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Multi -User Sales Tracking And Approval System With Automated Reporting For Business Owners

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Abstract: *This review examines the concept and relevance of a Multi-User Sales Tracking and Approval System with Automated Reporting aimed at supporting small and medium-sized business owners who manage sales operations through multiple agents such as waiters and cashiers. Many business owners face difficulties in monitoring sales activities, approving transactions, and accessing accurate reports in real time, particularly when they are not physically present at their business premises. Existing manual and semi-automated sales management approaches often suffer from inefficiencies, delayed reporting, data inconsistencies, and limited transparency. The reviewed system emphasizes structured multi-level workflows that enable sales agents to record customer orders while allowing designated personnel to verify and approve transactions systematically. In addition, automated reporting mechanisms provide business owners with real time access to daily, monthly, and yearly sales summaries through centralized dashboards, thereby improving visibility and control over business performance. The integration of stock management features further supports real-time inventory tracking and automated alerts when stock levels fall below predefined thresholds. Overall, this review highlights how multi-user sales tracking systems with approval workflows and automated reporting can enhance operational efficiency, accountability, and informed decision-making. The findings suggest that such systems play a critical role in reducing errors, minimizing fraud, and improving customer satisfaction, while also offering a scalable and user-friendly solution for modern sales management in small and medium-sized enterprises.*

Keywords—component; Multi-User Sales System, Sales Tracking, Order Approval Workflow, Automated Sales Reporting, Inventory Management, Point of Sale Systems, Small and Medium Enterprises (SMEs), Business Intelligence Dashboards

1. INTRODUCTION

Effective sales management is a critical factor in ensuring the growth, sustainability, and competitiveness of modern businesses [1]. In today's highly dynamic business environment, organizations are required to manage increasing transaction volumes, diverse customer demands, and multiple sales channels efficiently [2]. Small and medium-sized enterprises (SMEs), in particular, rely heavily on frontline sales agents such as waiters, cashiers, and sales attendants to process daily customer transactions and generate revenue. These agents play a central role in recording orders, handling payments, and ensuring that sales data is accurately captured [3].

As businesses expand or operate across multiple locations, business owners are often unable to maintain physical supervision over daily sales operations at all times. Owners may be managing several branches, attending external commitments, or operating remotely. This lack of direct oversight creates significant challenges, including difficulty in tracking real-time transactions, verifying the accuracy of recorded sales, monitoring employee performance, and detecting errors or fraudulent activities [4]. In many cases, reliance on manual records or isolated point-of-sale systems further increases the risk of data inconsistencies, delayed reporting, and poor decision-making [5].

Advances in information and communication technologies have introduced new opportunities for automating sales processes and enhancing managerial control. Modern sales systems now support multi-user interaction, real-time data processing, centralized databases, and remote access through web-based platforms [6]. These technologies allow business owners to monitor sales activities as they occur, approve transactions through structured workflows, and access summarized sales information without being physically present at the business location. Such systems are increasingly important for improving transparency, accountability, and operational efficiency within organizations.

A Multi-User Sales Tracking and Approval System with Automated Reporting directly responds to these emerging needs. By enabling multiple sales agents to record customer orders while allowing authorized personnel to approve transactions through clear, multi-level workflows, the system enhances control over the entire sales process. In addition, automated reporting features provide business owners with timely daily, monthly, and yearly sales summaries through a centralized dashboard, performance evaluation, and overall business effectiveness. Consequently, such systems represent an important technological solution for addressing sales management.

1.1 BACKGROUND OF THE STUDY

Historically, many small and medium-sized enterprises (SMEs) have depended heavily on manual approaches to manage their daily sales operations [7]. These traditional methods include the use of paper receipts, handwritten order books, basic cash registers, and physical ledgers where sales transactions are recorded by hand [8]. In slightly more advanced but still limited cases, some small businesses have adopted simple standalone point of sale (POS) systems. However, these basic POS systems are often designed to perform only one primary function: recording transactions. They typically lack advanced management features such as sales analytics, inventory tracking, employee performance monitoring, approval workflows, or real-time reporting capabilities [9].

