Design And Development of An Interactive MIS Dashboard for Intimate Fashion Private Limited Using Power BI

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***Abstract*—The garment and textile industry generate significant volumes of operational data through daily workforce activities such as employee attendance, overtime hours, module-wise production, and transport operations. Analyzing this data effectively is essential for monitoring workforce performance and supporting accurate incentive calculations. This study presents the design and development of an interactive Management Information System (MIS) dashboard for Intimate Fashion Private Limited, a garment manufacturing company. The system transforms raw employee attendance, overtime, and driver transport data into meaningful insights using Microsoft Power BI. Data cleaning and transformation were performed using Power Query, while key performance metrics including attendance percentage, OT incentive amounts, final incentive calculations, and penalty analysis were derived using DAX measures. The developed dashboards provide interactive visual representations of employee incentive distribution by module, OT hours distribution, top incentive earners, attendance versus performance comparisons, driver trip completion, delivery performance, and safety incident analysis. KPI indicators and filtering options enable management to analyze workforce performance quickly and efficiently. The proposed system improves the efficiency of incentive management by presenting complex operational data in a clear visual format, thereby supporting better monitoring and decision-making for the company's management.**

***Index Terms*—Power BI, MIS Dashboard, Employee Incentive, OT Analysis, Attendance Management, Driver Incentive, DAX, Power Query, Garment Industry Analytics**

I. INTRODUCTION

The garment and textile manufacturing sector is a data-intensive industry where daily operations involving employee attendance, overtime hours, module-wise production performance, and logistics management generate large volumes of operational data. For companies like Intimate Fashion Private Limited, which manages hundreds of employees across multiple production modules and a dedicated transport fleet, effectively analyzing this data is critical to ensuring fair incentive distribution, reducing operational inefficiencies, and maintaining high workforce morale.

Traditional methods of managing employee attendance and calculating incentives often rely on spreadsheets and manual processes. These approaches are error-prone, time-consuming, and difficult to scale as the workforce grows. A centralized analytical platform that automates incentive calculations based on attendance and overtime data, and provides visual insights into performance, is therefore essential for modern garment industry operations.

Management Information Systems (MIS) have long been used in industrial and business settings to collect, process, and present operational data in a structured and actionable format. When combined with modern business intelligence tools such as Microsoft Power BI, MIS dashboards can provide interactive, real-time visualizations of key performance indicators, enabling faster and more informed decision-making at all levels of management.

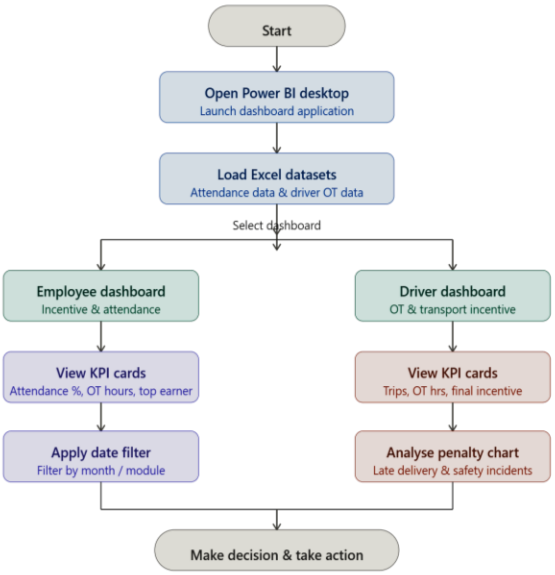

Fig:1 Process Flow

This project focuses on the design and development of two interactive MIS dashboards for Intimate Fashion Private Limited: An Employee Incentive and Attendance Performance Dashboard and a Driver Overtime and Incentive Performance Dashboard. The employee dashboard processes a dataset of 48,068 attendance records across multiple production modules and calculates attendance-based incentives using DAX measures. The driver dashboard analyzes overtime hours, trip completion rates, delivery performance, and safety incidents for 30 drivers completing a total of 2,005 trips. Both dashboards are built using Microsoft Power BI and are designed to help management quickly monitor workforce performance, identify top performers, and make data-driven decisions on incentive distribution.

II. LITERATURE REVIEW

Several studies have emphasized the importance of business intelligence tools and data analytics in transforming operational data into actionable insights within manufacturing and service industries.

