contributing to efficient operations and customer satisfaction.

1.5 PROBLEM DEFINITION

During the service station inspection, several unnoticed mistakes were observed, leading to customer dissatisfaction and potential embarrassment for the establishment.

• Manual Shop Inventory

The current reliance on manual inventory management at Sasik Service Station leads to inefficiencies such as inaccuracies in stock levels, difficulties in tracking parts, and delays in identifying replenishment needs. This manual process increases the likelihood of errors and can result in operational disruptions due to stockouts or overstocking of certain items.

• Customer Details and Service Records Repetition

The duplication of customer details and service records within different systems or documents at Sasik Service Station causes redundancy and potential inconsistencies. This inefficiency not only wastes time and resources but also increases the risk of errors in customer communications, service histories, and billing processes.

• Lack of a Website

Sasik Service Station lacks an online presence through a dedicated website, limiting its ability to reach and engage potential customers effectively. This absence prevents customers from accessing essential information about services offered, booking appointments online, and obtaining updates on promotions or service specials conveniently.

• Customers Waiting for Extended Periods

Customers frequently experience extended wait times at Sasik Service Station, leading to dissatisfaction and potential loss of business. Inefficient scheduling, inadequate resource allocation, and suboptimal workflow management contribute to prolonged waiting periods, impacting customer experience and service quality.

1.6 PROPOSED SOLUTION

To address the identified challenges and enhance operational efficiency and customer satisfaction, Sasik Service Station proposes the following solutions:

➤ Website Development with Mobile and PC Versions

- *Technology*: Utilize React for the PC version and Flutter for the mobile version
- Features:
 - Comprehensive service information.
 - Pricing details.

➤ Point of Sale (POS) and Inventory System (Desktop)

- Technology: Built using .NET (C#) for the desktop application and SQL Server for the database.
- Features:
 - Point of Sale (POS): Enables quick and efficient billing for services and products.
 - Inventory Management: Tracks stock levels of service-related items (e.g., oils, spare parts).
 - Integration: The system will be linked to customer records for seamless transactions.
 - Reporting & Analytics: Provides insights into sales, inventory, and service trends.

These solutions aim to enhance Sasik Service Station's digital presence, streamline operations, and significantly improve the customer experience. By leveraging modern technologies such as **React and .NET**, and integrating **barcodes or QR codes** for

customer management, **Sasik Service Station** can maintain its competitive edge in the automotive service industry.

1.7 CHAPTER SUMMARY

In this chapter, we introduced Sasik Service Station, emphasizing its longstanding commitment to automotive care and customer satisfaction since 2001. We provided an overview of the organization's structure, detailing the roles and responsibilities of key personnel to ensure smooth and efficient operations. Additionally, we summarized the current range of services offered, including vehicle cleaning, full servicing, spare parts sales, and vehicle painting and repairs.

We identified several key challenges, including inefficiencies in manual inventory management, redundancy in customer records, lack of an online presence, and extended customer wait times. To address these issues, we proposed several technological solutions:

- Website Development A React-based PC version to enhance accessibility and service information.
- Point of Sale (POS) and Inventory System A .NET-based desktop application with SQL Server to streamline billing, track inventory, and generate reports.

These solutions are designed to enhance operational efficiency, improve customer experience, and strengthen Sasik Service Station's competitive edge in the automotive service industry.

CHAPTER 02: METHODOLOGY

2.1 INTRODUCTION

This chapter outlines the systematic approach and methodologies employed by Sasik

Service Station to achieve its objectives of enhancing operational efficiency and

improving customer satisfaction. By leveraging advanced technologies and strategic

processes, Sasik Service Station aims to optimize service delivery and maintain its

position as a leader in the automotive service industry. This chapter details the

frameworks, tools, and procedures utilized to implement digital transformations,

streamline operations, and enhance service quality across all facets of the organization.

Through a structured methodology, Sasik Service Station endeavors to meet and exceed

customer expectations while fostering sustainable growth and operational excellence.

2.2 DATA COLLECTION METHODS

> From customer feedback surveys

➤ Go through service logs and records

Referring to customer relationship management system.

> Interviews with employees.

