Development of a Software to Analyze the Daily Data in the Industry

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***Abstract*- In the field of mechanical industrial operations, the ability to collect, store, and analyze daily data is essential for improving performance and ensuring optimal efficiency. Mechanical Industries uses Excel sheets and Hand-Written Registers to store the daily Industrial data which leads to consume more time which effects in future planning of the Industries. This software solution provides a platform for collecting and storing data related to mechanical operations, such as equipment usage, maintenance, and downtime. Additionally, the software includes features for estimating the performance of individual workers, based on their productivity and efficiency metrics. The software utilizes advanced algorithms to provide accurate estimates and visualizations of data, allowing managers to make informed decisions regarding operational efficiency, equipment maintenance, and worker productivity. By providing a centralized platform for data collection and analysis, this software solution enables organizations to improve their overall performance, reduce costs, and increase profitability.**

***Keywords*: Software, Mechanical Operations, Productivity, Data Analysis**

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Introduction

This Software can work with simple data sources. This Software has the capability to easily connect to your data which is in your data source and it could be visualize, share and publish your findings with respected management and authorities. It is simple and fast enough to connect the database. It can be also robust and enterprise-grade, ready for extensive modeling and real time analytics. This means it can be used in a variety of environments from a personal report and visualization tool for the analytics and decision engine behind group projects, divisions, or entire corporations. The use of Software could depend on kind of access that you have. The workers have the individual access, CEO have all access and supervisor have access of all workers.

Industrial Data

The industrial data is may be Individual workers data, Supervisors data or Products data. This data is used in the industry to analyze and make future planning. For that purpose the data is analyzed efficiently and will be stored in safe database. This software provides the databases to store that data and used it further for analyses purpose.

Problem Statement

Mechanical industries are using the excel sheets or Hand written Registers to store the daily data of industry, which takes too much time and one special person is needed for that to add the data in the Excel sheets and Hand written Registers. This software provides the ability to store this data by providing individual access to the workers and management team, it results in saving the time and reducing the post of one special person to do this job. The individual workers evaluation can be done by using this software.

Objectives

- Identifying areas of inefficiency: By collecting and analyzing data on production, maintenance, and worker performance, managers can identify areas of the organization that are not operating as efficiently as they could be.
- Setting performance goals: With a clear understanding of where inefficiencies exist, managers can set specific performance goals aimed at improving efficiency and productivity.
- Monitoring progress: Once performance goals have been established, managers must monitor progress on a regular basis to ensure that the organization is on track to meet those goals.
- Optimization of processes: By collecting and analyzing data on a daily basis, managers can identify areas where production processes can be optimized to increase efficiency and reduce waste.
- Identifying performance issues: Daily data collection and analysis can help managers identify workers who may be struggling to meet performance standards or machines that require more frequent maintenance. This allows them to take corrective action quickly and avoid more significant problems down the line.
- Continuous improvement: By monitoring daily data, managers can identify trends and patterns over time, and use that information to develop new strategies for continuous improvement. This ensures that the organization is constantly striving to improve its processes and stay ahead of the competition.
- Decision-making: Daily data collection and analysis provides managers with the information they need to make informed decisions about the organization's operations. This includes decisions about when to invest in new equipment or technology, when to hire additional workers, and when to make changes to production processes.

Scope

- The art of visualization for clarifying meaningful data.
- Better dashboard for analysis purpose.
- Industry data management can be achieved.
- Depends on other modules under development within the DESMET research project.

In particular technical support is required in the area of data collection and analysis. Future work will concentrate on validating the framework via field trials and on integrating this within a more general evaluation framework.

