**Online Material Management System**

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 Of

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Under the guidance

Of

Dr. D.Ganguly



Department of Information Technology

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**CERTIFICATE FROM PROJECT GUIDE(S)**

***This is to certify that the project entitled “ONLINE MATERIAL MANAGEMENT SYSTEM” submitted by* Namrata Mondal(Roll no.: 08108002009) Anchal Mallick (Roll no.: 08108002014) Divya Kumari(Roll no.: 08108002041) Nivedita Kumari( Roll no.: 08108002042) *for the award of B. Tech. (Information Technology) degree of West Bengal University of Technology is absolutely based upon her own work under the supervision of Dr. D.Ganguly, Department of Computer Science and Engineering,***

***Asansol Engineering College, Asansol, India and that neither her project report nor***

 ***any part of the report has been submitted for any degree/diploma or***

***any other academic award anywhere before.***

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**PROJECT SYNOPSIS**

Materials management plans and designs for the delivery, distribution, storage, collection, and removal of occupant-generated streams of materials and services. It is usually an additional service that is offered as part of a campus planning process or a building design project. It is most beneficial for university, health care, and corporate environments. Materials management looks at the planning and design considerations needed to support the efficient delivery and removal of goods and services that support occupant activity. The streams of occupant-generated materials and activity include mail, office supplies, lab supplies, food, special deliveries, custodial services, building supplies, waste and recycling, and service calls.

A materials management plan may include planning guidelines or full design for the following:

* Truck delivery and service vehicle routes, to reduce vehicle / pedestrian conflict
* Loading docks and delivery points, to increase accommodation and reduce queuing and vehicle idling
* Recycling, trash, and hazardous waste collection and removal, to increase waste diversion and reduce costs
* Service equipment and utility infrastructure relocation or concealment, to improve aesthetics and realize landscaping goals
* Regulatory and operation planning

**INTRODUCTION**

Materials management is one of the important activities of business.

There is no general agreement about precisely what activities are

embraced by materials management. Some managers would associate

materials management with their material or production control departments,

 which schedule materials requirements and may also control inventories of

 both raw materials and in-process materials. Others would associate it with

the activities of their purchasing departments in dealing with outside suppliers.

THE effective materials management plan builds from and enhances an institutional master plan by filling in the gaps and producing an environmentally responsible and efficient outcome. An institutional campus, office, or housing complex can expect a myriad of benefits from an effective materials management plan. For starters, there are long-term cost savings, as consolidating, reconfiguring, and better managing a campus’ core infrastructure reduces annual operating costs. An institutional campus, office, or housing complex will also get the highest and best use out of campus real estate.

An effective materials management plan also means a more holistic approach to managing vehicle use and emissions, solid waste, hazardous waste, recycling, and utility services. As a result, this means a “greener,” more sustainable environment and a manifestation of the many demands today for institutions to become more environmentally friendly. In fact, thanks to such environmental advantages, creative materials management plans may qualify for LEED Innovation in Design credits.

And finally, an effective materials management plan can improve aesthetics. Removing unsafe and unsightly conditions, placing core services out of sight, and creating a more pedestrian-friendly environment will improve the visual and physical sense of place for those who live and work there.

The major challenge that materials managers face is maintaining a consistent flow of materials for production. There are many factors that inhibit the accuracy of inventory which results in production shortages, premium freight, and often inventory adjustments. The major issues that all materials managers face are incorrect bills of materials, inaccurate cycle counts, un-reported scrap, shipping errors, receiving errors, and production reporting errors. Materials managers have striven to determine how to manage these issues in the business sectors of manufacturing since the beginning of the industrial revolution. Although there are no known methods that eliminate the afore mentioned inventory accuracy inhibitors, there are best methods available to eliminate the impact upon maintaining an interrupted flow of materials for production.

One challenge for materials managers is to provide timely releases to the supply base. On the scale of worst to best practices, sending releases via facsimile or PDF file is the worst practice and transmitting releases to the supplier based web site is the best practice. Why? The flaw in transmitting releases via facsimile or email is that they can get lost or even interpreted incorrectly into the suppliers system resulting in a stock out. The problem with transmitting EDI releases is that not all suppliers have EDI systems capable of receiving the release information. The best practice is to transmit the releases to a common supplier web base site where the suppliers can view (for free) the releases. The other advantage is that the supplier is required to use the carrier listed in the web site, must transmit an ASN (advanced shipping notification), and review the accumulative balances of the order.

With the help of vb.net and oracle we have created tables. By creating these tables the data and information becomes more refined and easy to access. Any information regarding the products( inflow and outflow of products) can be easily attained.