Research [1] and [2] highlight that Power BI-based business intelligence systems help organizations monitor key performance indicators and evaluate workforce performance through structured visual reports. These systems enable managers to automate reporting processes.

Studies [3] and [4] further demonstrate the role of interactive dashboards in improving organizational efficiency and decision-making. Research indicates that integrating business intelligence tools into HR and operations management systems allows companies to generate dynamic reports on attendance, overtime, and incentive performance. Visualization tools such as Microsoft Power BI convert complex numerical datasets into graphical formats, making it easier for managers to identify patterns, compare performance indicators, and evaluate operational outcomes across departments or production modules.

Research works [5] and [6] focus specifically on the application of data analytics in workforce management and incentive systems in industrial settings. These studies indicate that analyzing attendance and performance data through structured analytical methods helps managers understand employee behavior, detect absenteeism patterns, and design fair incentive structures. Accurate and automated attendance tracking linked to incentive calculations reduces payroll errors and improves employee satisfaction.

Recent advancements in dashboard technologies discussed in studies [7], [8], [9], and [10] explore the development of intelligent analytical platforms for operational and logistics monitoring. These studies highlight that modern dashboard integrating data processing, DAX calculations, and visualization capabilities provide comprehensive insights into both workforce and transport performance. Such systems improve the accessibility of operational information and enable managers to monitor activities through interactive interfaces, thereby enhancing decision-making processes in manufacturing and logistics environments.

III. PROBLEM STATEMENT

Intimate Fashion Private Limited manages a large workforce across multiple production modules and a dedicated team of drivers for transport operations. The company generates substantial amounts of attendance, overtime, and transport data on a daily basis. Currently, this data is maintained through traditional methods such as spreadsheets and manual records, making it difficult for management to efficiently

calculate incentives, monitor employee performance, and track transport operations.

A key challenge is the absence of a centralized platform that can automate incentive calculations based on attendance percentage and overtime hours. Calculating incentives manually for hundreds of employees across different modules is time-consuming, error-prone, and inconsistent. Similarly, evaluating driver performance in terms of trips completed, on-time delivery rates, overtime hours, and safety incidents requires reviewing multiple data sources separately, which delays operational decisions.

Another challenge is the lack of visual reporting tools that allow management to quickly identify top performers, monitor module-wise incentive distribution, and compare attendance versus performance trends. Without interactive visualizations and KPI indicators, identifying patterns and making data-driven decisions becomes difficult. Therefore, there is a clear need for an interactive MIS dashboard that can automate incentive computations, consolidate operational data, and present key metrics through clear and accessible visual reports.

IV. PROPOSED SYSTEM

The proposed system aims to develop two interactive MIS dashboards for Intimate Fashion Private Limited using Microsoft Power BI. The first dashboard focuses on employee attendance, overtime, and incentive performance, while the second focuses on driver overtime, trip performance, delivery metrics, and safety incident analysis. Together, these dashboards provide a comprehensive operational intelligence platform for the company's workforce and transport management.

For the employee dashboard, the system processes a combined attendance dataset containing 48,068 records with fields including Module, EPF number, Employee Name, Date, Tag in Time, Tag Out Time, Manual Adjustment Minutes, Working Hours, Final Working Hours, and Standard Hours. DAX measures are used to calculate key metrics such as attendance percentage, present days, OT incentive amounts based on attendance thresholds, and total employees per module. Employees achieving 95% or above attendance receive an incentive of Rs. 2,000, those with 90% or above receive Rs. 1,500, and those with 80% or above receive Rs. 1,000.

The driver dashboard processes a dataset of 30 drivers with fields including Driver ID, Driver Name, Regular Hours, OT Hours, OT Rate Per Hour, OT Incentive, Trips Completed, On-Time Delivery Percentage, On-Time Bonus, Late Deliveries, Late Penalty, Safety Incidents, Safety Penalty, and Final Incentive. Key KPI indicators include Total Drivers (30), Total Trips (2,005), Total OT Hours (525), OT Incentive (Rs. 74K), Final Incentive (Rs. 59K), and Top Incentive Driver. Both dashboards include interactive filters, slicers, and visual charts that allow management to explore data dynamically and obtain detailed insights.

