

## Smart Billing Software

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### Abstract

The set of solutions offered by the Business Operation Support System revolves around Smart Billing Software. Because billing is the nerve centre of the company, it oversees all the important data, including product catalogues, customers, rates, taxes, financial accounting, invoices, payments, debit and credit notes, dual ledgers, support for multiple currencies, and more. You can manage any business operation involving metered charges, recurring charges, event-based charges, and ad-hoc charges with the help of Smart Billing Software's engine, which offers unparalleled flexibility in setting up any kind of product, product packages, user-defined rating structures, tax rules, and more. With Smart Billing Software, any service model and offering can be easily integrated into a single platform. It is compatible with both pre-paid and post-paid payment systems. Due to its open API foundation, Smart Billing Software is highly compatible with other BOSS products, allowing for the construction of comprehensive solutions. Smart Billing is a pre-integrated component of Xsinfosol Solutions and is one of the BOSS solutions offered by Xsinfosol.

**Keywords:** Smart Billing, Business Operation System, Dual Ledger, Financial Accounting.

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## **Introduction**

Smart billing software automates repetitive tasks involved in the billing process such as invoice generation, payment reminders and reconciliation. It reduces manual effort, minimizes errors and speeds up the overall billing cycle [1]. It also supports complex billing scenarios such as subscriptions, usage-based billing, or tiered pricing models. Smart billing software provides reporting and analytics features that offer businesses valuable insights into their billing operations [2]. It enables personalized communication with customers and facilitates efficient customer support. Smart billing software prioritizes data security and compliance with industry regulations. It incorporates robust security measures like data encryption, secure user authentication and regular backups [3]. It may also comply with data protection laws such as GDPR to safeguard customer data. Smart billing software is designed to scale with the growth of businesses. It can handle increasing invoice volumes, expanding customer bases and changing billing requirements without compromising performance or efficiency.

## **Mission of the Company**

To be a pioneer in the textile manufacturing sector by producing quality products at low cost. To ensure the highest level of customer satisfaction. To be at peace with nature by creating and promoting the environmental awareness.

System study refers to the process of analyzing and understanding an existing system or process in an organization [4]. It involves studying the components, functions, interactions and limitations of the system to identify areas for improvement, optimize efficiency and address any issues or challenges.

- **System Identification**

It Clearly defines the boundaries and scope of the system under study. Identify the inputs, processes, outputs and feedback mechanisms within the system.

- **Gather Information**

Collect relevant data and information about the system through various methods such as interviews, observations, surveys and document reviews. Engage with stakeholders and system users to understand their perspectives and requirements.

- **System Analysis**

Analyse the collected information to identify the strengths, weaknesses, opportunities and threats associated with the system. Identify bottlenecks, inefficiencies and areas for improvement.

- **Process Mapping**

Map out the existing processes, workflows, and interactions within the system. This helps in visualizing the flow of information, resources, activities and identifies areas where process optimizations or automation can be implemented.

- **Requirements Analysis**

Identify and document the functional and non-functional requirements of the system. Understand the desired outcomes, user expectations, performance benchmarks and compliance requirements.

- **Recommendations and Solutions**

Based on the findings of the system study, propose recommendations and solutions to address the identified issues and improve the system's overall performance. These may include process redesign, technology upgrades, training programs, organizational changes, or policy revisions.

- **Documentation**

Document the findings, analysis, recommendations and proposed solutions in a comprehensive system study report. The report should include clear and actionable insights that can guide stakeholders in implementing the proposed changes.

- **Implementation and Evaluation**

Collaborate with stakeholders to implement the recommended changes and monitor their effectiveness [5]. Evaluate the impact of the implemented changes on the system's performance and make any necessary adjustments.