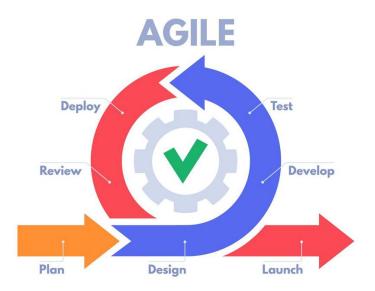
➤ Referring to other service stations' websites.

> Giving questionnaires to employees and selected groups of customers.

11

2.3 SOFTWARE PROCESS MODEL

Agile methodology is used to develop this software where different requirements are identified at first, analyze the requirements then design the software using various tools and techniques and using the development language the software is developed we are planning to do 4 sprint circles to complete the system.



2.4 SOFTWARE DEVELOPMENT TOOLS

IDE

- Visual Studio Code
- Visual Studio

LANGUAGES AND FRAMEWORKS

- > React
- > Tailwind Css
- C# .net

DBMS

- > Firebase
- > SQL Server

2.5 TESTING STRATEGIES

To ensure the successful implementation of our proposed solutions and maintain high service quality, Sasik Service Station will use the following testing strategies:

• Unit Testing

- Test individual components to ensure they function correctly.
- Developers will test each function or module separately.

• Integration Testing

- Ensure different components work together seamlessly.
- Test interactions between integrated modules, such as the CRM and appointment scheduling systems.

• System Testing

- Validate the complete system to ensure it meets all requirements.
- Test the entire system in a real-world environment, including the website,
 inventory management, and vehicle tracking systems.

• User Acceptance Testing (UAT)

- Ensure the system meets end-user needs.
- Have selected staff and customers perform tasks using the new systems and provide feedback.

Performance Testing

- Assess system performance under load.
- Simulate high usage to test response times and stability.

Usability Testing

- Ensure the system is user-friendly.
- Observe users interacting with the system and collect feedback to improve usability.

These testing strategies will help Sasik Service Station implement robust, secure, and user-friendly systems that enhance operational efficiency and customer satisfaction.

2.6 IMPLEMENTATION PLAN

Phase 01: Planning and Preparation

- Form Project Team: Assemble a team with internal and external experts.
- Requirement Analysis: Gather detailed requirements from stakeholders.
- Set Budget and Timeline: Estimate costs and set deadlines.

Phase 02: Design

 Website and System Design: - Create design prototypes for the PC (React, Tailwind Css, C# .net).

Phase 03: Development

- Website Development: Develop the website using React for PC.
- Software Development: Develop the standalone application using C# .net.

Phase 04: Testing

- Functional Testing: Test all features of the website, customer card system, and online appointment system to ensure they work correctly.
- Usability Testing: Ensure the website and systems are user-friendly and intuitive.
- Compatibility Testing: Verify that the website works across different devices and browsers.

Phase 05: Deployment

- Launch Website: Deploy the website for both PC and mobile versions.
- Launch Online Appointment System: Go live with the online booking system.

Phase 06: Training and Support

• Train Staff: - Provide training on the new systems and website features.

Phase 07: Monitoring and Improvement

- Monitor Performance: Continuously monitor the performance of the website, card system, and appointment system.
- Gather Feedback: Collect feedback from users to identify any issues or areas for improvement.
- Implement Updates: Regularly update and improve the systems based on feedback and performance data.

By following this simplified plan, Sasik Service Station will effectively implement new technologies to enhance operational efficiency and improve customer experience.

2.7 CHAPTER SUMMARY

This chapter has outlined Sasik Service Station's systematic approach and methodologies aimed at enhancing operational efficiency and improving customer satisfaction. Established in 2001 and located in Bambaragammana, Wariyapola, Sasik Service Station has built a strong reputation for reliability and quality in automotive care. The chapter details the frameworks, tools, and procedures utilized for implementing digital transformations, streamlining operations, and optimizing service delivery. Key methodologies include data collection through customer feedback surveys, service logs, and CRM systems, supported by agile software development using React and Flutter frameworks. Testing strategies such as unit, integration, system, user acceptance, performance, and usability testing ensure robust implementation of new systems. The implementation plan encompasses phases from planning and design to deployment, training, and ongoing monitoring to continuously improve service quality and maintain competitiveness in the automotive service industry.