**Project Details**

**System Requirements :**

 **Hardware Requirement:**

 .. Processor: - Intel Pentium III 833MHz

 .. RAM: - 128 SD-RAM.

 .. Hard Disk: -20 GB or above.

 .. Monitor: - 14” VGA.

 .. Mouse.

 .. Printer: - For print report or Bill.

 .. Floppy Disk Drive: - 1.44MB.

 **Software Requirement:**

 .. Operating System: - Windows xp

 .. Front End: - Visual Basic 6.0.

 .. Back End: - Oracle

**Definition :**

**The main objective is to computerize procurement and product distributed system.The software is being designed to automate the following areas:**

**\*\*To maintain the stock available**

**>Material used**

**>Work in progess at different stages**

**>Finished product of different type**

**\*\*To maintain sales through marketing channel agents**

**\*\*To track payments received**

**\*\*To track how much order has been fulfilled against the order received**

**\*\*To keep record of damaged of expired products**

**\*\*To manage addition and deletion of product**

**\*\*To control stocks transferred to channel agents**

**\*\*To facilitate searching of products for its quality ,date of manufacturing ,batch number ,price etc**

**\*\*To keep details of channel agent and suppliers**

**THEORIES:**

**The goal of materials management is to provide an unbroken chain of components for production to manufacture goods on time for the customer base. The materials department is charged with releasing materials to a supply base, ensuring that the materials are delivered on time to the company using the correct carrier. Materials is generally measured by accomplishing on time delivery to the customer, on time delivery from the supply base, attaining a freight budget, inventory shrink management, and inventory accuracy. The materials department is also charged with the responsibility of managing new launches.**

**In some companies materials management is also charged with the procurement of materials by establishing and managing a supply base. In other companies the procurement and management of the supply base is the responsibility of a separate purchasing department. The purchasing department is then responsible for the purchased price variances from the supply base.**

**In large companies with multitudes of customer changes to the final product over the course of a year, there may be a separate logistics department that is responsible for all new acquisition launches and customer changes. This logistics department ensures that the launch materials are procured for production and then transfers the responsibility to the plant materials management**

**Entity Relationship Diagram**

**Data Flow Diagram:**

**Tables:**

**There are four tables in our projects:**

1. **Purchasing monitoring**
2. **Product line monitoring**
3. **Sale monitoring**
4. **Transport details**
5. ***Purchase monitoring: --***
	1. **product master table**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Product id | Varchar | 10 |
| Product name category | Varchar | 20 |
| **Model number** | Varchar | 15 |
| *Product quality* | Varchar | 15 |
| Product quantity | Varchar | 20 |
| Price | varchar | 15 |

* 1. **Supply invoice**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Supply\_Id | Varchar | 10 |
| Vendor\_Id | Varchar | 10 |
| Date | Smalldatetime | 8 |
| Total\_Amount | Decimal |  |

* 1. **Raw material stock**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type**  | **Size** |
| Type\_Id | Varchar | 10 |
| Quantity | Int |  |
| Status  | Varchar | 10 |

**iv.Invoice details**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type**  | **Size** |
| Supply\_Id | Varchar | 10 |
| Type\_Id | Varchar | 10 |
| Quantity | Int |  |
| Total\_Price | Decimal |  |

* 1. **Vendor Details**

|  |  |  |
| --- | --- | --- |
| **Field Name**  | **Data Type** | **Size** |
| Vendor\_Id | Varchar | 10 |
| Vendor\_Name | Varchar | 30 |
| Vendor\_Address | Varchar | 50 |
| Telephone\_no. | Varchar | 20 |
| FAX | Varchar | 20 |
| E –mail  | Varchar | 35 |

* 1. **Payment Vendor**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Vendor\_Id | Varchar | 10 |
| Supply\_Id | Varchar | 10 |
| Payment | Decimal |  |
| Payment\_Mode | Decimal | 10 |
| Payment\_Date | Smalldatetime | 8 |
| Payment\_Status | Varchar | 10 |

***2.PRODUCT LINE MONITORING: -***

###  Product Master Table: -

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Product\_Id | Varchar | 10 |
| Product\_Name | Varchar | 20 |
| Product\_Flavor | Varchar | 15 |
| Product\_Colour | Varchar | 15 |
| Product\_ Grain\_ Size | Int |  |
| Product\_quantity | Int |  |
| Product\_ cost\_ price | Decimal |  |

**Batch master table**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data type** | **Size** |
| Product\_Id | Varchar | 10 |
| Batch\_Id | Varchar | 10 |
| Manufacturing\_date | Smalldatetime | 8 |
| Expiry\_date | Smalldatetime | 8 |