V. SYSTEM DESIGN

5.1 System Flow Diagram

The system flow diagram illustrates the sequence of operations involved in generating the MIS dashboards for Intimate Fashion Private Limited.

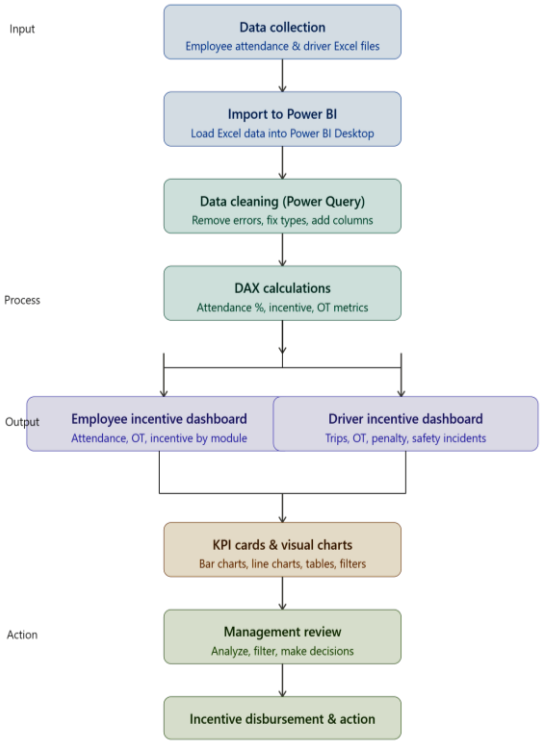

Fig:2 System Flow

Initially, two datasets are collected from company records: the employee attendance dataset maintained in Excel format with attendance timestamps, module assignments, and overtime records, and the driver

transport dataset with trip completion details, delivery performance, and safety records. These datasets act as the primary data sources for the respective dashboards. The raw data is imported into Microsoft Power BI where it undergoes preprocessing and cleaning using Power Query. During this stage, unnecessary fields are removed, missing values are handled, data types are corrected, and new calculated columns are derived. For the attendance dataset, calculated columns for Working Hours, Final Working Hours, and Attendance Status are created using DAX formulas. For the driver dataset, columns for Final Incentive incorporating OT incentive, on-time bonus, late penalties, and safety penalties are computed.

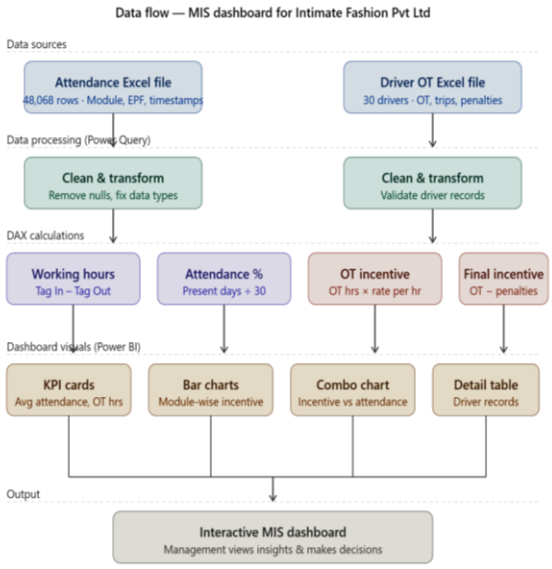

Fig:3 System Flow

After pre-processing, analytical measures are created using DAX to generate key financial and operational indicators. These measures power the KPI cards, bar charts, line charts, and detail tables displayed in the dashboards. The completed dashboards are designed within Power BI with interactive visuals that allow users to filter data by date, module, driver name, and other dimensions, enabling dynamic exploration of the data and efficient monitoring of workforce and transport performance.

