CHAPTER ONE

INTRODUCTION

1.0 Introduction

Any manufacturing company that wants to maximize resources, cut costs, and boost efficiency must have a production scheduling procedure in place. Organizations are implementing mobile-based production schedule management information systems to streamline their production process and maintain competitiveness in the fast-paced business world of today.

Managers can use the system's unified platform to examine real-time production data, decide wisely, and allocate resources effectively. Production teams may schedule, manage, and monitor the status of production orders from their mobile devices with the help of the mobile-based production scheduler management information system, which offers a user-friendly interface.

A production scheduler is a professional responsible for developing and maintaining production schedules for a manufacturing facility. Their primary role is to coordinate and plan the activities required to manufacture goods within a specific timeframe while ensuring that resources are used efficiently.

The production scheduler's main duties include monitoring production progress, analyzing data to determine the optimal sequence and timing of production activities, and ensuring that all necessary resources, such as raw materials, equipment, and labor, are available when needed.

This chapter is presented the introduction of the project, background of the system, problem statement, purpose of the project, project objectives, project scope, significance of the project and report organization.

1.1 Background of the system

Production scheduling is a process that has been used for centuries to plan and manage production activities. The earliest known production scheduling systems were developed by the ancient Egyptians around 4000 BCE. They used a system of hieroglyphs to track the production of goods and manage the flow of resources.

In the modern era, production scheduling became more complex with the advent of mass production techniques in the early 20th century. The need for efficient production planning led to the development of sophisticated scheduling methods and tools. (Gunasekaran, 2004)

One of the first significant advances in production scheduling came in the 1920s with the development of the Gantt chart, a graphical representation of a production schedule that allowed managers to visualize the progress of production activities over time. The Gantt chart became a standard tool for production scheduling and was widely used throughout the 20th century.

In the 1960s, computer technology began to play a more significant role in production scheduling with the development of mainframe computers. This enabled the development of more advanced scheduling algorithms and allowed for faster and more accurate scheduling.
The history of production scheduling in Nigeria can be traced back to the early 1960s, when the country gained independence from British colonial rule. At that time, the Nigerian government

recognized the need to develop its manufacturing sector in order to reduce dependence on imported goods and to diversify the economy.

To support this goal, the government established the Industrial Development Center (IDC) in 1962, which provided technical assistance and training to entrepreneurs and small-scale manufacturers. The IDC also played a key role in introducing modern production techniques, including production scheduling, to Nigerian manufacturers. (Adeniyi, 2018)

In the 1970s and 1980s, the Nigerian government embarked on an ambitious program of industrialization, which led to the establishment of a number of large-scale manufacturing industries, particularly in the areas of petrochemicals, iron and steel, and cement production. Production scheduling became an essential tool for these industries to manage their complex manufacturing processes and ensure optimal use of resources.

In the 1990s, Nigeria experienced a period of economic recession, which led to a decline in the manufacturing sector. However, production scheduling continued to be used by the remaining manufacturing industries to improve their efficiency and competitiveness.

Today, production scheduling is widely used in Nigeria's manufacturing sector, particularly in industries such as food processing, pharmaceuticals, and consumer goods. With the growth of the country's economy and the increasing sophistication of its manufacturing industries, production scheduling is likely to continue to play a key role in ensuring efficient and effective production processes. (Oke, 2014)

1.2 Problem statement

In many production-oriented industries, scheduling is one of the most critical and complex processes. The efficiency and effectiveness of production scheduling are critical for the timely delivery of products to customers, which in turn, is directly proportional to business success. However, conventional scheduling systems used in many industries are often manually

intensive, error-prone, and time-consuming. This problem leads to inefficient production schedules, which result in poor productivity and delays in product delivery.

Furthermore, many production-oriented industries have dispersed teams and facilities, which make it difficult to monitor and track production schedules in real-time. Additionally, traditional scheduling systems often lack the ability to integrate with other business processes, which creates information silos and limits overall business visibility.

To address these challenges, there is a need for a mobile-based production scheduler management information system that can automate and streamline the production scheduling process. This system should allow production managers to monitor and adjust production schedules in real-time, and enable teams to collaborate more effectively. It should also integrate with other business processes to provide a holistic view of business operations and enable better decision-making.