For very small businesses that process only a few transactions per day, these manual or semi-automated approaches may appear sufficient. A small kiosk, a roadside food stall, or a single-person shop might manage well with a notebook and a calculator. However, as a business begins to grow and attract more customers, the limitations of manual systems become increasingly visible. When transaction volumes rise, the time required to record each sale manually increases, the likelihood of making errors multiplies, and the difficulty of searching for past records grows significantly [10]. What was once a simple and low-cost method gradually turns into a source of inefficiency, unreliability, and frustration for business owners and their employees.

One of the most serious problems associated with traditional sales management methods is data inconsistency [11]. Handwritten records, by their very nature, are vulnerable to several types of failure. A cashier may miswrite a number, a waiter might forget to record an order, or a salesperson could intentionally alter a figure to hide a mistake or commit fraud. Paper records can also be physically lost, damaged by water or fire, or accidentally thrown away. Even when basic POS systems are used, they may not enforce strict workflows or verification procedures [12]. For example, a cashier using a simple POS machine might be able to delete a transaction without leaving any trace, or modify the price of an item without requiring manager approval. These weaknesses create room for discrepancies between what was actually sold and what appears in the records.

When discrepancies occur repeatedly, business owners begin to lose trust in the data available to them [13]. If the sales report shows one amount but the cash in the drawer does not match, the owner faces a difficult question: is the problem caused by an honest mistake, a technical error, or deliberate theft? Without a reliable system that tracks every action and enforces checks and balances, answering this question becomes nearly impossible. Over time, this lack of trust can lead owners to spend excessive time manually verifying records, conducting random checks, or simply accepting losses as unavoidable. None of these outcomes is good for the long-term health of a business.

Another major drawback of manual and semi-automated sales management is the amount of time required to prepare reports [14]. In a typical small business using manual methods, preparing a daily sales summary might involve collecting paper receipts from multiple employees, adding figures by hand or using a basic calculator, and then writing the totals into a notebook or a simple spreadsheet. For a monthly summary, the process becomes even more labor-intensive, as the owner or an employee must go through days or weeks of records and combine them [15]. A yearly summary can take several days to complete, assuming all records are available and legible. As a result of this slow process, critical sales information often reaches the business owner late. A daily report might be ready only at the end of the next day, a monthly report might be completed a week after the month ends, and a yearly report could be delayed by weeks or even months. By the time the owner sees the numbers, the opportunity to act on them has often passed. This delayed access to information severely limits the usefulness of sales data for decision-making and strategic planning [16]. An owner cannot fix a problem that happened two weeks ago if they only discover it today.

These challenges become even more intense in business environments where multiple sales agents are involved in processing customer orders [17]. Consider a busy restaurant with several waiters, a café with multiple cashiers, or a retail store with many sales attendants. In such settings, sales activities are distributed across many individuals. One waiter takes an order from a table, another waiter delivers the food, and a cashier processes the payment. This distribution of tasks, while necessary for efficiency, also increases the risk of errors, duplication, or unauthorized transactions [18]. For example, two different waiters might accidentally record the same order twice. A cashier might process a payment but forget to link it to the correct order.

1.2 STATEMENT OF THE PROBLEM

Many small and medium-sized enterprises (SMEs) struggle to manage sales activities involving multiple agents such as waiters and cashiers. Most businesses lack systems that provide real-time visibility, transaction verification, and structured approval workflows. Consequently, sales processes suffer from poor coordination, missing or duplicate records, and inconsistencies between recorded sales and actual revenue.

The problem intensifies when business owners are not physically present at their premises. Without remote access to real-time sales data, owners rely on delayed or inaccurate reports, making it difficult to trace transaction responsibility, enforce accountability, or detect fraud early. These challenges lead to revenue losses, poor stock management, weak internal controls, and delayed decision-making on pricing, inventory, and staff performance.

1.3 OBJECTIVES

1.3.1 Main Objective

To examine and support the development of a Multi-User Sales Tracking and Approval System with Automated Reporting that enables business owners to monitor sales activities and approvals from multiple sales agents remotely in real time.

1.3.2 Specific Objectives

1. To design a system that allows sales agents, including waiters and cashiers, to record and approve customer orders through clear workflows and multi-level approval mechanisms.
2. To implement automated sales reporting that generates daily, monthly, and yearly summaries accessible to business owners through a real-time dashboard.
3. To integrate stock management features that track product availability and notify responsible personnel when inventory levels are low.