## **Literature Review**

Rao et al [6] proposed the Smart Trolley has an IOT module, an LCD, and a barcode scanner. Every item that is placed in the cart is scanned, displaying the cost and total value of the item. The final check-out bill will include the entire amount. The bill is transferred via an IOT module and kept in the microcontroller's memory for use in an Android application for counter check-up. The IOT module is used to send the buyer the purchase data as soon as the transaction is complete. Using an Android web application, an IOT transmitter on the trolley and an IOT receiver on an Android phone help provide this data to the central PC as well. The product needs to be scanned once more if the consumer wishes to remove the extra item.

Perumal et al [7] showcases an intelligent shopping cart with technology assistance that is capable of recognizing products. Using an inventive cart system that uses RFID technology to provide an intelligent approach to the billing process, the main goal of this work is to shorten wait times in crowded supermarkets and other shopping centres. The smart cart device is the main focus of the project. It is made up of an LCD display, a keypad, an Arduino microcontroller, a GSM module, and an RFID reader. The system will have the ability to produce a bill for each item added to the cart. With the suggested approach, billing lines in malls will be easier to avoid. The traditional queuing method for billing generation in the suggested design facilitates simple and pleasurable purchasing.

Rao and Kumar [8] proposed the situation will undoubtedly get worse during the holiday shopping season or if the mall continues to manually enter each item's price into the pay system. On the other hand, when customers visit a mall, they frequently have a lot on their minds. After conducting a survey, it was shown that the majority of respondents would rather exit the mall than stand in lengthy lines to make a few small purchases. In an attempt to address the issues that were previously noted, a number of technical solutions for hypermarket support have emerged recently. The goal of all of these solutions is to save customers time.

Prabhakar et al [9] designed the solution uses an Arduino UNO, an ultrasonic sensor, an RF tag, and an RF reader to solve the issue. After the trail is identified, RF tags are positioned throughout the supermarket. RF tags are affixed to the supermarket's ceiling or floor, and they are encoded with a command that allows a trolley to use an RF reader to scan the tag and determine its direction, assisting it in reaching the trolley depot. The project can be made even better in the future by adding SLAM navigation, a load cell to identify items on the trolley, and an automated charging system. Thus, the project's primary goal is to shorten effort and time by moving the trolley to its intended location.

Kutubuddin et al [10] designed the transaction and recommendation systems for the web will be centralized. At the exit, there will also be an RFID reader for anti-theft purposes. The proposed system comprises of a load cell that weighs the object attached to the shopping cart and a camera that recognizes the object using deep learning. The bill will be generated by the system when the customer scans the item in front of the cart's fixed camera. Numerous methods can be used to implement object recognition. Bounding boxes are generated by methods such as R-CNN using area suggestions, and classifiers are run across them. After that, the duplicates are eliminated by a post-processing technique. R-CNN is a slow method for recognizing objects. We apply the Young-Old-Life Theory.

## **Proposed Methodology**

Smart billing software is a type of software application designed to streamline and automate the billing and invoicing processes for businesses. It leverages advanced technologies and features to enhance efficiency, accuracy, and convenience in managing financial transactions and generating invoices. Smart billing software often allows customization of invoice templates with company logos, branding elements, and personalized messages. It may also generate alerts or notifications for specific billing events or anomalies. It employs encryption, secure data storage, user access controls, and other measures to protect sensitive financial information.

### **Advantages**

- **Automation and Time Savings**

SMART billing software automates repetitive and time-consuming tasks involved in billing processes. It streamlines invoice generation, payment tracking and report generation, reducing manual effort and saving valuable time for users. This allows businesses to process bills more efficiently and focus on other important tasks.

- **Accuracy and Error Reduction**

SMART billing software minimizes human errors by automating calculations, tax calculations and invoice generation based on predefined rules. It reduces the risk of data entry mistakes, ensuring accuracy in billing and financial records. This reduces the likelihood of disputes and improves customer satisfaction.

- **Improved Cash Flow Management**

With SMART billing software, businesses can track and manage their accounts receivable more effectively. It provides real-time visibility into payment statuses, outstanding invoices and aging reports. This helps businesses identify overdue payments, send reminders and take necessary actions to improve cash flow.

