

# DESIGN AND ANALYSIS MULTITool HANDLING SYSTEM FOR A RADIAL DRILL MACHINE

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**Abstract**—There are many factors that influence the productivity of a manufacturing organization. The most widely tackled issue is how to improve efficiency and productivity. Work study technique is one of the productivity improvement techniques used in many manufacturing companies. Work study is defined as a scientific analysis method designed to determine the best way to execute the repetitive task and to measure the time spent by an average worker to complete a given task in a fixed workplace. Work study offers real challenges in organization involving competent engineers, business administrators, industrial relations personnel, especially trained supervisors. The purpose of this case study is to discuss related issues of Work study implementation and its influence toward productivity improvement.

Work measurement and time study offers real challenges in organization involving competent engineers, business administrators, industrial relations personnel, especially trained supervisors. Data from a study carried out on a sample of manufacturing industries in DISHA ENGINEERINGS shows that Work measurement and time study implementation contributes positively towards achieving productivity.

The case study is conducted in one of the known manufacturing industry which is DISHA ENGINEERING. The study is carried out in CLUTCH HOUSING and HYDRAULIC LIFT HOUSING manufacturing line on radial drill machine with aim to reduce time and to minimize fatigue to the worker and to improve decision making quality of a worker. In this industry we observed that no proper place or tool holder for keeping tool like drill bits during the operation and after its work done. Worker has to keep the tool on his hand or pocket of his apron which causes fatigue to him resulting in harming his decision-making quality.

This case study aims to critically examine the factors that are responsible for the increases time required for production which helps in improving the organizational performance and to review the budget as an effective tool of cost control and Work study as the effective tool for time optimization.

**KEYWORDS:** *Clutch Housing and Hydraulic lift housing, Productivity improvement, Decision making quality.*

## I INTRODUCTION

In today's life due to increasing competition all industries are applying extra efforts for surviving in market. In this

competitive era productivity plays a very crucial role to throw huge impact on market. Term productivity is measure of rate at which output of goods and services are produced per unit of input (labor, capital, raw material etc.).

Productivity measures are used at the level of firms, industries and entire economies. Depending on the context and the selection of input and output measures, productivity calculations can have different interpretations. It is calculated as the ratio of the amount of output produced to some measure of the amount of inputs used.

Improving productivity can have connotation of economizing on the use of inputs – for example, adopting efficient production processes that minimize waste. Equally, improving productivity can have connotations of yielding more output – for example, using resources in activities or with technologies that generates more output. Conceptually, productivity is a 'supply side' measure, capturing technical production relationship between inputs and outputs. But implicitly, it is also about the production of goods and services that are desired, valued and in demand.

The manufacturing sector needs to improve productivity/quality of sheet metal components in priming section. Technology can help to improve overall productivity in different ways through the reduction in production cycle time and costs and better production and process control.

Manufacturing firms must achieve a degree of innovative capability in managing production operations, processes and capital equipment. They need to develop and adopt good management systems and practices such as work study which is broadly classified into two categories method study and work measurement. Considering the inclination towards a customer-focused environment while facing fierce majority of manufacturers are implementing work study methods help to eliminate wastes and increase proficiencies rather than depending on conventional processes and procedures. It is a way by which one can reduce the cost of manufacturing and increase productivity, which also increases annual profitability of the industry.

## II PROBLEM DEFINITION

When we visit to the industry for data collection purpose, while the observation we observed that the worker are facing difficulties in manufacturing of clutch and hydraulic lift housing. There is no proper place or tool holder for keeping tool like drill bits during the operation and after its work done. Worker has to keep the tool on his hand or pocket of his apron which causes fatigue to him resulting in harming his decision-making quality. Some of the problems identified in Disha Engineering are listed below. There is a need of finding solution for the problems faced by the worker so as to improve product quality and increase in productivity, reduces fatigue and improving decision making quality of worker. Excessive waste of time due to repetitive change of tools on Radial Drill machine. Repetitive changing of tool causes fatigue to the worker, hence harming his decision-making quality. If the skilled lab our is on leave, then another worker appointed on that machine will not be able to perform that work with that speed and accuracy. Requirement of separate space to place the tool

## III. DESCRIPTION OF THE PROPOSED WORK

In the first visit to the company I discuss about to the company profile and product manufactured with the production in charge and the worker. I observe the machinery, daily production process flow, online projects in the company. In our next visit I analyze the actual production process, plant layout and products that were manufactured. We critically analyzed the operation performed in the industry. We found a problem on the radial drill machine. The solution which we found is a Quick tool changing multi tool system. Designing the tool attachment on Catia.

## IV CONCLUSION

The workers in organization keeps the tools like drill bits on the floor or the pocket of his apron so that they cause fatigue to him resulting in tiredness to worker and harming in their decision-making quality. In this study to overcome this problem we made tool holder for radial drilling machine in which worker or operator can keep all four types of tool in it so that, it reduces time, no fatigue to the worker and increase in efficiency and productivity.

## V CONCLUSION

The shell and cylinder heat exchanger present in HOCL is broke down and from the examination different purposes for the disappointment of this warmth exchanger are found. Vibrations created in the hardware during its activity, consumption of metals utilized in the gear and overheating of the 120 cylinders at the top are the significant explanations for the disappointment of this warmth exchanger. Additionally, the whole plan of this warmth exchanger is

checked and it is discovered that the real zone present in this warmth exchanger is not exactly the region required for the warmth move, which implies the structure of this warmth exchanger isn't protected.

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