2.0 RELATED WORKS

The landscape of sales management systems has undergone considerable evolution driven by growing transaction volumes, the need for competitive advantage, and the demand for real-time business intelligence [19]. As businesses scale and diversify their sales channels, the complexity of managing multiple users such as waiters, cashiers, and supervisors has increased substantially [20]. Researchers have explored various technological approaches and methodologies aimed at enhancing sales tracking, approval workflows, automated reporting, and inventory control. This literature review synthesizes and critically evaluates relevant studies aligned with the core objectives of this research: multi-user order processing, automated sales reporting, and integrated stock management within sales systems.

2.1 Multi-User Order Recording and Approval Workflows.

A critical body of research highlights the necessity of well-structured workflows in multi-user sales environments to reduce transactional errors and enhance accountability [21]. Studies examining point-of-sale (POS) systems emphasize that clearly defined roles and multi-level approval mechanisms contribute significantly to data integrity and fraud prevention [22]. For example, workflows that require sequential approval from waiters to cashiers and finally to managers create layers of verification that increase transparency and deter manipulation.

In addition, visibility of order status among different user roles has been shown to improve operational coordination and reduce communication bottlenecks [23]. Systems that implement agile, holistic POS models provide real-time updates on order progression, which not only streamlines the sales process but also boosts staff performance by clarifying responsibilities and timelines. Despite these advances, research also identifies challenges in implementing these workflows effectively, particularly regarding user training and system adaptability to diverse business contexts [24].

2.2 Automated Sales Reporting and Real-Time Dashboards

Automated sales reporting has emerged as an indispensable feature of contemporary sales management systems [25]. Empirical studies in retail analytics confirm that real-time dashboards empower business owners with immediate access to sales data summarized over daily, monthly, and yearly intervals. This facilitates continuous monitoring without the need for physical presence, which is particularly valuable for owners managing multiple outlets or operating remotely.

The automation of report generation not only reduces the administrative burden but also enhances accuracy by minimizing human input errors [26]. Additionally, the availability of intuitive visualizations such as graphs and trend analyses enables more effective forecasting, strategic decision-making, and resource allocation. However, literature also underscores limitations including the need for customizable reporting tools that align with unique business requirements and the challenge of integrating these dashboards seamlessly with other enterprise systems [27].

2.3 Integrated Stock Management and Alert Mechanisms

Inventory control is intrinsically linked to sales performance and customer satisfaction [28]. Research into integrated POS and inventory management systems demonstrates that real-time stock tracking mechanisms are vital in preventing stockouts and overstock scenarios, which can respectively lead to lost sales or increased holding costs. Automated alert systems that notify designated personnel when stock reaches predefined thresholds have proven effective in promoting timely restocking and ensuring uninterrupted business operations [29].

Furthermore, the synchronization of sales and inventory data within a unified platform enhances coordination between sales activities and supply chain management. This integration supports data-driven decisions that optimize inventory levels and reduce financial losses due to poor stock planning [30]. Nevertheless, studies reveal ongoing challenges in maintaining data accuracy across multiple sales points and adapting alert thresholds dynamically in response to fluctuating market demands.

2.4 Multi-User Access Control and Role-Based Permissions

Effective management of sales systems involving multiple users requires robust access control mechanisms that define what each user role can see, create, modify, or delete [31]. Research in information systems security highlights that Role-Based Access Control (RBAC) is particularly suitable for multi-user business environments such as restaurants, retail stores, and hotels where waiters, cashiers, supervisors, and business owners have different levels of responsibility. Studies confirm that RBAC reduces the risk of unauthorized transactions, data tampering, and fraud by ensuring that each user only has access to the functions necessary for their job [32].

For example, a waiter may be permitted only to create orders but not to approve discounts or delete transactions. A cashier may process payments but cannot modify past sales records. A supervisor may review and approve returns or price adjustments, while the business owner has full visibility and override privileges. Research further indicates that implementing RBAC in sales systems improves audit trails, making it easier to trace which user performed which action and when. This traceability strengthens accountability and supports internal control policies.

