

Restaurant Management System

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Abstract

This report presents the design and development of a Restaurant Management System tailored for small to medium-sized restaurants. The system includes key modules such as Staff/Admin Login, Order Management, Inventory Control, Table Booking, Payment Processing, and Online Order Handling. It streamlines restaurant operations and serves as a practical example of full-stack application development for academic and real-world use.

Contents

1	Problem Analysis and Motivation	2
2	Literature Review	2
3	Methodology	2
4	Feasibility Study	3
4.1	Economic Feasibility	3
4.2	Technical Feasibility	3
4.3	Operational Feasibility	4
5	Main Phases	4
6	Work Plan	4
7	Budget Details	5
8	References	5

1 Problem Analysis and Motivation

A ***Restaurant Management System (RMS)*** is a software tool that helps restaurants run their daily operations more smoothly. It automates tasks such as taking orders, creating bills, managing tables, tracking online orders, inventory control, and handling staff. However, in many restaurants, these tasks are still done manually, which can cause errors, slow service, and poor inventory control.

This system helps reduce manual work, lower error risk, and improve service speed and accuracy[1]. It keeps data organized, secure, and easy to access. Whether it is a small fast-food place or a large restaurant, it helps to manage orders, menus, customers, and reports more effectively[4].

2 Literature Review

Restaurant automation has increased a lot in recent years. Studies show that more than 60% of restaurants now use some type of digital system [1]. The COVID-19 pandemic also made automated and contactless solutions more popular[2].

Using a Restaurant Management System (RMS) gives several benefits:

- Orders can be processed up to 25% faster.
- Inventory tracking improves by about 30%.
- Cloud systems help manage multiple restaurant branches easily.

However, small or rural restaurants are still slower in using RMS.

3 Methodology

The system will follow a standard SDLC process including:

- Requirements gathering
- System design
- Implementation
- Testing and deployment
- Maintenance

A set of methods, practices, processes, techniques, procedures, and rules for development. Block diagram of Restaurant Management System (RMS).

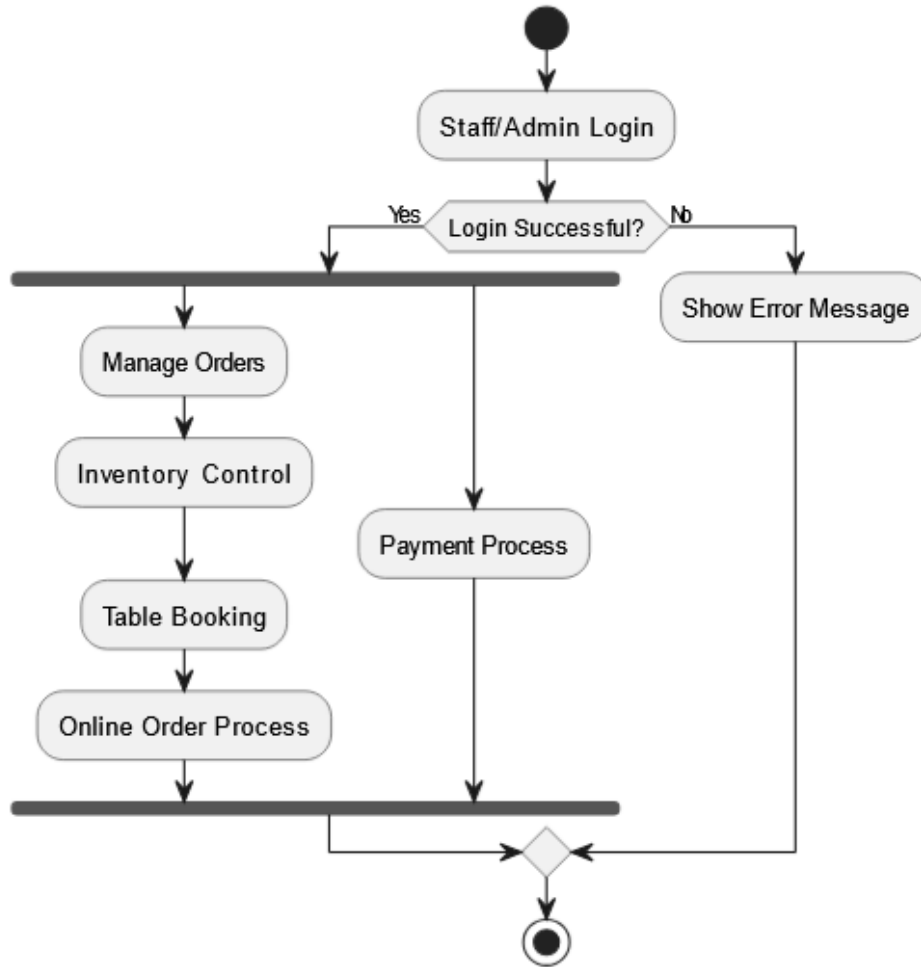


Figure 1: Block Diagram of RMS

4 Feasibility Study

4.1 Economic Feasibility

- Analyze system cost vs. benefits.
- Estimate maintenance costs.
- Identify potential revenue impact through efficiency gains.
- Assess availability of human resources.

4.2 Technical Feasibility

- Use of modern tech stack: SQL databases.
- POS or tablet support.
- Assess hardware and software availability.
- Calculate system accuracy

4.3 Operational Feasibility

- User-friendly interface for Admin and staff.
- Reduced customer waiting time.
- Better reporting and transparency is also improved in rural setups adopting RMS [2].

5 Main Phases

SL	Task	Week	Responsible Person	Phase
1	Requirement Gathering	1	Project Manager & Team	Research and Planning
2	Finalizing Requirements	1	Project Team	Analysis
3	System Design	1	Project Team	Design
4	Model Review	1	Project Team	Design
5	Development (Frontend/Backend)	2	Developers	Implementation
6	Testing	1	QA Team	Testing
7	Beta Version Deployment	1	Project Team	Testing
8	Feedback Incorporation	1	Project Team	Testing
9	Final Delivery & Documentation	1	Project Team	Deployment

Table 1: Project Task Schedule for RMS Development

6 Work Plan

PROJECT WORKING PLAN	WEEK1	WEEK2	WEEK3	WEEK4	WEEK5	WEEK6	WEEK7	WEEK8	WEEK9	WEEK10	WEEK11	WEEK12	WEEK13	WEEK14
PLANNING														
DESIGN														
CODING														
TESTING														
DELIVERY														

Figure 2: Chart of Project Timeline

7 Budget Details

Component	Estimated Cost (BD)
POS Terminals / Tablets	15,000
Software Development	30,000
Staff Training	40,000
Yearly Maintenance	50,000
Miscellaneous	5,000
Total	140,000

Table 2: Demo Budget Breakdown for RMS

8 References

References

- [1] N. A. Ma Xiao Ting, "Design and Development of Food Ordering and Management System for One Six Eight Restaurant," uthm.edu, p. 20, 2024.
- [2] A. Khan, "Challenges of Tech Integration in Rural Restaurants," *ICT Journal*, vol. 14, no. 3, pp. 45–50, Mar. 2022.
- [3] Y. Sun, N. Mazibuko and K. T. Akindeji, "Design and Implementation of a Smart Restaurant Menu Ordering System Using a WiFi Module and RFID Technology," IEEE, p. 188, 2024.

PROJECT WORKS	MIZAN	ROJONY	REDOAN
PROJECT IDEA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DOCUMENTATION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DIAGRAMS / FIGURES	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
REFERENCES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Working Plan