CHAPTER 03: ANALYSIS

3.1 INTRODUCTION

This chapter provides a comprehensive analysis of the current operational framework, service delivery standards, and customer satisfaction levels at Sasik Service Station. Through a structured examination of key performance indicators, customer feedback, and industry benchmarks, this analysis aims to identify areas for improvement and opportunities for innovation. By evaluating existing processes, technologies, and service quality, we aim to gain insights that will guide strategic decisions and foster

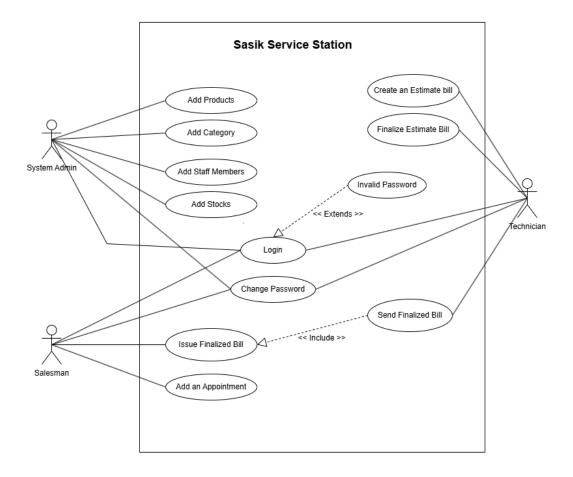
enhanced efficiency and customer satisfaction.

The insights gained from this analysis will serve as the foundation for implementing solutions that align with the station's objectives for growth and excellence.

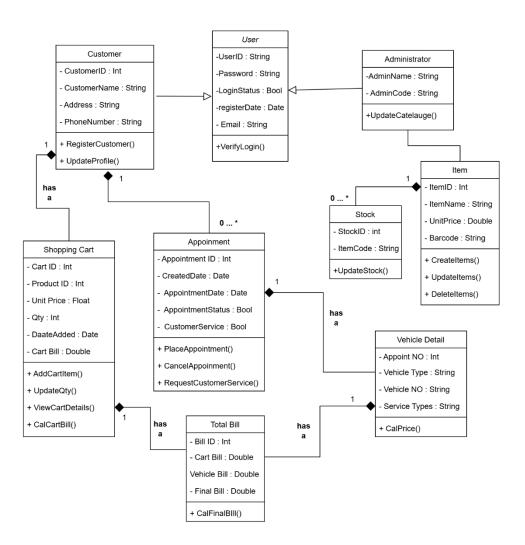
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3.2 UML Diagram