**Stock product Table**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Product\_Id | Varchar | 10 |
| Batch\_Id | Varchar | 10 |
| Quantity | Int |  |
| Status | Varchar | 15 |
| Product\_Status | Varchar | 15 |

**Work in progress Table**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Wp\_Id | Varchar | 10 |
| Wp\_Name | Varchar | 15 |
| Stage\_To\_Go | Int |  |

**3. Sales Monitoring: -**

#  Tables used in this are as follows: -

**Batch Detail**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Batch\_Id | Varchar | 10 |
| Product\_Status | Int |  |
| Stock\_Status | Int |  |

**Sales Details**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Product\_Id | Varchar | 10 |
| Product\_price | Int |  |
| Product\_quantity | Int |  |
| Vendor/Agent\_Id | Varchar | 10 |
| Order\_Id | Varchar | 10 |
| Batch\_Id | Varchar | 10 |
| Date | Smalldatetime | 8 |

**Order Details**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Order\_Id | Varchar | 10 |
| Order\_Date | Smalldatetime | 8 |
| Agent\_Id | Varchar | 10 |

 **Order Item**

* 1. **Invoice details**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type**  | **Size** |
| Supply\_Id | Varchar | 10 |
| Type\_Id | Varchar | 10 |
| Quantity | Int |  |
| Total\_Price | Decimal |  |

* 1. **Vendor Details**

|  |  |  |
| --- | --- | --- |
| **Field Name**  | **Data Type** | **Size** |
| Vendor\_Id | Varchar | 10 |
| Vendor\_Name | Varchar | 30 |
| Vendor\_Address | Varchar | 50 |
| Telephone\_no. | Varchar | 20 |
| FAX | Varchar | 20 |
| E –mail  | Varchar | 35 |

* 1. **Payment Vendor**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Vendor\_Id | Varchar | 10 |
| Supply\_Id | Varchar | 10 |
| Payment | Decimal |  |
| Payment\_Mode | Decimal | 10 |
| Payment\_Date | Smalldatetime | 8 |
| Payment\_Status | Varchar | 10 |

3.***PRODUCT LINE MONITORING: -***

###  Product Master Table: -

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Product\_Id | Varchar | 10 |
| Product\_Name | Varchar | 20 |
| Product\_Flavor | Varchar | 15 |
| Product\_Colour | Varchar | 15 |
| Product\_ Grain\_ Size | Int |  |
| Product\_quantity | Int |  |
| Product\_ cost\_ price | Decimal |  |

**Batch master table**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data type** | **Size** |
| Product\_Id | Varchar | 10 |
| Batch\_Id | Varchar | 10 |
| Manufacturing\_date | Smalldatetime | 8 |
| Expiry\_date | Smalldatetime | 8 |

**Stock product Table**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Product\_Id | Varchar | 10 |
| Batch\_Id | Varchar | 10 |
| Quantity | Int |  |
| Status | Varchar | 15 |
| Product\_Status | Varchar | 15 |

**Work in progress Table**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Wp\_Id | Varchar | 10 |
| Wp\_Name | Varchar | 15 |
| Stage\_To\_Go | Int |  |

**3. Sales Monitoring: -**

#  Tables used in this are as follows: -

**Batch Detail**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Batch\_Id | Varchar | 10 |
| Product\_Status | Int |  |
| Stock\_Status | Int |  |

**Sales Details**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Product\_Id | Varchar | 10 |
| Product\_price | Int |  |
| Product\_quantity | Int |  |
| Vendor/Agent\_Id | Varchar | 10 |
| Order\_Id | Varchar | 10 |
| Batch\_Id | Varchar | 10 |
| Date | Smalldatetime | 8 |

**Order Details**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Order\_Id | Varchar | 10 |
| Order\_Date | Smalldatetime | 8 |
| Agent\_Id | Varchar | 10 |

 **Order Item**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** |  |
| Order\_Id | Varchar | 10 |
| Order\_product\_Id | Varchar | 10 |
| Quantity | Int |  |
| Amount | Decimal |  |
| Discount | Decimal |  |

4.**Transport Details -**

###  Tables used in this are as follows: -

**Transporter Details(Master table)**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Size** |
| Transporter\_Id | Varchar | 10 |
| Transporter\_Name | Varchar | 35 |
| Add (State) | Varchar | 50 |
| Registration\_No. | Varchar | 15 |
| Transport\_Type | Varchar | 27 |
| TEL | Varchar | 18 |
| E-mail | Varchar | 25 |
| Permit\_ Zone | Varchar  | 18 |