Details

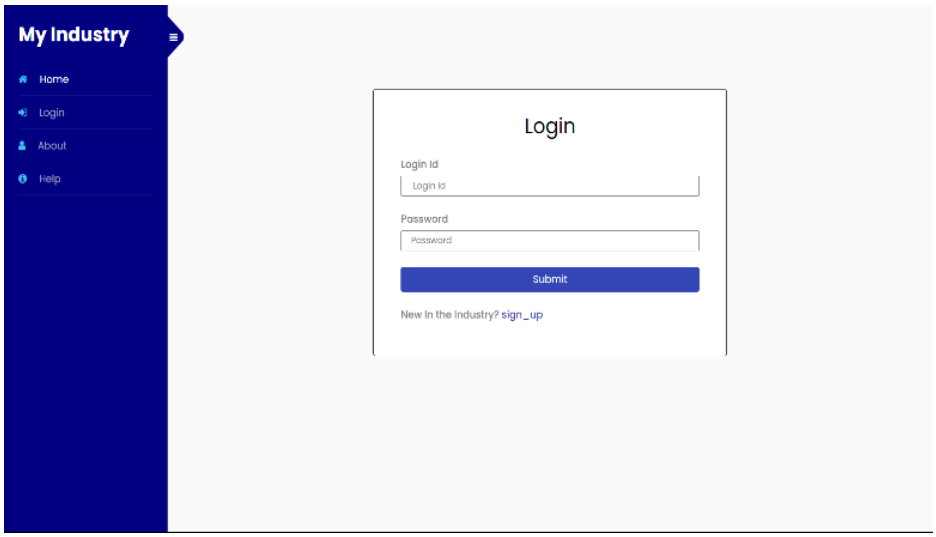


Figure 1: Login Page

Workers Login

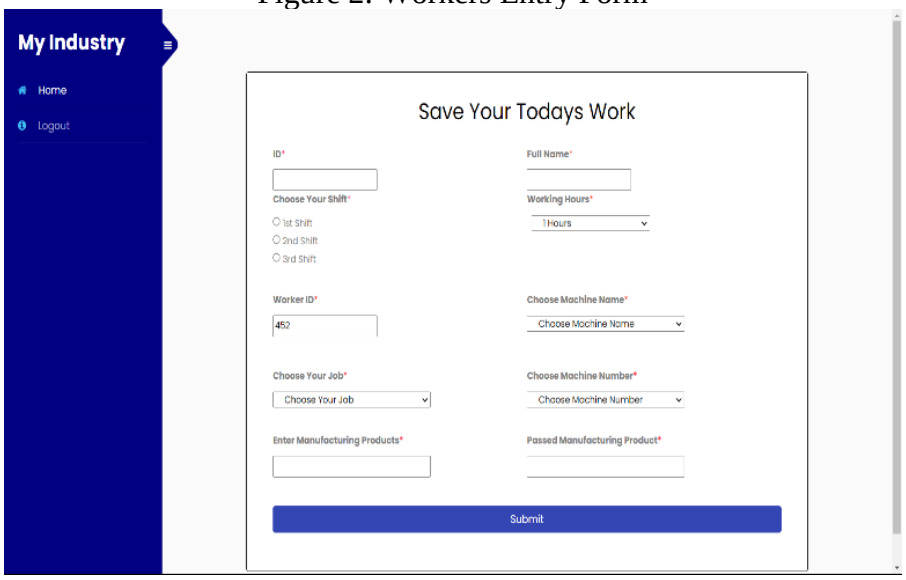
A worker can log into his account by entering his user ID and Password. Worker only get the access to his daily entry from, feedback and contact pages. In workers login a daily data entry form is provided for data collection which is needed for further analysis.

Workers Entry Form

A Daily entry form can be accessed to worker by logging in with his credentials. The entry form is accessible to worker only once in a day as shown in Figure 2. This data is stored in the database and used for further analysis. The daily data entered by the worker in the form is as follows:

- Working Shift
- Working Hours
- Machine Name and Number
- Job Name
- Total Manufactured Products
- Total Passed Products
- Total Rejected Products
- Reason of Rejected Products
- Breakdown Maintenance