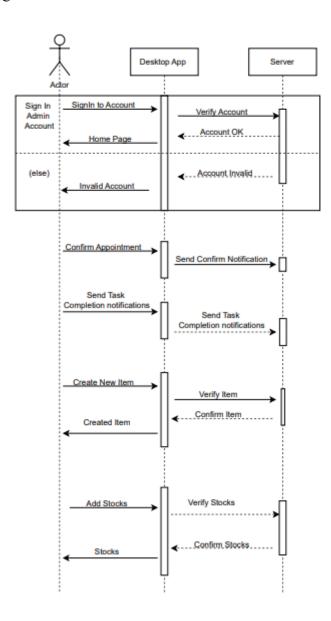
i Use Case Diagram



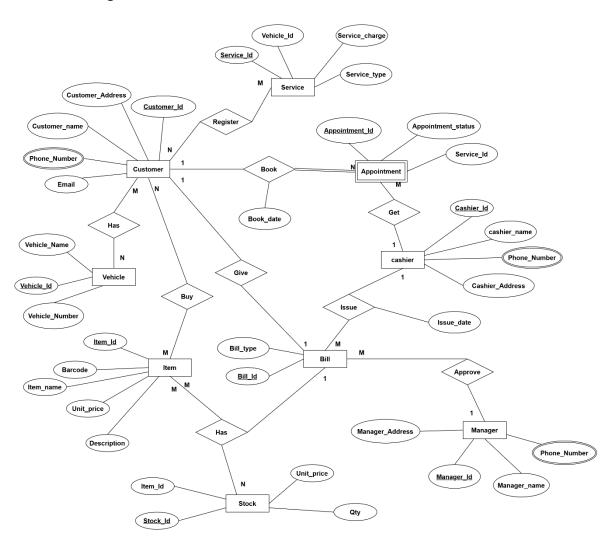
ii Class Diagram



iii Sequence Diagrams



3.3 ER Diagram



3.4 Chapter Summery

This chapter provides an in-depth evaluation of the current operations at Sasik Service Station, focusing on its service delivery standards and customer satisfaction levels. By analyzing key performance indicators, customer feedback, and industry benchmarks, the chapter identifies strengths, areas for improvement, and innovation opportunities. Additionally, it reviews existing processes, technologies, and service quality to gain actionable insights. These findings will form the basis for strategic decisions aimed at improving efficiency, fostering customer satisfaction, and driving the station's growth and excellence.

CHAPTER 04: SOLUTION DESIGN

4.1 INTRODUCTION

This chapter presents the proposed solutions designed to address the challenges identified in the analysis phase and enhance the overall operational efficiency and customer satisfaction at Sasik Service Station. By leveraging the insights gained from evaluating the existing framework, this chapter outlines innovative strategies, advanced technologies, and optimized processes tailored to meet the organization's goals.

The solution design focuses on implementing practical and sustainable improvements in key areas such as service delivery, customer engagement, and operational workflows. Each proposed solution is developed to align with industry best practices, ensuring that Sasik Service Station maintains its competitive edge while fostering long-term growth and excellence.

4.2 INTERFACE DESIGN

i Software

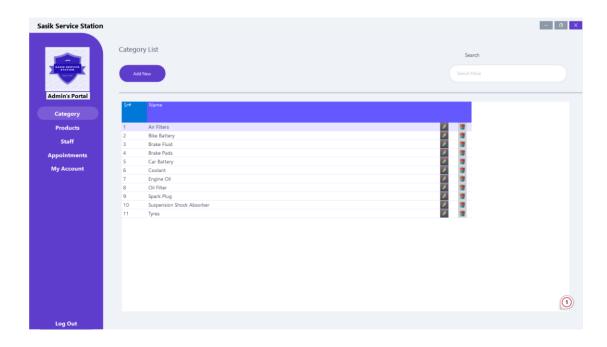
a) Admin Dashboard

The Sasik Car Care System dashboard is a comprehensive management tool for car service stations, tracking income, and performance. It features modules for managing products, customers, and POS operations, ensuring efficient workflows and service delivery.



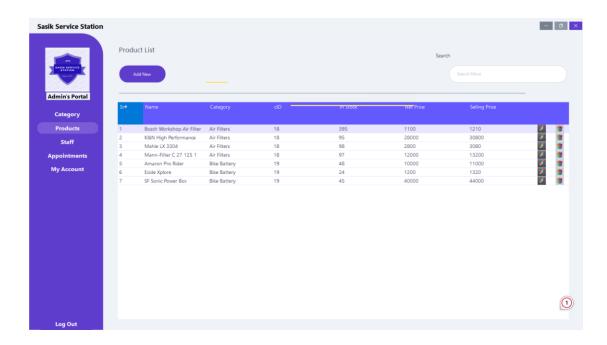
✓ Category Panel

The Category Panel organizes and categorizes various service offerings and products available at the service station. It enables administrators to create, modify, and manage different service types (e.g., oil changes, full service, body repairs) and product categories (e.g., engine oils, spare parts, cleaning supplies). This ensures a well-structured inventory, making it easier to track and manage service-related items.



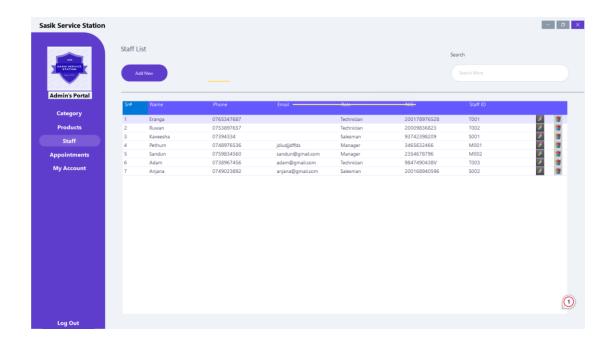
✓ Products Panel

The Products Panel allows for the management of all inventory items, including spare parts, lubricants, and car care products. It provides real-time tracking of stock levels, pricing, supplier details, and restocking alerts. This panel integrates with the POS system, ensuring seamless product sales and availability tracking, reducing stock shortages, and optimizing inventory management.