### **Risks of the Smart Billing Software**

- **Technical Issues**

There is a risk of encountering technical issues or bugs within the SMART billing software. These issues could affect the system's performance, data accuracy, or functionality. It's crucial to conduct thorough testing, quality assurance measures to identify and address any technical issues before deployment.

- **System Downtime**

If the SMART billing software experiences prolonged periods of system downtime or unavailability, it can disrupt billing operations and impact customer satisfaction. Implementing measures for system redundancy, backup and disaster recovery can help minimize the impact of potential downtime.

- **Vendor Dependence**

Depending on third-party vendors for SMART billing software can introduce risks. Issues such as vendor instability, lack of support, or discontinuation of the software can impact the software's availability and support. Conducting due diligence when selecting a reputable and reliable vendor can help mitigate these risks.

- **Scalability and Flexibility**

As businesses grow or requirements change, there may be a need to scale the SMART billing software or make customizations. If the software lacks scalability or flexibility it may become challenging to accommodate future needs, leading to limitations or the need for costly system replacements.

### **Understanding Business Requirements**

Conducting a system study helps in comprehensively understanding the specific billing requirements of the business. It involves analyzing the existing billing processes, identifying pain points, determining the desired functionalities and features that the SMART billing software should fulfil.

- **Customization and Configuration**

By conducting a system study business can tailor the SMART billing software to their unique needs. It enables them to configure the software settings, workflows, modules according to their specific billing processes and industry requirements.

- **Optimal Utilization of Features**

The system study ensures that businesses make the most of the SMART billing software's capabilities. It helps in identifying, utilizing all the relevant features, functions, modules provided by the software, enhancing productivity and efficiency in billing operations.

- **Process Streamlining and Automation**

A system study allows businesses to streamline and automate their billing processes using the SMART billing software. By identifying areas where manual tasks can be automated, businesses can improve accuracy, save time and reduce the risk of errors or discrepancies in billing operations.

- **Data Integration and Connectivity**

Through a system study, businesses can identify the need for integrating the SMART billing software with other systems or applications used within the organization. This enables seamless data exchange, eliminates duplicate data entry and improves data accuracy and consistency across different systems.

- **Training and User Adoption**

The system study helps in planning and designing effective training programs for users to understand and adapt to the SMART billing software. It ensures that users are trained on the relevant functionalities and features, promoting smooth user adoption and minimizing resistance to change.

- **Scalability and Future Growth**

By conducting a system study business can assess the scalability of the SMART billing software. It helps in determining if the software can accommodate future growth, handle increased transaction volumes and support additional functionalities or modules that may be required as the business expands.

- **Cost and Resource Optimization**

The system study helps in evaluating the cost and resource requirements associated with implementing and maintaining the SMART billing software. It enables businesses to identify any additional hardware, software, or infrastructure needs, as well as estimate the budget and resources required for a successful implementation.

## System Specification

### 1. Hardware Configuration

Hardware configuration refers to the arrangement and setup of physical components within a computer system or device. It requires careful consideration of compatibility between components, performance requirements, budget constraints to create an optimal and functional hardware setup.

**Table 1: Hardware Specification**

Processor	intel core i3 – 12500HZ
Model Name	DELL E1912H(Analog)
RAM	8 GBDDR4
Graphics	en intel(R) HD Graphics

### Software Configuration

Software configuration refers to the process of setting up and managing software systems to meet specific requirements and ensure proper functioning. It requires careful consideration of system requirements, security measures, integration points and user preferences to create a well-configured software environment.