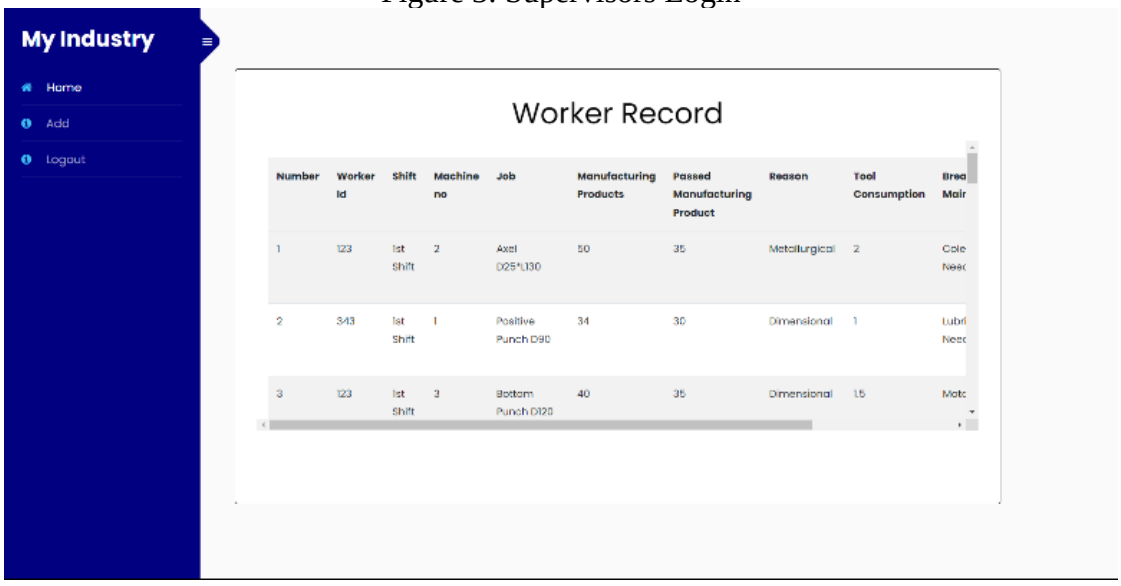
Figure 2: Workers Entry Form



Access to Workers Record

Supervisor will get the access to workers record by simply logging into his account. Supervisors will also get the authority to view and edit the workers record as shown in Figure 3.