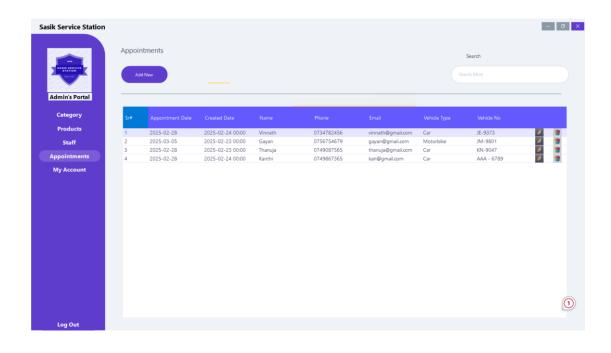
✓ Staff Panel

The Staff Panel provides an overview of all employees working at the service station. It includes details such as staff roles, working schedules, assigned tasks, and performance tracking. Managers can efficiently add, edit, or remove staff members, assign responsibilities, and monitor productivity. This panel ensures smooth workforce management, contributing to improved service quality and efficiency.



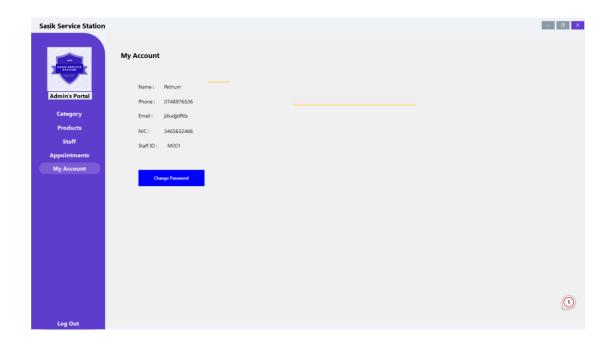
✓ Appointments Panel

The **Appointment Panel** is a user-friendly interface that displays scheduled appointments with details such as date, time, customer name, and status. It allows users to filter, search, and sort appointments for easy management. Clicking on an appointment provides more details, and admins can update statuses in real-time. The panel helps streamline scheduling, improve organization, and enhance customer service.

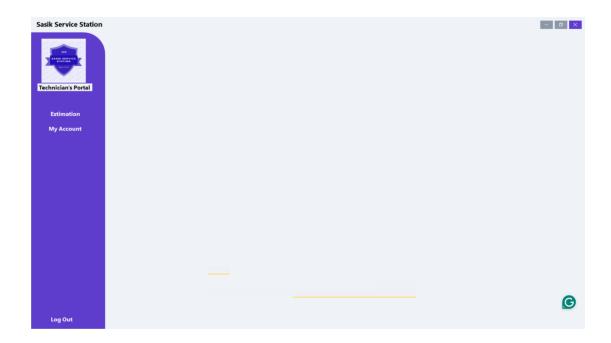


✓ My Account

The **My Account** panel allows users to view and manage their personal details, including name, email, and contact information. It also provides an option to update the password securely. Users can review their account information, make necessary changes, and ensure their credentials remain up to date for a smooth and secure experience.

