Performance improvement by cellular manufacturing techniques in a piston manufacturing line

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Declaration

I **Basit Kamal** certify that this is my own work and the work has not, in whole or part, been presented elsewhere for assessment.

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Abstract

In modern industrialization, every industry wants to make profits with promised delivery time and minimum material waste. Since the human race is to make new products to attract customers, there has been competitions as not in means of technology but in the ways of production. As the word Group Technology (GT) sounds that it should be former, but it allows organization to compete with each other minimizing work-in-progress, lead times while producing a wide range of products.

Cellular manufacturing has been a widely research conducted subject throughout the world. Different part-machine algorithms, coding system techniques, pattern recognition methods are introduced. The traditional body has been grouped under categories like part family identification, GT in engineering design etc. Different methods are available for it.

In Pakistan cellular manufacturing are rather new and had application in very few industries. The main aim of this thesis is to apply these cellular manufacturing algorithms and techniques in an industry within Pakistan and then evaluate the results generated from it. By applying these techniques it is noted that there is a massive change in material handling, throughput time, setup time etc. The results from manual methods and cellular algorithms are generated and then they are compared and analyzed.

Chapter 1
Introduction

1.1Background

The long term goal of any organization in the world is to stay in business, make profits and grow continuously. In order to achieve these goals it is better for any organization to understand the present needs. In the start of 20th century the basic business environment in the world is the production of high- variety products, which are less in demand.

In 1970’s the main criteria for any organization is to produce cost effective things while in 1980’s this paradigm shift towards the quality. Now days the customer wants minimum cost and high quality. To increase market share and demand some factors such as quick delivery, minimum waste generation are also taken into account. Now a main question arises, what an organization must do in order to fulfill these demands.