**Vehicle Details**

|  |  |  |
| --- | --- | --- |
|  **Field Name** | **Data Type** | **Size** |
| Vehicle\_Id | Varchar | 10 |
| Vehicle\_Name | Varchar | 30 |
| Vehicle\_Capacity | Int |  |
| Vehicle\_No. | Varchar | 15 |
| Driver\_Name | Varchar | 40 |
| Transporter\_Id | Varchar | 10 |
| Route\_Permit | Varchar | 45 |
| Rate\_Follows | Int |  |
| Route\_Follows | Varchar | 35 |

**Conclusion**

**The major challenge that materials managers face is maintaining a consistent flow of materials for production. There are many factors that inhibit the accuracy of inventory which results in production shortages, premium freight, and often inventory adjustments. The major issues that all materials managers face are incorrect bills of materials, inaccurate cycle counts, un-reported scrap, shipping errors, receiving errors, and production reporting errors. Materials managers have striven to determine how to manage these issues in the business sectors of manufacturing since the beginning of the industrial revolution. Although there are no known methods that eliminate the afore mentioned inventory accuracy inhibitors, there are best methods available to eliminate the impact upon maintaining an interrupted flow of materials for production.**

**One challenge for materials managers is to provide timely releases to the supply base. On the scale of worst to best practices, sending releases via facsimile or PDF file is the worst practice and transmitting releases to the supplier based web site is the best practice. Why? The flaw in transmitting releases via facsimile or email is that they can get lost or even interpreted incorrectly into the suppliers system resulting in a stock out. The problem with transmitting EDI releases is that not all suppliers have EDI systems capable of receiving the release information. The best practice is to transmit the releases to a common supplier web base site where the suppliers can view (for free) the releases. The other advantage is that the supplier is required to use the carrier listed in the web site, must transmit an ASN (advanced shipping notification), and review the accumulative balances of the order**

**Future Scope**

**Materials Management strives to ensure that the material cost component**

 **of the total product cost be the least. In order to achieve this, the control**

 **is exercised in the following fields.**

 **1. Materials Planning.**

 **2. Purchasing.**

 **3. Store Keeping.**

 **4. Inventory Control.**

 **5. Receiving, Inspection and Despatching.**

 **6. Value Analysis, Standardization and Variety Reduction.**

 **7. Materials Handling & Traffic.**

 **8. Disposal of Scrap and Surplus, Material Preservation.**

**The function of material planning department is to plan for the future procurement of all the required materials as per the production schedule.**

 **At the time of material planning ,the budget allocated for the materials**

**will also be critically reviewed, for better control. After material planning, purchasing is to be done. Purchasing department buys material based on**

**the purchase requisitions from user departments and stores departments**

**and annual production plan.**

**There are four basic purchasing activities.**

**a) Selecting suppliers, negotiating and issuing purchase orders.**

**b) Expediting delivery from suppliers.**

**c) Acting as liaison between suppliers and other company departments.**

**d) Looking for new products, materials, and suppliers that can contribute to**

**company objectiveness.**

**At the time of purchase, right quantity and quality of materials must be purchased at right time, at the lowest possible cost and select the efficient purchasing system, to derive maximum benefit. Purchasing is done based**

**on ‘make or buy’ decisions and also using PERT / CPM effectively.**

**When the items are purchased, proper storage facilities must be provided so that, the wastage is reduced to a minimum. Sometimes to protect the quality, greater care must betaken during storage.The duties of the inventory control department is to decide about the types of ordering system, fixing the Safety**

 **stock limits, fixing up the reorder level & maximum / minimum stock level.**

**The responsibility of Receiving, inspection and despatching department is to receive the materials when delivered by the suppliers. After receiving it, the quantity and quality must be checked. Production parts and materials are checked against blueprints and Specifications Non-production items are also**

**reviewed. When once it is as per the specifications given, the goods will be accepted. The Value Analysis and Standardization offer greatest scope, in reducing the materials cost. It also reduce the number of varieties and also**

 **helps in finding the substitute for the materials at lesser cost.Materials handling section is responsible for the transport of materials to various**

 **departments. There are four basic traffic activities.**

**a) Selecting common or charter carriers and routings for despatch /**

**shipments as required.**

**b) Tracing in-bound shipments of material in short supply as requested by**

**production control or purchasing. Assisting customers in tracing outbound**

**shipments when asked.**

**c) Auditing invoices from carriers and filing claims for refunds of excess**

**charges or for damaged shipments when required.**

**d) Developing techniques to reduce transportation cost. This may involve**

**negotiation with competing shippers, special studies n selecting the most**

**advantageous plant location for new products, analysis of tariffs, and**

**negotiation of any number of special arrangements for handling certain**

**traffic.**

**e) The activity includes packaging of finished product, labeling and loading**

**of end products in the trades.**