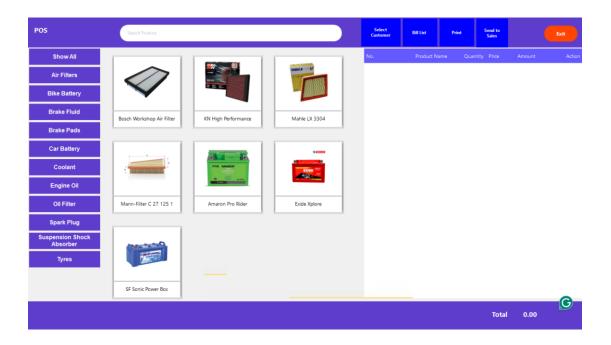


b) Technician Dashboard



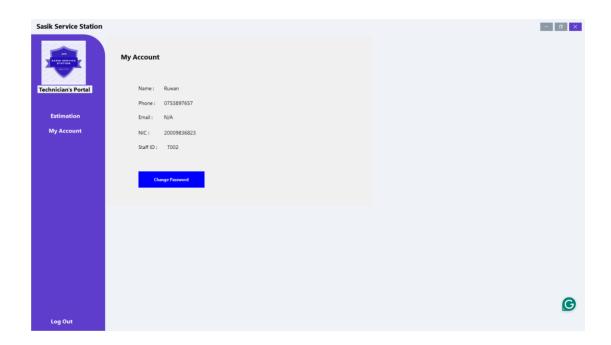
✓ Estimation POS

The **Estimation POS** is a system used to generate cost estimates for customers before finalizing a bill. It allows salespersons to add products or services, calculate the estimated total, and review it with the customer. Once confirmed, the finalized bill is sent to the salesman for processing. This ensures transparency, accurate pricing, and a smooth transaction process.

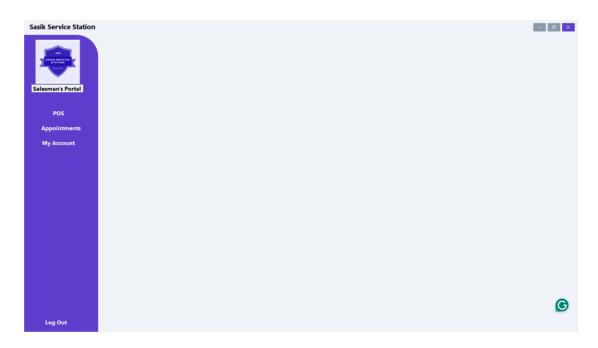


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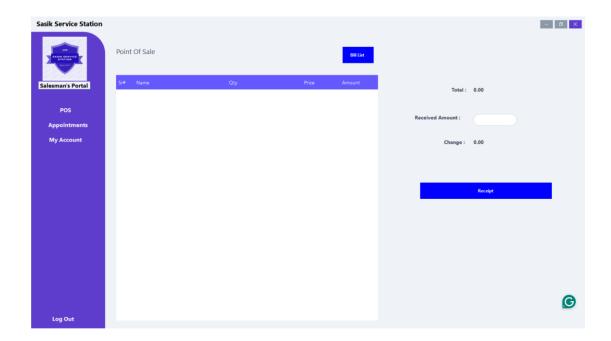


c) Salesman Dashboard



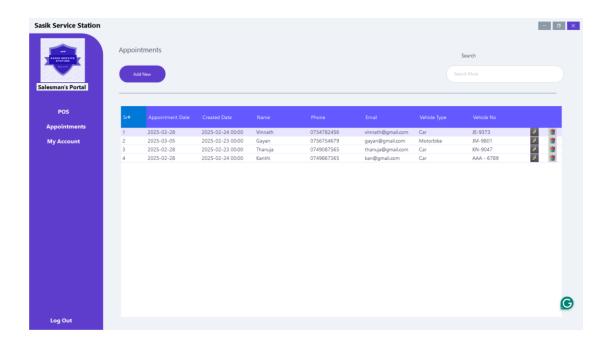
✓ POS

The **POS** (**Point of Sale**) **System** is used to process transactions based on the finalized bill. It ensures accurate billing by applying the confirmed prices and services, allowing customers to complete their payments seamlessly. The system records the transaction, updates inventory if needed, and generates receipts, ensuring a smooth and efficient checkout process.



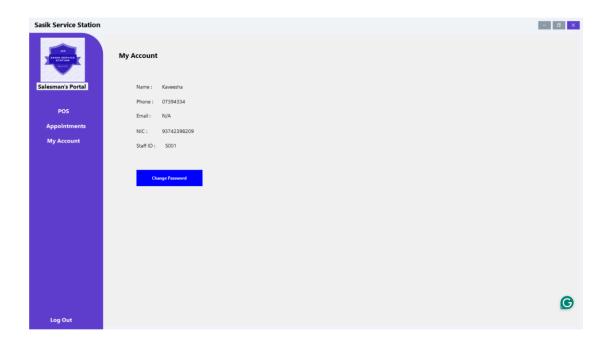
✓ Appointments

The **Appointment** system is used to create and manage new user appointments. It allows users to schedule services by selecting a date, time, and service type. The system ensures proper booking, sends confirmations, and helps businesses efficiently organize their appointments.



