

Mineral Processing Factory System – Project Description

Company Name: Ikram Mineral Process Factory

Location Factory: Jalalabad City, Park-e-Sanatee area

A large and complex project is required for **Ikram Mineral Process Factory**, which involves managing the complete lifecycle of mineral operations — from purchasing raw minerals to processing, packaging, exporting, and handling financial transactions.

This system is intended to digitize and organize all business activities in a structured, accurate, and efficient way.

Business Workflow Description

The factory operates with a network of approximately **more than 300 miners**. Each miner independently extracts minerals from mining areas. After collecting minerals, they sell their materials directly to **Ikram Mineral Process Factory**, where purchases are made individually from each miner. Each transaction may vary in quantity, price per ton, and currency.

Once minerals are purchased, they are transported to the city using trucks. The loading process is carried out using loaders, and each truck carries a specific quantity of minerals based on weight. Transportation involves multiple factors such as truck ownership (company or third-party), fuel consumption, driver details, and travel expenses, all of which must be properly recorded.

Weight Verification Process

When trucks arrive at the city, strict verification is carried out to ensure accuracy and transparency. Each truck is weighed **three times**:

- Two times by the **government** (for tax and regulation purposes)
- One time by **Ikram factory** (internal verification)

This process ensures that the exact quantity of minerals is confirmed and that government tax is calculated correctly per ton.

Processing and Cleaning

After arrival, the minerals are taken to the factory for processing. Workers clean the minerals by removing impurities and unwanted materials. During this process, a reduction in weight naturally occurs.

For example:

- A truck arrives with **10 tons**
- After cleaning, it becomes **9 tons**

This difference is known as **processing loss** and must be accurately recorded to monitor efficiency and prevent losses.

Packaging and Storage

Once processing is completed, the cleaned minerals are packed into bags. Each ton typically requires **20 to 30 bags**, depending on packaging standards.

The system must manage:

- Bag inventory (new and used)
- Bag usage per batch
- Reuse of returned or previously used bags

After packaging, the bags are loaded again onto trucks for export.

Export and Outgoing Verification

Before leaving the city, trucks undergo another series of weight checks:

- One check by **Ikram factory**
- Two checks by the **government (border control)**

After crossing the border:

- The shipment is weighed by the **foreign government**
- The **customer** also verifies the received quantity

These multiple verification steps ensure full transparency, compliance, and trust between all parties.

Transportation and Cost Tracking

Transportation is a critical part of the business and includes:

- Fuel consumption
- Driver expenses
- Travel and logistics costs

All these expenses must be recorded and linked to each trip to calculate the actual cost of delivery and overall profitability.

Financial and Currency Management

The company operates using **multiple currencies**, which adds complexity to financial management:

- Raw minerals are purchased in one currency
- Workers' salaries may be paid in another currency
- Export sales are conducted in a different currency

Therefore, the system must include:

- Currency exchange functionality
 - Exchange rate management
 - Automatic currency conversion
 - Accurate financial reporting
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Additional Business Requirements

To fully support operations, the system must also include the following:

Miner Management

- Maintain detailed profiles for each miner
- Track total supply and payment balances

Worker & Staff Management

- Record worker details (labor staff)
 - Record additional staff such as:
 - Managers
 - Clerks
 - Accountants
 - Supervisors
 - Manage salaries, payments, advances, and dues for all staff
 - Handle multiple salary structures and payment schedules
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Factory Expense Management

The factory has various operational expenses that must be properly tracked, including:

- Staff salaries (workers and office staff)
- Fuel and transportation costs
- Equipment maintenance and repairs
- Utility bills (electricity, water, etc.)
- Administrative and office expenses
- Miscellaneous daily expenses

★ The system must include a **complete expense management module** to record, categorize, and monitor all expenses, helping management understand total costs and profitability.

Fuel Management

- Track fuel purchases
 - Monitor fuel usage per truck
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Inventory Management

- Manage stock of:
 - Raw minerals
 - Processed minerals
 - Bags (new and used)
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Returned Goods Handling

- Minerals returned from customers must be:
 - Re-added to inventory
 - Reused in future processing if applicable
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Cashier and Hawala System

- Track payments received through cash or hawala
 - Monitor how much money is with cashiers and how much is transferred to the company
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Assets Management

- Maintain records of company assets such as:
 - Trucks
 - Loaders
 - Machinery
 - Buildings and properties
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System Structure

- Multi-branch support
 - Multi-user access with roles (Admin, Manager, Cashier, Worker)
 - Secure and controlled access to data
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Notifications & Alerts System

To improve control and decision-making, the system must include an intelligent **notifications and alerts module**, which will automatically inform management about important activities and issues.

This includes:

- Alerts for weight differences or inconsistencies
- Notifications for low stock (minerals, bags, fuel)
- Alerts for pending payments from customers

- Alerts for unpaid balances to miners
- Salary payment reminders
- Expense limit warnings
- Fuel over-usage alerts
- System activity notifications (important actions by users)

★ These alerts help management take quick action and prevent losses or delays.

Automation Requirements

The system must automate key operations, including:

- Automatic calculation of totals (quantity × rate)
 - Balance tracking for miners, customers, and staff
 - Automatic deduction of payments and expenses
 - Currency conversion using exchange rates
 - Stock updates after usage or sales
 - Profit and loss calculation
 - Detection of weight differences and inconsistencies
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Conclusion

The proposed system for **Ikram Mineral Process Factory** is designed to fully digitalize and streamline all business processes. It will ensure accuracy, transparency, and efficiency across all operations — from mineral purchasing to final export and financial management.

By implementing this system, the company will gain better control over its operations, reduce manual errors, and improve overall productivity and decision-making.
