OVERALL LABOR EFFICIENCY STUDY USING MAYNARD OPERATIONAL SEQUENCE TECHNIQUE AT MANUFACTURING COMPANY

THIVIYA A/P GUNALAN
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FACULTY OF MECHANICAL AND MANUFACTURING TECHNOLOGY

OVERALL LABOR EFFICIENCY STUDY USING MAYNARD OPERATIONAL SEQUENCE TECHNIQUE AT MANUFACTURING COMPANY

THIVIYA A/P GUNALAN

BACHELOR OF MANUFACTURING ENGINEERING TECHNOLOGY (PROCESS) WITH HONOURS

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OVERALL LABOR EFFICIENCY STUDY USING MAYNARD OPERATIONAL SEQUENCE TECHNIQUE AT MANUFACTURING COMPANY

THIVIYA A/P GUNALAN

A thesis submitted in fulfilment of the requirements for the bachelor mechanical manufacturing process

Faculty of Mechanical and Manufacturing Technology

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This report is submitted to the Faculty of Mechanical & Manufacturing Engineering Technology of UTeM as a fractional satisfaction of the necessities for the level of Bachelor of Manufacturing Engineering Technology (Process and Technology) with Honors. The individual from the supervisory is:

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ABSTRAK

Industri pembuatan sangat mengutamakan produktivit. Terdapat pelbagai alternative yang tersedia untuk meningkatkan produktiviti. Oleh itu, kajian ini adalah mengenai peningakatan produktiviti dengan mengenal pasti penggunaan buruh semasa menjalankan aktiviti dengan menggunakan kaedah kajian kerja.Maynard Sequence Operasi Teknik (MOST) adalah masa alat pengukuran standard kerja yang telah ditetapkan untuk mengukur aktiviti pengendali di barisan pengeluaran industri pembuatan. Tujuannya adalah untuk memerhati rangkaian tugas yand dilaksanakan oleh pengendali,masa aktiviti-aktiviti ini dan menganalisis data menggunakan template MOST untuk menentukan penggunaan semasa pengendali. Daripada kajian ini,penambahbaikan dapat dibuat dengan mencadangkan kepada pihak pengurusan mengenai kawasan tumpuan untuk meningkatkan lagi produktiviti. Penambahbaikan apabila dilaksanakan akan membolehkan syarikat itu untuk mengurangkan kos operasi dan membolehkan ia mencapai kelebihan daya saing di kalangan pesaing lain.

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ABSTRACT

Productivity is manufacturing industry's main concern. There are many alternatives available for improving productivity. Thus, this study is about improving productivity through identifying current labor utilization when carried out the activities which can be determined using work study methodology. Maynard Operational Sequence Technique (MOST) is the predetermined time standards work measurement tool used to measure labor's activities in a production line at a manufacturing company. The aim is to observe the sequence of tasks performed by operators, time for performed these activities and analyze the data using a MOST template to determine the current utilization of the labor. From this study, the value added and non –value added activities can also be determined in order to propose to the management on area to focus to further improve the productivity. The improvements when implemented will enable the company to reduce the operational costs and enable it to achieve competitive advantage among other competitors.

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DEDICATION

For god, beloved parents that is my father Gunalan Veerasingam, my mother Kalaimalar Krishnan and my supervisor Dr. Rohana Binti Abdullah and all contributors especially the PHN Industry and Utem lecturers.

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LIST ABBREVIATIONS, SYMBOLS AND NOMENCLATURES

MOST	-	Maynard Operational Sequence Technique
MTM	-	Method Time Measurement
MODAPTS	-	Modular Arrangement of Predetermined Time Standard
TMU	-	Time Measurement Unit
TQM	-	Total Quality Management
WSS	-	Working Stand Station
Min	-	Minutes
sec	-	Second
hr	-	Hour
rf	-	Repeat Frequency
cf	-	Cycle Frequency

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CHAPTER 1

INTRODUCTION

1.0 Project Background

In the manufacturing sector, labor and capital factor assume an essential part in contributing the economic growth. Efficient work has expanded profitability of this sector. Successful improvement not just covers development of physical work and capital yet additionally development of efficiency. In this case, to learn more about the manufacturing sector, the student carried out a final year project. As we know, manufacturing sector was one of big sector in industry. The main role in manufacturing sector was manufacturing performance. Thus, the overall project was started from the manufacturing performance in PHN Company. From the previous study, each of the company have a manufacturing performance based on their labor performance. This study carried by visited the PHN Company and know all the process in production line. PHN Company is a leading manufacturing specialist for metal-based automotive components, and the largest dies manufacturer in Malaysia Incorporated in October 1990, PHN Industry Sdn Bhd is actively involved in the production of medium-to-large automotive components for car makers Proton, Perodua, Toyota and Honda.