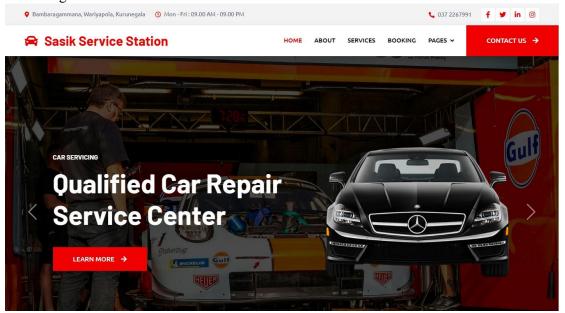
✓ My Account

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ii Website

Home Page





Quality Servicing

High-standard, efficient vehicle maintenance ensuring reliability and customer satisfaction.

Read More



Expert Workers

Skilled professionals expertly handle diverse vehicle issues with precision.

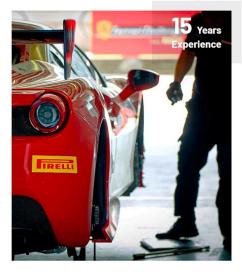
Read More



Modern Equipment

Advanced tools enable efficient, accurate vehicle diagnostics and repairs.

Read More



ABOUT US

Sasik Service Station Is The Best Place For Your Auto Care

Sasik Service Station is your go-to destination for top-quality auto care. We are dedicated to ensuring your vehicle receives the best service with our team of skilled professionals, high standards, and award-winning expertise.

Professional & Expert

Our skilled professionals provide top-notch car maintenance with care and precision.

Quality Servicing Center

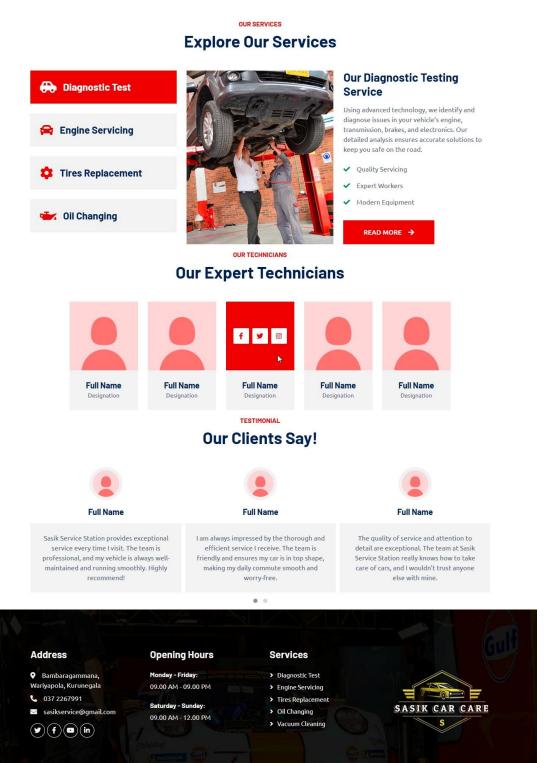
We ensure quality with top tools, products, and exceptional techniques.

Awards Winning Workers

Our award-winning staff delivers outstanding, recognized, and excellent auto care service.

READ MORE →



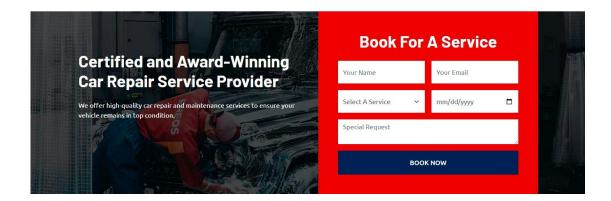


The Sasik Car Care website provides detailed information about car repair and maintenance services. Users can explore services like diagnostics, engine servicing, tire replacement, and oil changes, as well as book appointments. It aims to build trust and ensure customer satisfaction by highlighting quality, reliability, and modern solutions for auto care needs.