Therefore, this project is to design and implement a mobile-based production scheduler management information system that addresses the scheduling challenges faced by production-oriented industries. The system will enable more efficient and effective production scheduling, reduce errors, and increase productivity, ultimately resulting in improved customer satisfaction and business success.

1.3 Purpose of the project

The purpose of the project "Design and Implementation of a Mobile Based Production Scheduler Management Information System" is to develop a software system that can efficiently manage and monitor the production scheduling process of a manufacturing organization. The primary objective of the project is to design a user-friendly and flexible system that enables the production manager to efficiently schedule, track, and monitor the production process, thereby enhancing productivity and reducing operational costs.

1.4 Project objectives

Here are the most three objectives:

1. To plan a Mobile Based Production Scheduler Management Information System.
2. To analyze a Mobile Based Production Scheduler Management Information System.
3. To design, implement and test a Mobile Based Production Scheduler Management Information System.

1.5 Project Scope

This system that is developed is Design and Implementation of a Mobile Based Production Scheduler Management Information System.

The proposed system is developed using Flutter and MySQL, it will be implemented between February to July 2023.

Time scope: This project will be implemented in 6 Months.
Geographical scope: This system will be used in Jema Mineral Water. Located Mogadishu-Somalia.

1.6 Significance of the project

The project "Design and Implementation of a Mobile Based Production Scheduler Management Information System using Flutter and MySQL" is significant for several reasons:

1. Improved efficiency and productivity: The use of a mobile-based production scheduler management information system can significantly improve the efficiency and productivity of a manufacturing company. By automating the scheduling process, the system can help to reduce downtime, optimize resource allocation, and ensure that production targets are met on time.
2. Real-time tracking and reporting: The mobile-based production scheduler management information system allows for real-time tracking of production progress and reporting of key performance indicators. This can help managers to make informed decisions, identify bottlenecks, and take corrective action to improve performance.
3. Data-driven decision making: The system is built on a MySQL database, which can store large amounts of data related to production scheduling and performance. This data can be analyzed to identify trends, patterns, and opportunities for improvement. This can help managers to make data-driven decisions that can improve efficiency and productivity.
4. Mobile accessibility: The use of Flutter as the development platform allows for the creation of a mobile app that can be accessed from anywhere, at any time. This can help managers to stay connected to production progress and make decisions on-the-go.
5. Cost-effective solution: The use of an open-source platform like Flutter and a free database management system like MySQL can help to keep development costs low. This makes the system a cost-effective solution for small to medium-sized manufacturing companies.

Overall, the "Design and Implementation of a Mobile-Based Manufacturing Scheduling Management System using Flutter and MySQL" project can help Jema Mineral Water in their managers to improve their efficiency, productivity, and decision-making processes. intake, while also reducing costs.

1.7 Report organization

In this research, it is organized chapters as follows:

Chapter 1: Introduction this chapter is presented the introduction of the project, background of the system, problem statement, purpose of the project, project objectives, project scope, significance of the project and report organization.

Chapter 2: Literature Review this chapter is presented the introduction, theoretical and conceptual development, case study of the research, compare between exiting system and chapter summary.

Chapter 3: Software Planning And Analysing this chapter is presented the introduction, operational framework, work break down structure (WBS), system requirement, software requirement specification, user requirements definition, problem analysis identification, requirements gathering techniques, interview, observation, process modelling, data flow diagram (DFD), unified modelling language (UML), use case diagram (UCD), data modelling, entity relationship diagram, ERD symbols, types of relationship, ERD of the proposed system, suitable solution strategies of the proposed system, system feasibility, technical feasibility, operational feasibility, economic feasibility, schedule feasibility and chapter summary.

Chapter 4: Software Design this chapter is presented the introduction, architectural design, user interface design, database storage design, database design, database normalization, first normal form (1NF), second normal form (2NF), third normal form (3NF), normalized tables of the proposed system, transforming e-r diagrams into relations, data dictionaries, designing forms and reports and chapter summary.

Chapter 5: System Implementation this chapter is presented the introduction, coding phase, test system implementation, development testing, release testing, user testing, developing user manuals and chapter summary.

Chapter 6: Conclusion & Enhancement this chapter is presented the introduction, objective achievement, weaknesses and problems of the system, future work and chapter summary.