However, literature also points out challenges associated with RBAC implementation in small and medium-sized enterprises (SMEs). These include the initial complexity of setting up roles and permissions, resistance from employees who may perceive reduced flexibility, and the need for regular reviews to ensure that role definitions remain aligned with changing business processes. Despite these challenges, studies conclude that RBAC remains a critical component for any multi-user sales system aiming to balance security, usability, and operational efficiency.

2.5 Remote Monitoring and Cloud-Based Sales Access

The ability for business owners to monitor sales activities remotely has become increasingly important as many SMEs operate multiple branches or are frequently away from their physical premises [33]. Research on cloud-based business systems demonstrates that storing sales data on remote servers rather than local machines enables real-time access from any location using internet-connected devices such as smartphones, tablets, or laptops. Studies show that cloud-based sales tracking systems significantly reduce the dependency on physical presence, allowing owners to view daily summaries, transaction histories, and employee performance metrics without being on site [34].

Furthermore, cloud architecture facilitates automatic data backups, reducing the risk of data loss due to hardware failure, theft, or disasters. Research also highlights that cloud-based systems can be more cost-effective for SMEs because they eliminate the need for expensive on-premise servers and reduce information technology maintenance costs. In addition, these systems can easily scale as the business grows, accommodating additional users, branches, or transaction volumes without major infrastructure changes.

Nevertheless, literature identifies several challenges associated with cloud-based remote monitoring. These include concerns about data security and privacy, particularly when sensitive sales information is transmitted over the internet. Studies also note that reliable internet connectivity remains a barrier in some regions, potentially limiting real-time access for owners in areas with poor network coverage. Additionally, research emphasizes the importance of user-friendly mobile interfaces, as many business owners prefer to check sales data using smartphones rather than desktop computers. Despite these limitations, the consensus in recent literature is that cloud-based remote access is no longer an optional feature but a necessary component of modern sales management systems for SMEs.

3.0 OBSERVATIONS

From a synthesis of existing studies and initial data collection on multi-user sales tracking and approval systems, several critical observations emerge that highlight key challenges and opportunities for system design and implementation [35]:

Fragmented System Components and Integration Challenges

Most current sales management solutions operate in isolated silos order entry, approval workflows, reporting modules, and stock management are often developed and deployed as separate features or standalone applications. There is limited evidence of fully integrated platforms where these functions communicate seamlessly and provide a unified user experience [36]. This fragmentation reduces operational efficiency and complicates managerial oversight, as business owners may have to access multiple systems or interfaces to monitor the entire sales cycle.

Real-Time Data Access and Connectivity Constraints

While many systems promise realtime reporting, practical implementation is often hindered by connectivity issues, especially in small to medium enterprises located in areas with unreliable internet access. Few studies address strategies for offline-first or low-bandwidth operation modes, which are essential for ensuring continuous usability [37]. Systems lacking resilient synchronization methods between offline and online modes risk data loss, delays in approvals, and outdated reports.

User Role Coordination and Workflow Complexity

The interaction between multiple sales agents such as waiters and cashiers introduces complexity in workflow design. Without clear multi-level approval processes and role-based access control, there is a higher risk of errors, duplicate entries, and fraudulent transactions [38]. Coordinating these roles efficiently demands well-defined user interfaces that reflect the hierarchical sales process and facilitate seamless communication and order handoffs.

Limited Customization and Scalability in Existing Solutions

Many off-the-shelf sales tracking tools offer limited customization to adapt to specific business needs or scale with growing transaction volumes and user counts. Systems designed without scalability considerations may perform well in pilot phases but fail under increased load or diverse user roles, leading to slow response times and system crashes.

Need for Enhanced Reporting and Analytics Capabilities

Basic reporting features are common, but advanced analytics that provide actionable insights such as sales trends by employee, peak sales periods, stock turnover rates, and approval bottlenecks are rarely integrated [39]. Enhanced data visualization and predictive analytics can empower business owners to make proactive decisions but remain underutilized in many systems.

Security and Data Privacy Concerns

Sales data is sensitive business information. Few systems adequately address comprehensive security measures, including encryption, user authentication, and access control tailored to different roles [40]. Ensuring data privacy and regulatory compliance is an ongoing challenge that must be embedded into system design

4.0 CONCLUSION

This review underscores the increasing significance of multi-user sales tracking and approval systems equipped with automated reporting, particularly for small and medium-sized enterprises. The existing literature reveals that implementing structured workflows, real-time sales monitoring, and integrated stock management collectively contributes to enhanced operational transparency, accountability, and efficiency. By unifying these components into a single comprehensive platform, business owners are empowered with greater control over sales processes, improved accuracy in reporting, and the ability to make timely, informed decisions that address operational challenges effectively.