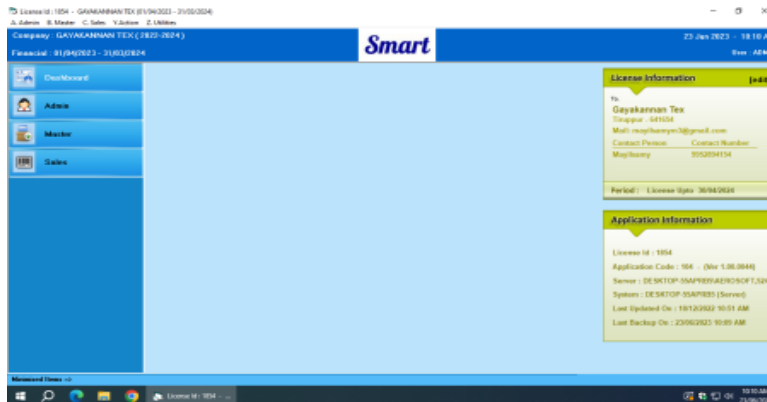
**Table 2: Software Specification**

Operating system	Windows 7
Front-end	VB.net
Back-end	SQL

## Result and Discussion

System design refers to the process of creating a detailed and comprehensive plan or blueprint for the development and implementation of a system. It involves translating the requirements and specifications of the system into a well-defined structure and design that outlines the components, interactions and functionality of the system. It ensures that the system is structured, organized, well-equipped to meet the desired goals, functionality and performance expectations.

### Input Form 1



**Fig. 1: SMART Billing Software Home Page**

The figure 1 represents the details of home page. It consists of various icons, where the homepage contains the information of License and Application. Some of the icons in the homepage are:

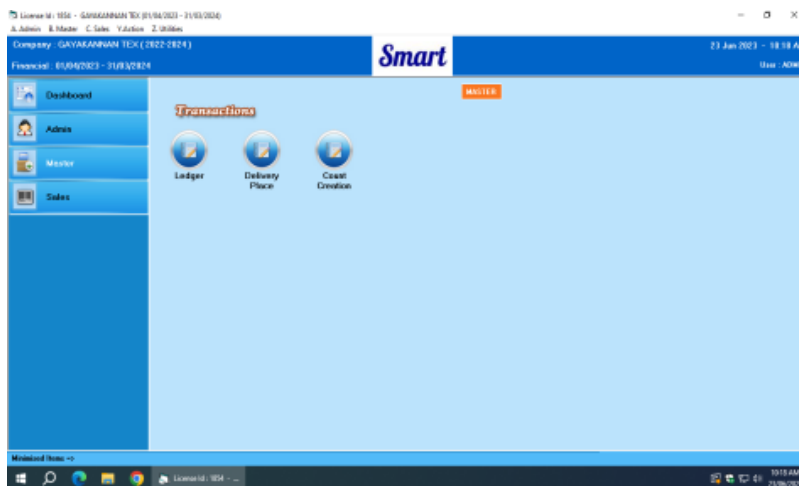
- Dashboard
- Admin
- Master
- Sales

### Input Design

The input screen of a software application refers to the user interface component where users can input or enter data, settings, or commands into the software. The design and layout of the input screen can vary depending on the specific software application and its purpose. The goal is to provide a clear and intuitive interface that allows users to input or enter the necessary data effectively.

The input screen typically includes labels or captions that describe the purpose of each input field or section. Input screens may pre-fill certain fields with default values or suggestions to streamline the data entry process. An input screen may also include a upload field or a drag and-drop area for users to select and upload files.