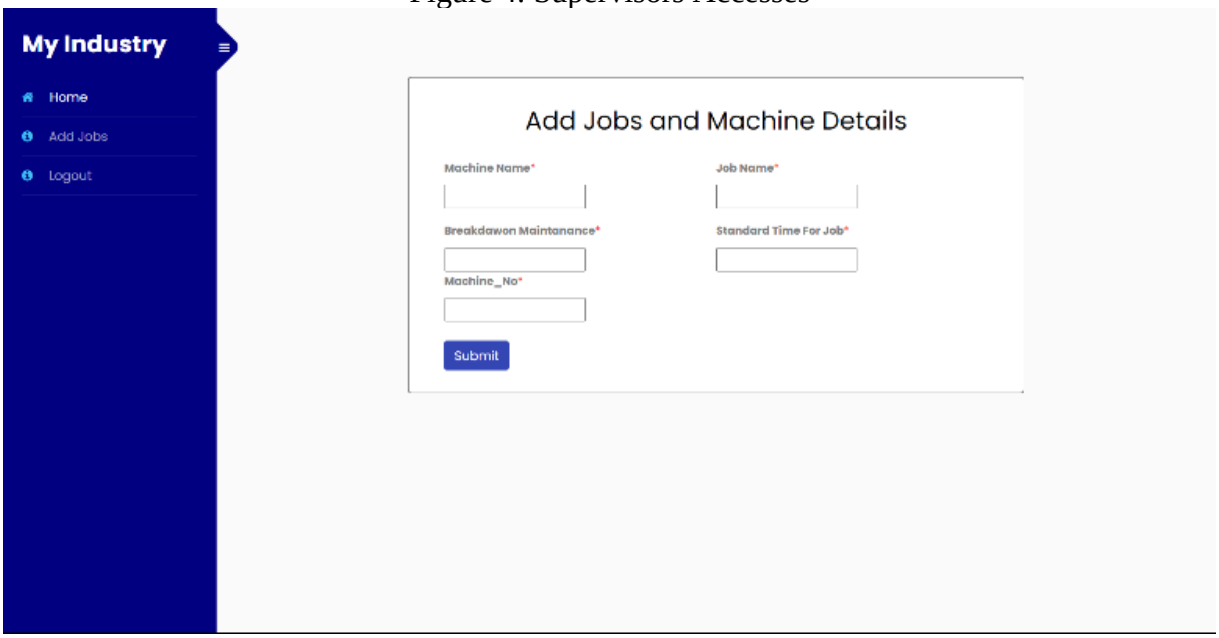
Figure 3: Supervisors Login



Access to Add Jobs

The Supervisor will be able to add the jobs name and machine name into the software by visiting “Add Jobs” page from navigation bar. The jobs name and machine names entered by the supervisor are directly accessible in workers daily data entry form as shown in Figure 4.

Figure 4: Supervisors Accesses



Access to Workers Record

Supervisor will get the access to workers record by simply logging into his account. Supervisors will also get the authority to view and edit the workers record. For this purpose separate workers record page is provided in supervisors logging. Figure 5 Shows the Worker Record page.

Figure 5: Supervisors Login

Access to Add Jobs

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Figure 6: Supervisors Accesses

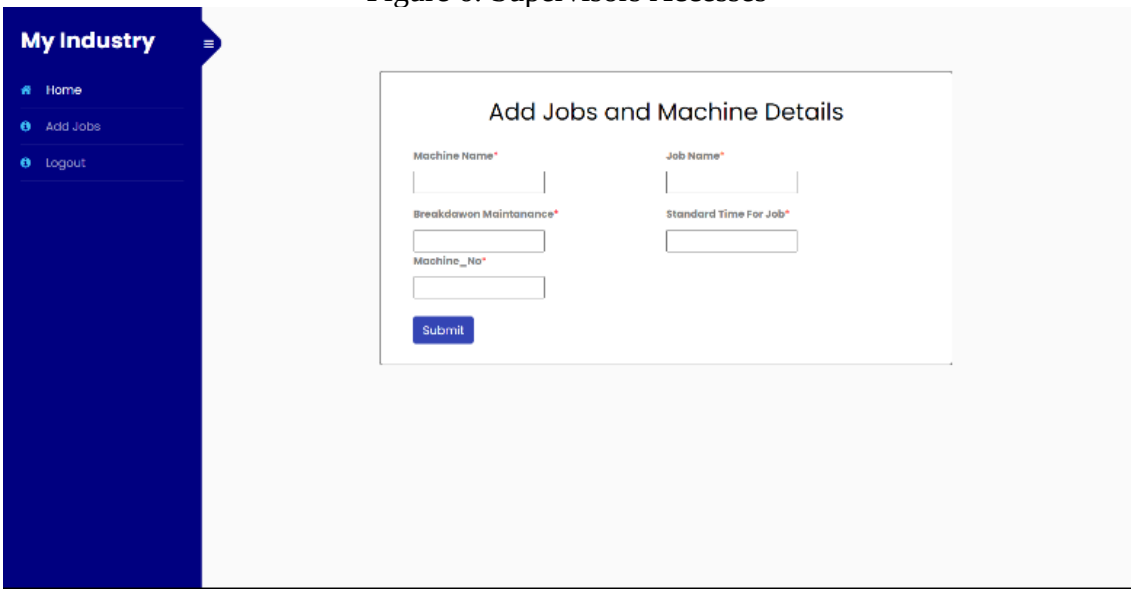
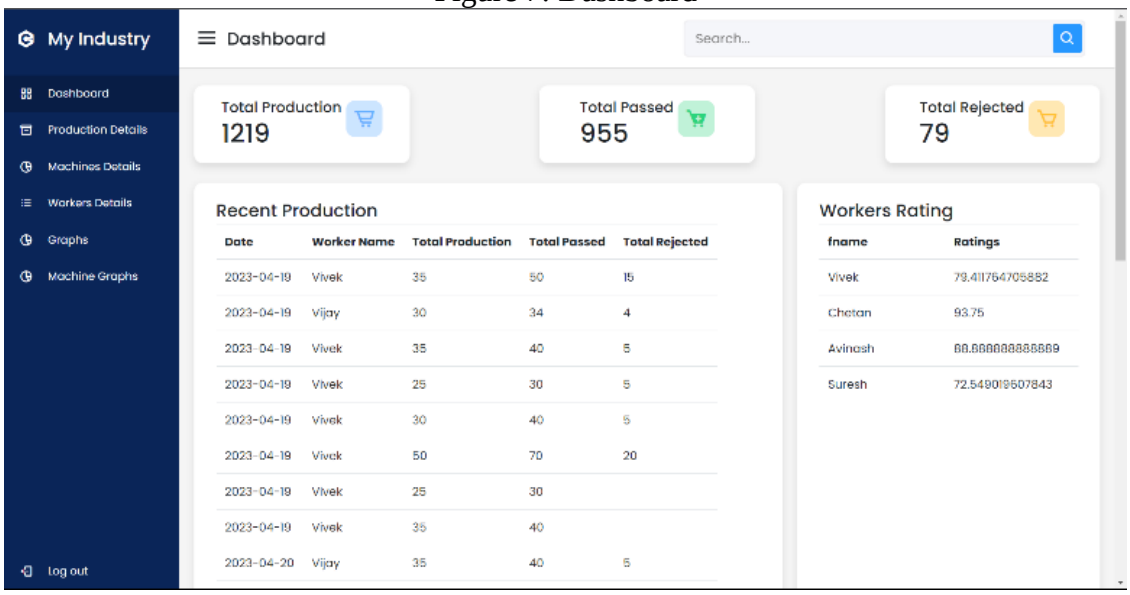