However, despite these advances, challenges remain in achieving seamless integration, scalability, and adaptive functionality that meet the evolving needs of dynamic business environments. Future research should focus on incorporating advanced analytics, mobile-first technologies, and interoperability with external systems to broaden the capabilities and resilience of sales management platforms. Addressing these areas will be critical in delivering scalable, user-centric solutions that drive sustained business growth and competitivenestables after they are cited in the text

5.0 RECOMMENDATIONS AND FUTURE WORKS

5.1 For the Research Community:

Develop Comprehensive Integration Frameworks: Future studies should emphasize the design and publication of detailed system architectures, API specifications, and data interoperability models to enable seamless integration of multi-user sales tracking components. Research into middleware or orchestration engines that facilitate dynamic communication between different system modules will enhance platform cohesion and flexibility. Advance Lightweight On-Device Intelligence: There is a pressing need to develop efficient, resource-conscious machine learning and AI models that can perform critical sales and inventory tasks directly on user devices. Techniques such as model compression and edge computing should be explored to reduce reliance on constant network connectivity, thereby improving system responsiveness and resilience.

Create Localized and Contextual Data Resources: Building and openly sharing high quality, region-specific datasets related to sales behaviors, product categories, and user interaction patterns will improve the accuracy and relevance of AI-driven features. This localized approach supports the development of customized models that better reflect the unique business environments of small and medium enterprises.

Conduct Long-Term Impact Evaluations: Researchers should design longitudinal studies to assess the socio-economic and operational impacts of multi-user sales tracking and approval systems. Beyond technical performance and usability, these studies should investigate effects on revenue growth, employee accountability, customer satisfaction, and overall business sustainability.

5.2 For Practitioners and Policymakers

Adopt Open and Modular Standards: It is crucial to promote the use of open APIs and interoperable data standards in developing sales tracking and approval systems. Such an approach facilitates a flexible ecosystem where various best-in-class components whether mapping services, inventory databases, or AI modules can be integrated seamlessly. This reduces dependency on single vendors and encourages innovation at the local level. Invest in Digital Public Infrastructure: Governments and industry stakeholders should prioritize funding for the creation and upkeep of open-access digital resources. These include authoritative geospatial data of business locations, verified product and pricing databases, and cultural or operational information repositories. Public digital infrastructure acts as a foundational asset that lowers barriers for developers and accelerates technology adoption.

Encourage Inclusive Co-Design: Effective system development must involve key local stakeholders such as business owners, frontline staff, and industry experts from the outset. Their participation ensures that solutions reflect real operational needs, respect cultural contexts, and foster a sense of ownership that enhances user acceptance and sustainability.

Support Complementary Infrastructure Expansion: While resilient software design can mitigate some connectivity challenges, ongoing public and private investments in expanding reliable, affordable broadband and mobile network coverage in key commercial areas remain essential. This infrastructure underpins all digital innovations and enables seamless, real-time sales tracking and reporting.

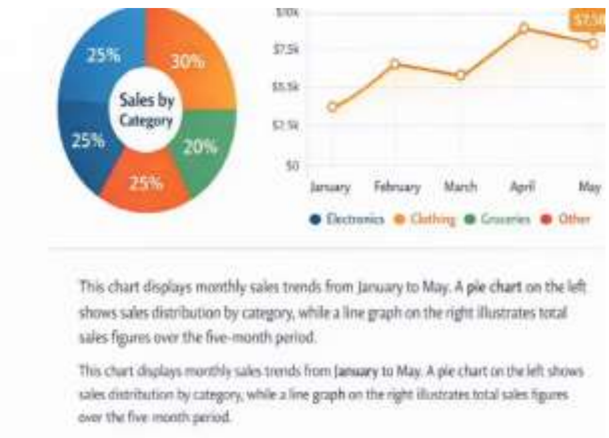

Fig 1:Monthly Sales Performance with Multi-Category Distribution and Trends Analysis

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