5.2 System Architecture Diagram

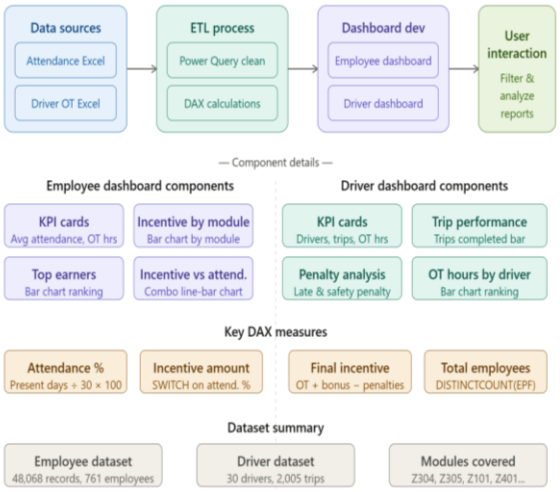

Fig:4 System Architecture

The system architecture consists of four main layers: Data Sources, Data Processing, Dashboard Development, and User Interaction. The Data Sources layer includes Excel files containing employee attendance records and driver operation data exported from the company's biometric and transport management systems. These files serve as the input to the analytical pipeline.

The Data Processing layer comprises the ETL process performed using Power Query within Power BI Desktop. Data is cleaned, transformed, and structured in this layer. DAX calculations are then applied to derive meaningful metrics such as attendance percentages, incentive amounts, penalty computations, and performance rankings. The Dashboard Development layer involves the creation of interactive visualizations including bar charts, line charts, KPI cards, and detail tables that represent the processed data. The final User Interaction layer allows bank staff and management to explore the dashboards using filters, slicers, and drill-down capabilities to obtain granular insights.

VI. METHODOLOGY

The methodology of this project describes the systematic process followed to design and develop the MIS dashboards for Intimate Fashion Private Limited. The project begins with the collection of operational data from two primary sources: employee attendance records exported from the company's biometric system

and driver transport records maintained by the logistics department. The attendance dataset includes 48,068 records spanning multiple production modules, while the driver dataset contains records for 30 drivers with detailed trip and performance attributes.

The next step involves data preprocessing and transformation using Power Query in Microsoft Power BI. For the employee dataset, calculated columns are created for Working Hours (derived from Tag in and Tag Out timestamps), Final Working Hours (incorporating manual adjustment minutes), and Attendance Status (Full Day for 8.5 or more hours, Half Day for 4 or more hours, and absent otherwise). These derived fields form the basis for incentive calculations. For the driver dataset, final incentive values are computed by combining OT incentives with on-time bonuses and subtracting late delivery and safety penalties.

Analytical measures are then developed using DAX in Power BI. Key measures include Present Days (count of distinct dates with Full Day attendance per employee), Attendance Percentage (present days divided by 30, multiplied by 100), Incentive Amount (tiered at Rs. 2,000 for 95% or above attendance, Rs. 1,500 for 90% or above, and Rs. 1,000 for 80% or above), Total Employees (distinct count of EPF numbers), and various driver performance metrics.

Once the analytical data is prepared, the dashboard development stage focuses on building interactive visualizations within Power BI. For the employee dashboard, visuals include KPI cards for average attendance percentage (99.70%), sum of OT hours (17.88K), sum of OT incentive amount (1.07M), total employees (761), and top performer. Charts include Incentive by Module bar chart, OT Hours Distribution bar chart, Top Incentive Earners bar chart, and Incentive versus Attendance Performance line-bar combination chart. For the driver dashboard, KPI cards display Total Drivers, Total Trips, OT Hours, OT Incentive, Final Incentive, and Top Incentive Driver. Charts include Driver Trips Completed, OT Hours by Driver, Penalty Analysis, Delivery Performance, Safety Incidents, and a Driver Details Table. Filters by date and other dimensions are implemented to allow dynamic data exploration.

VII. RESULTS AND DISCUSSION

7.1. Employee Incentive and Attendance

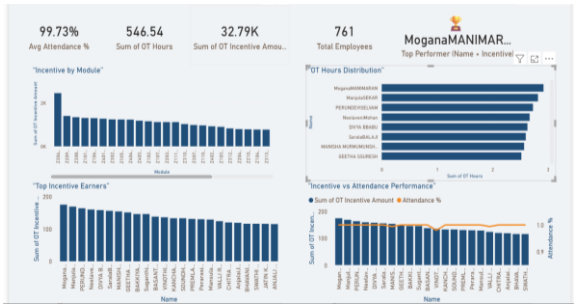

Fig.:5 Employee Performance

The Employee Incentive and Attendance Performance Dashboard effectively consolidates 48,068 attendance records from multiple production modules into a single interactive interface. The dashboard reveals that the average attendance percentage across all employees is 99.70%, indicating a highly disciplined workforce. The total OT hours recorded stand at 17.88K, generating a cumulative OT incentive amount of Rs. 1.07 million.