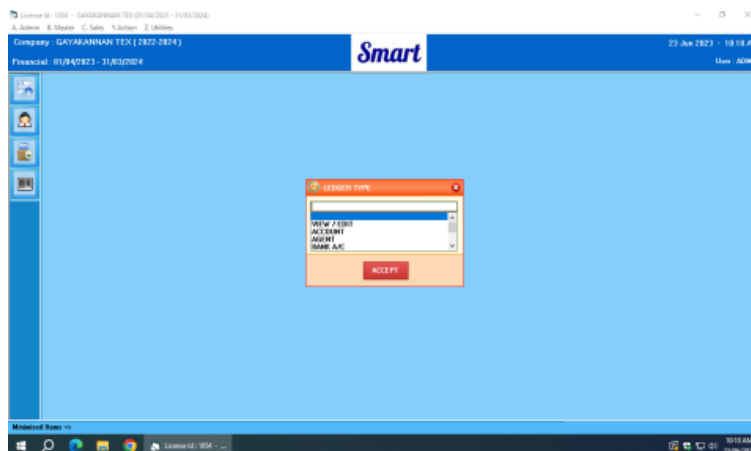
### Input Form 2



**Fig. 2: Master Details**

The figure 2. illustrates the details of the Master. This module helps to fill the information about the Ledger, Delivery Place and the counts of the yarn.

### Input Form 3



**Fig. 3: Ledger Type Details**

The figure 3 shows the different categories or classifications of accounts used in the accounting system to record financial transactions. Each ledger type represents a specific group of accounts with similar characteristics or purposes. The organization can customize and create additional ledger types as needed to meet their financial reporting needs.

#### Input Form 4

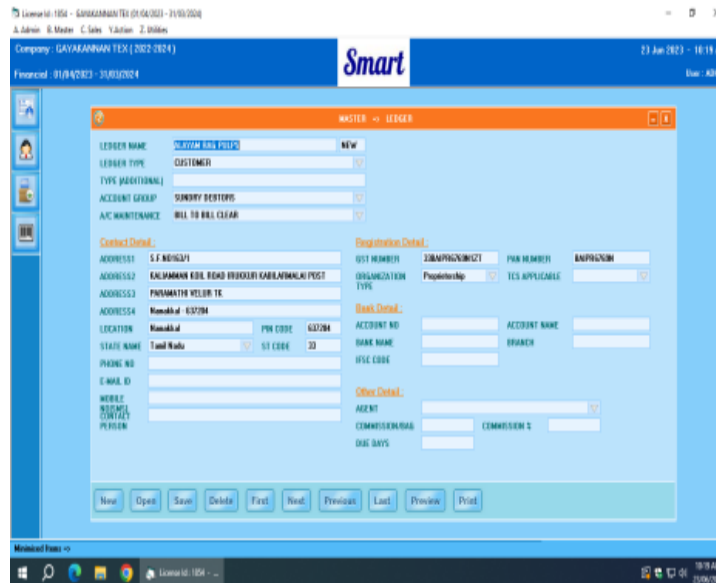


Fig. 4: Ledger Creation

The figure 4. depicts the information of the Contact Details, GST details and Bank details of the respective company. It also refers to the process of setting up and configuring specific ledger accounts to record and track financial transactions related to billing and invoicing. Ledgers play a vital role in organizing and categorizing financial data, allowing businesses to accurately monitor revenue, expenses, and other financial aspects.