In PHN Industry at Alor Gajah, mainly produce the metal based automotive components for car makers Honda which are CIVIC, CR-V, Accord and BR-V. Based on this, each student conducted one process in production line. From that, the student can identify the problem and find a solution to overcome it. In this studies, it carried out about the overall labor efficiency in spot welding process in the dashboard upper comp of the

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Honda CIVIC. This research can be remark the problem based on the labor performance in welding process. Figure 1.1 show the example of the dashboard of the Honda.

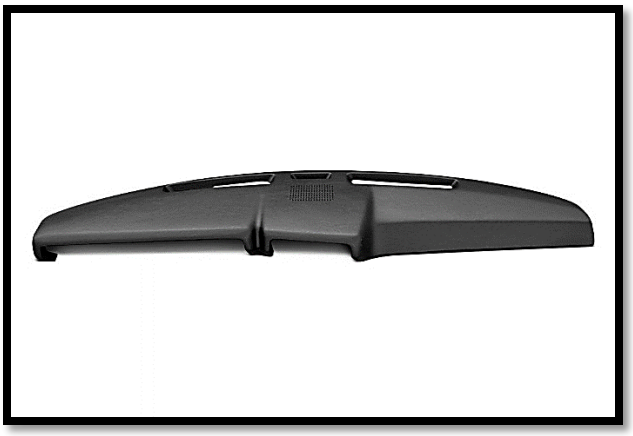

Figure 1.1 Image of Car Dashboard

The problem can be solve by collecting the data of labor performance which is cycle time and analysis it using MOST technique. MOST technique was came from the predetermined time standard. The MOST technique was applied by refer the bottleneck of the process. Regarding this, MOST technique is can easily solve the problem in production line and it is more preferable technique to achieve a good productivity.

1.1 Problem Statement

Productivity, labor, efficiency, quality and time management are among the key performance in the industry. Due to increasing the cost by the performance, the importance of the labor become a main priority in the industry. Nowadays, many companies start to eliminate waste in lean culture to become a systematic lean and to improve the productivity. There are some issues based on the observation at the PHN industry that lead to write this report. It is found that some tasks performed by labors are unnecessary and can be careless when doing the welding process. The unnecessary and careless in work will affect the cycle time and daily production rate. Besides that, some labor experienced muscle fatigue due to

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the long standing when doing the welding process. This will cause the efficiency of work and company's productivity become slowly. Thus, unnecessary and careless in work will be eliminate automatically to improve the productivity of the company. From this, the process duration and normal time yield rate is essential to be utilized as a counter measure.

1.2 Objectives

The objectives of this study are as follows:

i. To study the labor activities using MOST predetermined time standards.

ii. To perform data analysis and determine current labor efficiency.

iii. To propose improvement opportunities to improve the labor efficiency.

1.3 Scope

The scope of this project was focused on the labor performance in spot welding process in the dashboard of the Honda CIVIC. This research study about the Overall Labor Efficiency and the data was needed and collected at PHN Industry Sdn. Bhd. The data will be collected and applied MOST technique, and it will be analyzed manually based on the summary in excel template.

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1.4 Project Methodology

Project Methodology started with two flowchart. One is refer the overall of the project and another is refer the method that used to conduct this research. In overall of the project , the flowchart started with define the title, literature review, visit the factory, identify the problem, research methodology, data and information gather, data analysis using excel analysis, improvement and recommendation and last is discussion and conclusion. But for the method flowchart, was started with orientation, problem identification, data collection, applied MOST technique, data and output analysis and last improvement and recommendation. This project methodology one of the important subchapter to utilize the method of MOST technique to achieved the objective.

1.5 Expected Result

Expected result based on the data collection of the labor activities in Dashboard Upper Comp production. In data collection, expected result can achieved based on the performed of the labor. This expected result will obtain by using the MOST technique. Through the result, improvement and recommendation will be implement in this research to achieve the objective.

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