Home Cookies Help FAQs

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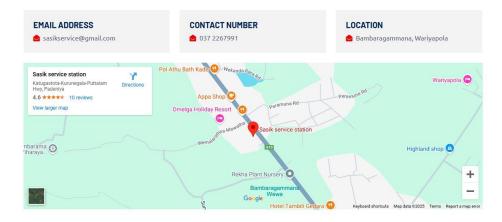
Booking Page



The Sasik Car Care Booking System provides a convenient and efficient way for customers to schedule car repair and maintenance services online. Customers can fill out their details, select the type of service they require, and specify their preferred date. Additionally, they can include special requests, ensuring a tailored experience. With a user-friendly interface, the system aims to simplify service appointments while maintaining high-quality and reliable service standards.

Contact Page

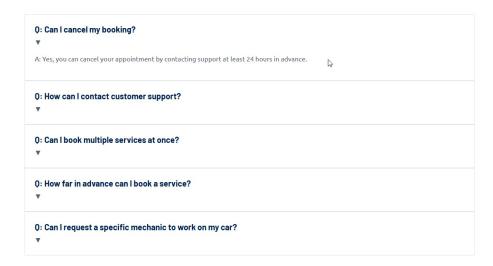
Contact For Any Query



The Sasik Car Care Contact Page provides our email, phone number, and location map for easy access. Reach out for any queries or visit us at Bambaragammana, Wariyapola. We're here to assist with your vehicle needs!

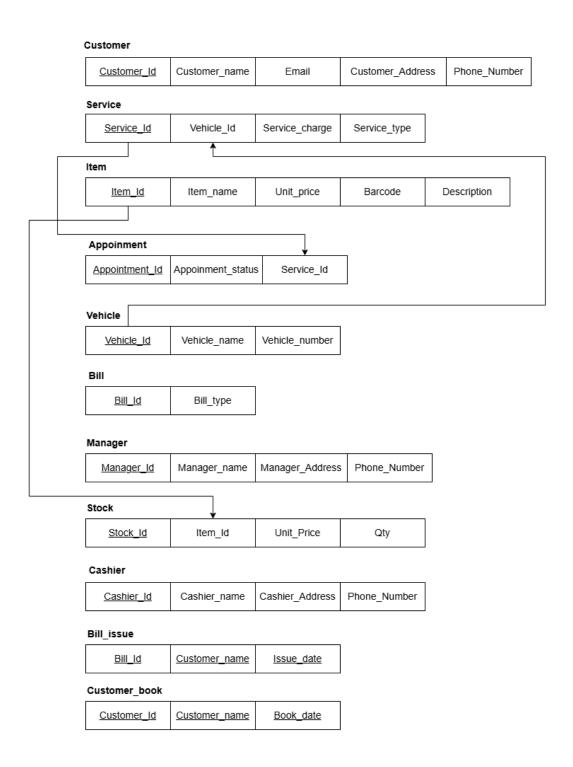
FAQ Page

Frequently Asked Questions



The **Sasik Car Care FAQ Page** provides quick answers to common questions about services, bookings, pricing, and policies, helping customers find information easily and enhance their experience.

4.3 DATABASE DESIGN



CHAPTER 05: CONCLUSION

The Sasik Service Station, a trusted automotive care provider, is undergoing a project proposal to improve operational efficiency and customer satisfaction through advanced technologies and optimized workflows.

The analysis reveals areas for improvement and innovative solutions designed to enhance Sasik Service Station's service standards, customer experiences, and industry competitiveness.

Sasik Service Station aims to become a leader in automotive service excellence through successful execution of initiatives, continuous evaluation, and innovation, ensuring sustainability, efficiency, and customer satisfaction.

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APPENDICES

Data Collection Methods

- 1. Customer Feedback Surveys
- 2. Employee Interviews and Observations
- 3. Service Performance Reports
- 4. Competitor Benchmarking Analysis

Technologies and Tools Used

- Digital Service Management Software
- Automated Booking and Scheduling System
- Customer Relationship Management (CRM) System
- Data Analytics and Reporting Tools

Implementation Timeline

Task Name	Week							
	1	2	3	4	5	6	7	8
1) Project Proposal Submission & Approval								
2) Analysis Stage								
3) Design Stage								
4)Implementation Stage								

This document provides a comprehensive approach to improving the efficiency and service quality of Sasik Service Station, ensuring long-term success and customer satisfaction.

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