#### Input Form 5

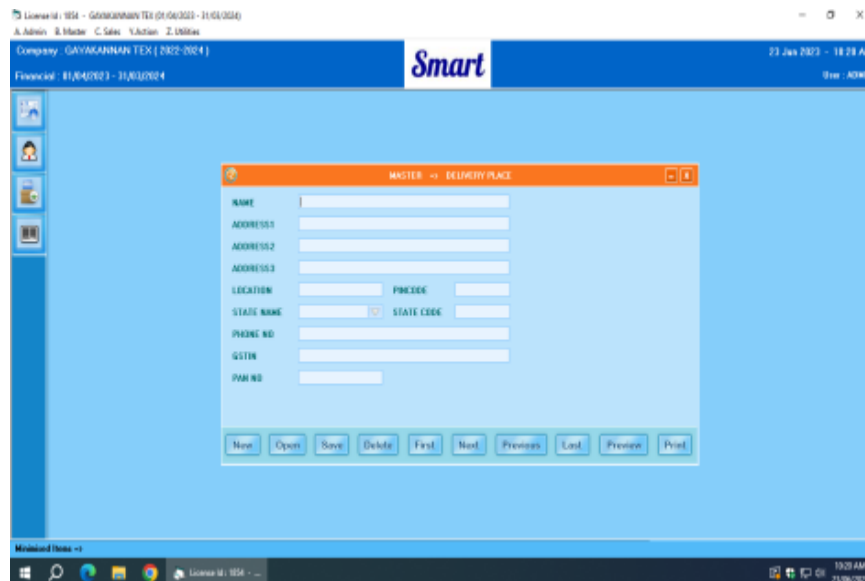
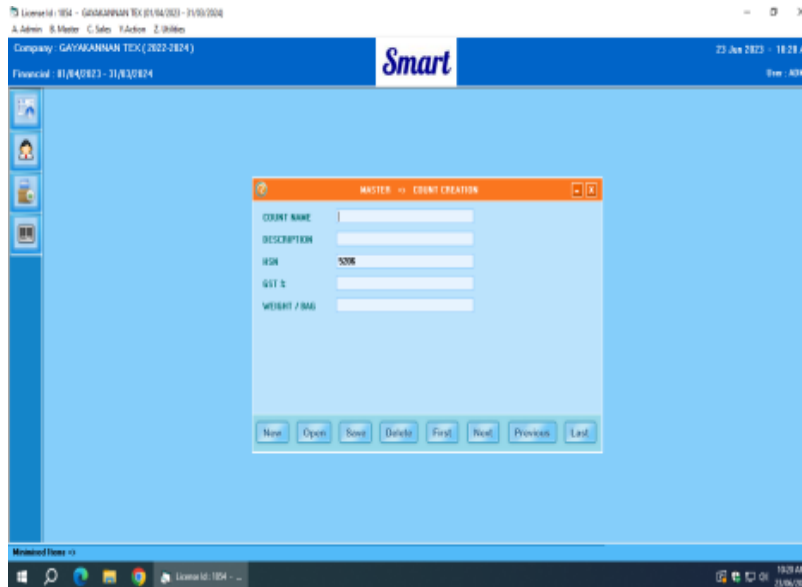


Fig. 5: Delivery Details

The figure 5. module represents the delivery details and tracks the information related to product deliveries. The module may include functionality to capture proof of delivery. This can include options for digital signatures, photos, or scanned documents as evidence of successful delivery.

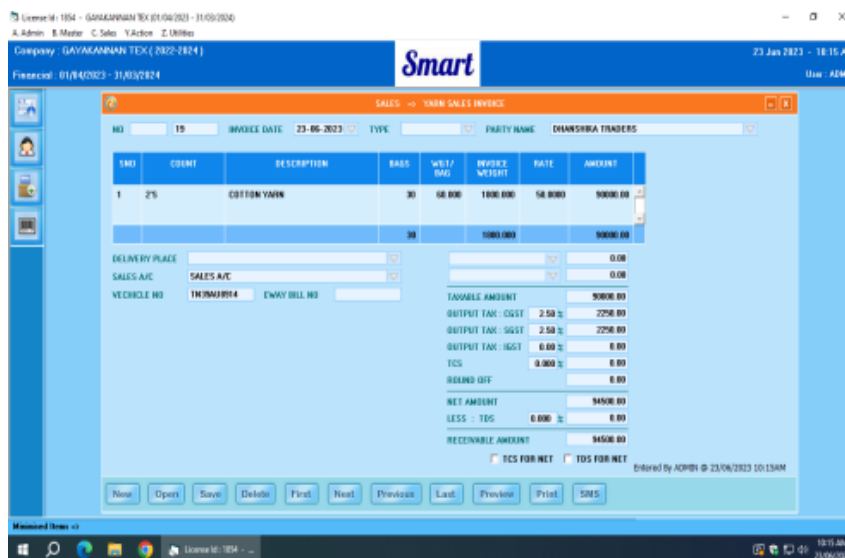
### Input Form 6



**Fig. 6: Count Creation Details**

The figure 6 shows the process of determining the yarn count or thickness of yarn used in fabric production. The accurate count creation is essential for achieving the desired fabric characteristics and ensuring consistency in production.