Figure 7: Dashboard



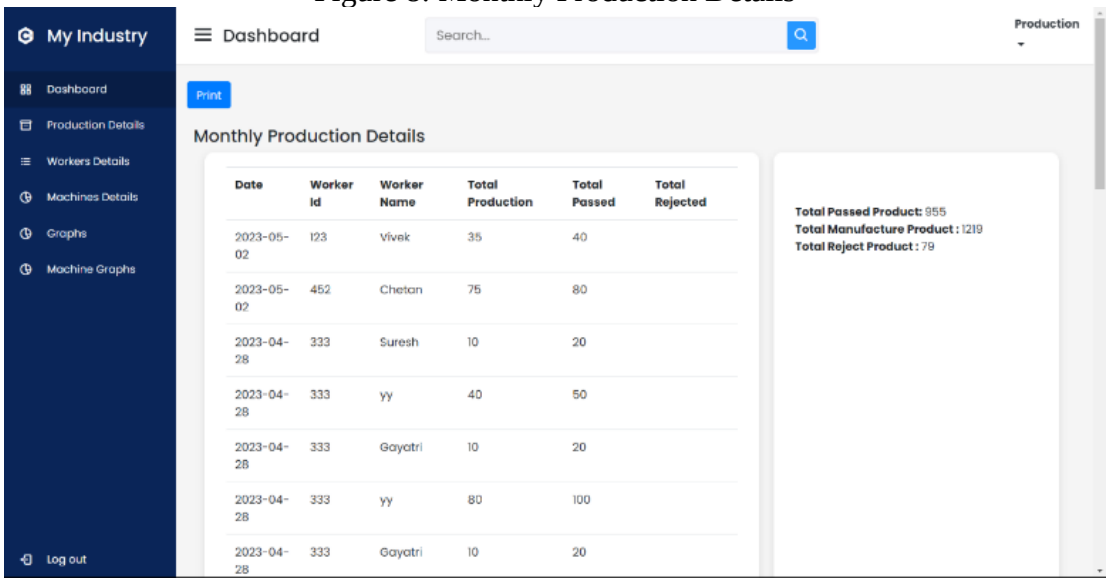
Dashboards are commonly used in data analysis and reporting to provide users with real-time or near real-time insights into the performance of a particular system or process. They can be customized to display different types of data and can be accessed by various stakeholders, including executives, managers, and operational staff.

These ratings may be used to track employee progress, identify areas for improvement, and make decisions about promotions, raises, or disciplinary actions. So, from the workers details about all the productions of the job which is manufactured. From that rating is calculated.

