1. **Project Partners Details**

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| **Student ID** | **Name** |
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**2. Project Proposal Detail**

**2.1 Title of the Project: Manufacturer Management System (MMS)**

**2.2 Statement of the Project (Product)**

**2.2.1 Detailed Statement of the Project Product**

This project aims to develop a Manufacturer Management System (MMS) to efficiently manage manufacturing operations, including raw material procurement, inventory control, production scheduling, quality assurance, and logistics. The system will be user-friendly, secure, and cloud-integrated, helping manufacturing companies streamline operations and enhance productivity.

**2.2.2 Motivation**

* Manufacturing industries face challenges in inventory tracking, supplier coordination, and quality control.
* Manual processes lead to inefficiencies, delays, and increased costs.
* Implementing a centralized digital system will improve data accuracy, workflow automation, and decision-making.

**2.2.3 Goals**

* Optimize inventory management to prevent stock shortages and excess storage.
* Improve production scheduling for better resource utilization.
* Enhance supplier management for timely procurement of raw materials.
* Ensure real-time quality control to maintain high production standards.
* Streamline logistics and distribution for efficient product delivery.

**2.2.4 Skill Baseline**

**Essential Skills:**

* Web development
* Database management
* System security and cloud integration

**Current Skills (Have):**

* Front-end and back-end programming
* SQL database handling

**How We Will Overcome Deficiencies:**

* Learning cloud technologies and cybersecurity concepts.
* Researching real-world case studies of MMS implementation.
* Conducting trial runs and debugging for system optimization.

**3. Background to the Project (Product)**

**3.1 Commercial Background**

* Manufacturers depend on raw material procurement, production management, and logistics coordination.
* Many companies still rely on manual record-keeping, leading to inefficiencies.
* A digital MMS can enhance efficiency, reduce costs, and improve supply chain management.

**3.2 Scientific Background**

* AI-driven analytics can optimize inventory management and production planning.
* IoT-based tracking can improve supply chain visibility.
* Data-driven insights can help in predictive maintenance of machinery.

**3.3 Technical Background**

* The system will be built using SQL databases, cloud storage, and secure APIs.
* It will be accessible via web and mobile applications.
* Integration with barcode scanners, RFID systems, and ERP solutions will be included.

**4. Project (Product) Description**

**4.1 Product Perspective**

* The MMS will be a web-based and mobile-compatible application.
* It will integrate with supplier databases, logistics systems, and financial modules.

**4.2 General Capabilities**

* Real-time inventory tracking.
* Automated purchase order management.
* Production scheduling and progress monitoring.
* Supplier management and contract tracking.

**4.3 General Constraints**

* Needs high-level security to prevent data breaches.
* Must support multi-location warehouse management.
* Should be scalable for future expansions.

**4.4 User Characteristics**

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| --- | --- |
| **User Type** | **Responsibilities** |
| Procurement Officers | Raw material purchasing and supplier management |
| Inventory Managers | Monitoring stock levels and warehouse operations |
| Production Managers | Planning, scheduling and tracking production |
| Quality Assurance Teams | Conducting quality inspections and reporting defenses |
| Logistic Coordinators | Overseeing shipment tracking and distribution |

**4.5 Operational Environment**

* Hybrid deployment (Cloud and on-premise).
* Compatible with Windows, Linux, and mobile devices.
* Requires high-speed internet for real-time synchronization.

**5. Project (Product) Specific Requirements**

**5.1 Capability Requirements**

* Inventory Management: Real-time stock updates, warehouse tracking.
* Production Planning: Automated scheduling and resource allocation.
* Quality Control: Inspection tracking and defect analysis.
* Supplier Management: Vendor contract tracking and performance analysis.
* Logistics & Distribution: Shipment tracking, route optimization.

**5.2 Constraint Requirements**

* The system must be integrated with existing ERP solutions.
* Needs to support multiple warehouses across different locations.
* Must follow industry-specific manufacturing regulations.

**5.3 Individual Requirements**

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| --- | --- | --- |
| **Requirement** | **Priority** | **Notes** |
| Secure user authentication | High | Multi-level role-based access control |
| Cloud storage integration | High | Ensures real-time data access |
| Multi-language and support | Medium | English and Bengali for accessibility |

**6. Conclusion**

This Manufacturer Management System (MMS) aims to digitize and optimize manufacturing processes by integrating real-time inventory tracking, production planning, supplier coordination, and quality control. The project will help us develop practical technical skills in software development, database management, and industrial automation. Through this initiative, we aspire to bridge the gap between manual processes and modern manufacturing technology.

We look forward to your valuable feedback and guidance in refining our project.

**Submitted by:**

Shahil Hossain,

Aditta Morshed.