The Incentive by Module visualization shows that module Z304 contributes the highest OT incentive amounts, followed by Z209 and Z302, providing management with clear visibility into which production modules have the highest overtime activity. The OT Hours Distribution chart identifies Divya Bbabu as the top contributor with the highest OT hours, followed by Bhuvaneswari Mmunusamy and Chitraudhayakanth. The Top Incentive Earners chart directly translates OT hours into incentive amounts, enabling fair and transparent recognition of high-performing employees. The Incentive versus Attendance Performance combination chart demonstrates a strong positive relationship between attendance consistency and incentive earnings, confirming the effectiveness of the tiered attendance-based incentive structure.

7.2. Driver Overtime and Incentive Performance Dashboard

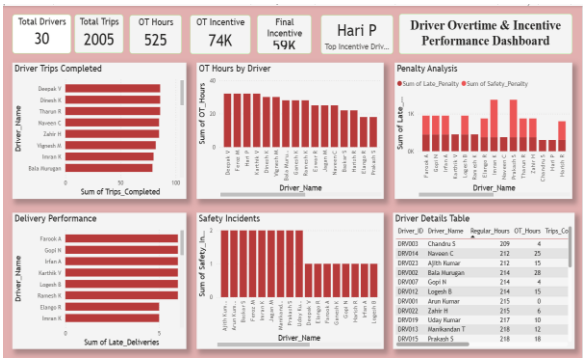

Fig.:6 Drivers Performance Analytics

The Driver Overtime and Incentive Performance Dashboard analyzes the performance of 30 drivers across 2,005 completed trips. The dashboard presents a comprehensive view of OT activity, delivery performance, and safety compliance. The total OT hours for the driver team is 525 hours, generating an OT incentive pool of Rs. 74K. After applying on-time bonuses and deducting late delivery and safety penalties, the final incentive disbursed amounts to Rs. 59K. The top incentive earner is Hari P.

The Driver Trips Completed chart shows that Deepak V, Dinesh K, and Tharun R are among the most active drivers in terms of trip volume. The OT Hours by Driver chart highlights Deepak V, Ferozm, and Hari P as the highest overtime contributors. The Penalty Analysis chart provides management with transparency on drivers incurring late and safety penalties, enabling targeted corrective interventions. The Delivery Performance and Safety Incidents charts further support data-driven performance reviews and incentive adjustments. The Driver Details Table provides a complete record of all 30 drivers with their individual metrics, serving as an audit trail for incentive calculations.

VIII. CONCLUSION

The developed MIS dashboards for Intimate Fashion Private Limited provide an effective and transparent solution for analyzing employee attendance, overtime performance, and driver transport operations. By integrating structured operational datasets with business intelligence tools, the system automates incentive calculations that previously required significant manual effort and were susceptible to errors. The attendance-based incentive computation using DAX measures ensures that all employees are evaluated fairly and consistently based on their actual attendance and overtime contributions.

The implementation demonstrates that data visualization significantly improves the efficiency of workforce performance monitoring. Instead of manually reviewing large attendance registers and transport logs, management can quickly access summarized KPI information through an interactive dashboard interface. The visual representation of module-wise incentive distribution, OT hours by employee, top performers, and driver penalty analysis enables faster and more accurate decision-making. Overall, the proposed system supports better incentive management and enhances operational transparency at Intimate Fashion Private Limited.

IX. FUTURE SCOPE

In the future, the system can be enhanced by integrating real-time data feeds from the company's biometric attendance system and transport management software. This would allow the dashboards to automatically refresh with live data, enabling continuous monitoring of attendance and driver performance without manual data exports. Automated alert mechanisms can be implemented to notify management when attendance falls below threshold levels or when driver safety incidents exceed acceptable limits.

Additionally, predictive analytics and machine learning models can be incorporated to forecast attendance trends, identify employees at risk of absenteeism, and predict incentive expenditure for future periods. Deployment as a cloud-based Power BI service with role-based access control would allow department heads, HR managers, and transport supervisors to access their respective dashboards securely from any location.

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