Monthly Production Details

As per the above access of the weekly data likewise also the access of the monthly production data of the Jobs with total Production and from the that total passed and rejected.

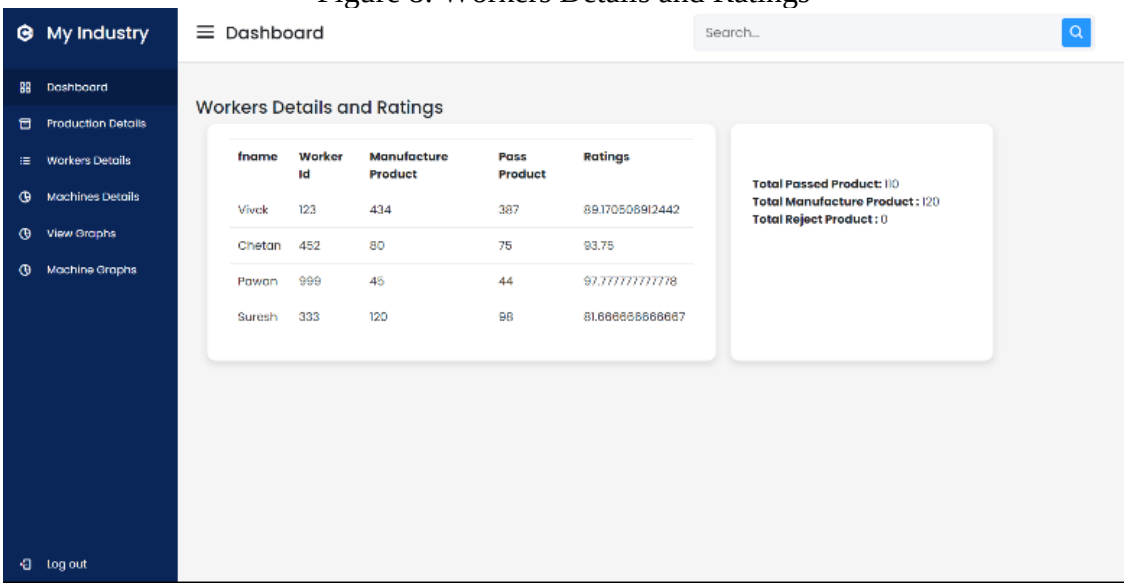
Figure 8: Monthly Production Details



Workers Details and Ratings

These ratings may be used to track employee progress, identify areas for improvement, and make decisions about promotions, raises, or disciplinary actions. So, from the workers details about all the productions of the job which is manufactured. From that rating is calculated is as shown in Figure 9.

