A SIMULATION MODEL FOR THE HANDLING OF RAW MATERIALS AT THE BAR CODE PROCESS

RANJEET SINGH A/L BISHAN SINGH

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Ranjeet Singh A/l Bishan Singh
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JABATAN HAL EHWAL AKADEMIK
(*Department of Academic Affairs*)
Universiti Utara Malaysia

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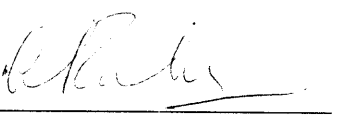
(Signature) : 

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ABSTRAK

Kajian ini adalah mengenai permodalan prestasi bagi proses bar kod di syarikat pengeluaran berasaskan elektronik, yang mengeluarkan pemancu digital video disk. Proses pengkodan dilakukan bertujuan mengurangkan kasalahan manusia apabila meletakkan komponen pada mesin "surface mounting". Selain meningkatkan kualiti ianya juga membantu pihak gudang supaya komponen tersebut disimpan di lokasi yang betul untuk kegunan masa depan. Ianya bertujuan untuk menghalang daripada berlakunya kesalahan meletakkan komponen di lokasi yang salah serta meningkatkan kecekapan dalam menberi barang pada pihak yang memerlukan iaitu pengeluaran. Model simulasi yang telah dibentuk yang digunakan untuk meningkatkan kecekapan bahagian pengkodan masa kini dan untuk mengurangkan terbehentinya operasi mesin di bahagian pengeluaran kerana berlakunya kekurangan komponen akibat dari tertangguhnya proses di bahagian bar pengkodan.

ABSTRACT

This study deals with the performance modeling of the bar code process in an electronic manufacturing company that produces digital video disk drives for the computer industry. The bar coding process is done to reduce human errors in the placement of components into the surface mounting machines. Besides assisting in improvement of quality it has also helped the warehouse to store the components at the correct location, eliminating chances of misplacing the items and improving the efficiency for the retrieval of raw materials for issuance to production. A simulation model is developed and used to improve the efficiency of the present bar coding station at the warehouse and to reduce the machine downtime at the production line due to material shortage caused by the delay at the bar code process.

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TABLE OF CONTENTS

LIST OF TABLES Page

LIST OF FIGURES Page

CHAPTER 1

INTRODUCTION

Process simulation is a technology that allows the analysis of complex systems through statistically valid means. Through a software interface, the user creates a computerized version of a process, otherwise known as a "model." The model construction is a basic flowchart with great additional capabilities. It is the interface a company uses to build a model of its business process and is used to describe the behavior of a process. It involves the construction of a replica or model of a problem on which we experiment and test alternative course of action (Szymankiewicz et al., 1998).

There are various approaches towards the building of a model some of which are: discrete event modeling, the event based approach, the activity-based approach and process based approach. After the model is built and verified, it can be manipulated to do two critical things: analyse current operations to identify problem areas and test various ideas for improvement. It does not by itself find the best or a good solution to run the simulated process, but it helps in finding out the consequences of the different parameters or process configurations. To find out the most suitable parameters and process configuration with a simulation model, several runs of simulation model are required. Sometimes these experiments may be quite sophisticated, involving the use of statistical design techniques. The first run should always be the base run against which all improvements are measured. If the model is of an existing system, the run should replicate the system and produce results those

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