### Input Form 7



**Fig. 7: Yarn Sales Invoice Details**

The figure 7. illustrates the details of the sale, including the products sold, quantities, prices, payment terms, and any applicable taxes or discounts. It's essential to include all the necessary information for accurate record-keeping and smooth payment processing.

### Output Design

Output screen refers to the process of designing and formatting the visual presentation of information or data that is produced or displayed by a computer system. It focuses on creating effective and user-friendly output formats that convey information in a clear, organized, and meaningful manner. Effective output design plays a crucial role in delivering information in a meaningful and usable way.



TAX INVOICE		ORIGINAL FOR CONSIGNEE				
<b>GAYAKANNAN TEX</b>						
2/79-3, NATHAMYLAIVAM, SEMBRALLUR, AVINASHI - 641654, TIRUPUR - DK PHONE : 9952894154						
GSTIN : 33BHWPME79N3ZY Tax is Payable On Reverse Charge : NO		PAN : BHNVT582799N Email Id : mayilamym3@gmail.com				
INVOICE NO : 26	INVOICE DATE : 07/07/2023					
Billed To Mrs. VENKATACHALAM RAMUCHITRA 1/138A OM SAKTHI NAGAR SILAIMAN, MADURAI Madurai - 625201 STATE : Tamil Nadu , CODE : 33 GSTIN : 33AOYPR7855K1ZX PAN : AOYPR7855K	Shipped To Mrs. VENKATACHALAM RAMUCHITRA 1/138A OM SAKTHI NAGAR SILAIMAN, MADURAI Madurai - 625201 STATE : Tamil Nadu , CODE : 33 GSTIN : 33AOYPR7855K1ZX PAN : AOYPR7855K					
TRANSPORT VEHICLE NO : TN34F1899	AGENT NAME : EWAY BILL NO : 541521735297					
COUNT	DESCRIPTION OF GOODS	HSN	BAGS	WEIGHT	RATE/KG	AMOUNT
2'S	COTTON YARN	5208	34	2040.000	43.00	87,720.00
<b>BANK ACCOUNT :-</b> ACCOUNT NO : 510909010140144 BANK NAME : CITY UNION BANK BRANCH : AVINASHI IFSC : CIUB0000373						TAXABLE AMOUNT CGST @ 2.5% SGST @ 2.5%
						87,720.00
						2,193.00
						2,193.00
NET AMOUNT						<b>92,106.00</b>
Rupees : Ninety Two Thousand One Hundred And Six Only						
<b>Terms &amp; Conditions :</b> Overdue interest will be charged at 24% from the invoice date. We are not responsible for any loss or damage in transit. We will not accept any claim after processing of goods. Subject to Tirupur jurisdiction.						
For GAYAKANNAN TEX						
Prepared By	Checked By	Authorized Signatory				

Fig. 8: Yarn Invoice

The figure 8 depicts to the visual representation or display of information, data, or results generated by the software. It is the interface through which users can view and interact with the output produced by the software.

## Conclusion

SMART billing software is a comprehensive solution designed to streamline and automate the billing processes of businesses. It offers numerous benefits and features that contribute to efficient and accurate billing operations.

It simplifies and automates billing processes, saving time and reducing manual errors. It also enables businesses to generate invoices, GST bills, track payments and manage billing information in a centralized system. SMART billing software is a valuable tool that streamlines billing operations, enhances financial tracking, and improves customer management for businesses. Its features and capabilities contribute to increased efficiency, accuracy, and overall financial management, benefiting businesses of all sizes.

Implementing smart billing software can lead to improved billing accuracy, reduced manual effort, faster payment processing, enhanced customer satisfaction, and better financial management. It empowers businesses to focus on core operations while automating and optimizing their billing workflows. Overall, smart billing software is a valuable tool for modern businesses looking to streamline their billing processes and drive operational efficiency.

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