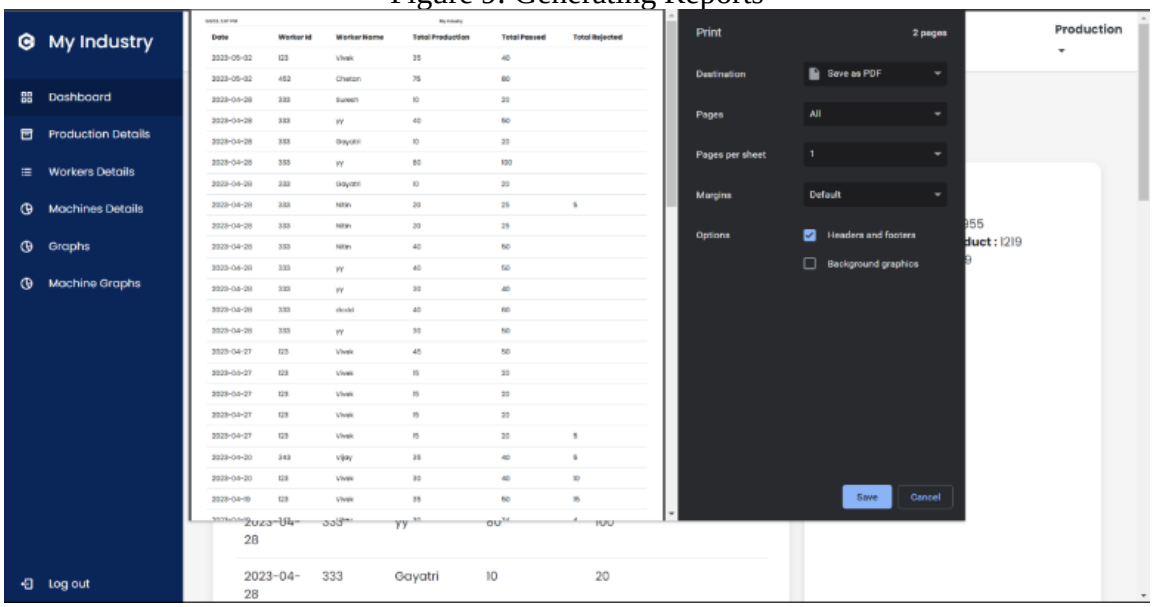
Figure 8: Workers Details and Ratings



Generating Reports

The data generated at production details page can be downloaded in this software. In managers login this reports can be downloaded from the software for further analysis and evaluations. The reports generated are daily, weekly or monthly. To download this report, the managers must click on print button. Report as shown in Figure 9.

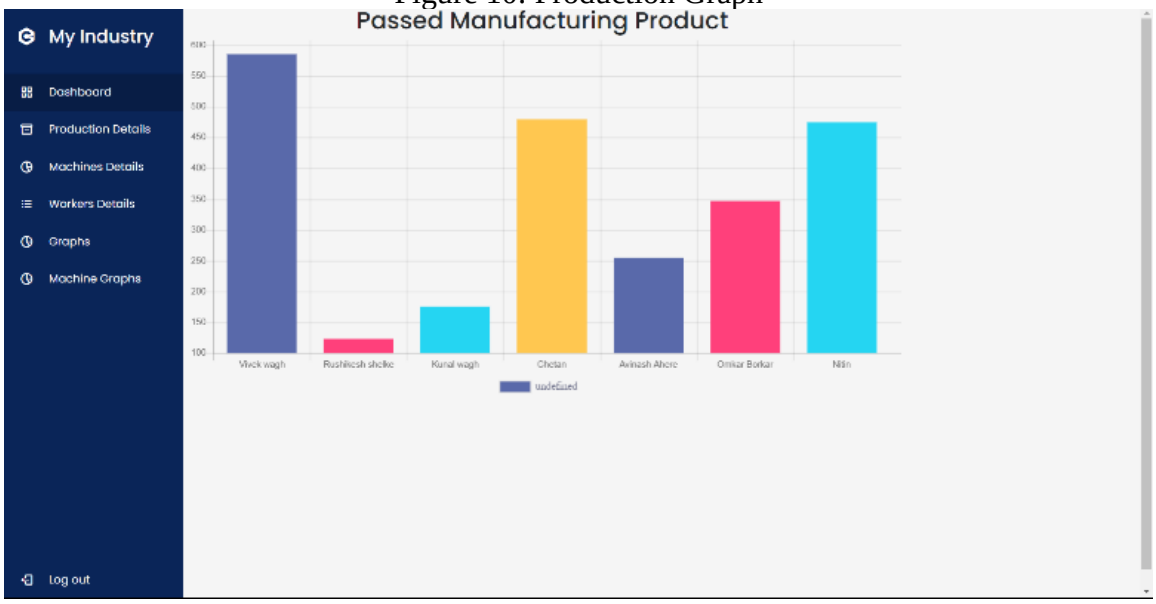
Figure 9: Generating Reports



Production Graph

The manager can access the Graphs in his account by visiting Graph page available in navigation bar. Graphs are used to visually represent data in a way that is easy to understand and interpret. They are commonly used in business, academia, journalism, and other fields to communicate complex information in a simple and concise manner.

Figure 10: Production Graph



CONCLUSION:

Existing Experiment and its analysis provides following remarkable points:

- The analysis is performed for an individual worker is performed at one place.
- The software is used to find the insights within an organization data.
- Also useful for business analytical solution.
- The data that is stored in the sources must be extracted and explored to suit users and organizations, to improve quality of information and obtain knowledge for further processing.

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