

**INFORMATION SYSTEM MODEL  
FOR ORDER TRACKING IN  
TEXTILE INDUSTRY**

By

**W.P.D.P PERERA**

A dissertation submitted to the Department of  
Textile & Clothing Technology of the  
University of Moratuwa in partial fulfillment of  
the requirements for the degree of



**MASTER OF SCIENCE IN TEXTILE  
AND CLOTHING MANAGMENT**

677 "05"  
-----  
677:65(043)

Department of Textile & Clothing Technology  
University Of Moratuwa  
Sri Lanaka  
January 2005



University of Moratuwa



82718

Thesis

82718

82718

The work presented in the thesis in part or whole has not been submitted for any other academic qualification at any institution

***UOM Verified Signature***

.....  
Supervisor (**DR. JANAKA WIJAYANAYAKA**) wa, Sri Lanka  
 Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

***UOM Verified Signature***

Candidate  (Damitha Perera)

## ABSTRACT

The project is aimed at finding out the problems in the information flow and as well as the order tracking in the textile industry, and to suggest a computer integrated information system model in order to rectify the problems in information flow and to improve the way of order tracking.

The current status of information flow and the order tracking of the industry was studied in detail by using information collected from varied sources. Different techniques such as interviewing the workers in different departments of the organization, direct observing of the current system and collecting the related documents from the industry and from the publications.

After analyzing the current system, it is found that the whole order tracking and the information flow depend on one document called 'Route card', which consist of all the details of the order. Also it is found that some of the main disadvantages of this process are misplacing data, inaccurate data and long processing time to get information.

Finally, a new system is proposed mainly to overcome the major problem identified and to build and improve the strong order tracking system for the industry. This model replaces the old traditional 'Route card' to a Barcode which contain all the details of the order. Each workstation would have a barcode scanner along with the PC and once the operator scanned the barcode, the system will automatically generate all the necessary fields required by new route card and it will display on the monitor at the particular workstation. All these data and details distributed among the departments using a Local Area Networking system with Client Server Architecture.

## TABLE OF CONTENTS

---

<b>1. Introduction</b>	<b>01</b>
------------------------	-----------

---

<b>2. Textile finishing process—methods and machineries</b>	<b>05</b>
2.1. <b>Stitching</b>	<b>07</b>
2.2. <b>Singing and desizing</b>	<b>07</b>
2.2.1. <b>Singing Process</b>	<b>07</b>
2.2.2. <b>Types of machines use for singing</b>	<b>08</b>
2.3. <b>Desizing</b>	<b>09</b>
2.4. <b>Rotation</b>	<b>09</b>
2.5. <b>Scouring</b>	<b>09</b>
2.5.1. <b>Machine use for scouring</b>	<b>10</b>
2.6. <b>Bleaching</b>	<b>11</b>
2.6.1. <b>Sequence of bleaching process</b>	<b>12</b>
2.6.2. <b>Machine use for bleaching</b>	<b>13</b>
2.7. <b>Mercerizing</b>	<b>14</b>
2.7.1. <b>Benefits of the mercerization</b>	<b>14</b>
2.7.2. <b>Machine use for mercerizing</b>	<b>15</b>
2.8. <b>Dyeing</b>	<b>16</b>
2.9. <b>Finishing</b>	<b>16</b>
2.10. <b>Folding and Packing</b>	<b>17</b>
2.11. <b>Information system developing</b>	<b>17</b>

---

<b>3. System and requirement analysis</b>	<b>19</b>
3.1. <b>Requirement determination</b>	<b>19</b>

---

<b>4. System Analysis</b>	<b>22</b>
4.1. <b>Process modeling</b>	<b>22</b>
4.2. <b>Developing DFD's</b>	<b>22</b>

4.3. Requirements Catalog	26
4.4. Business system options	28
<hr/>	
5. System Design	31
5.1 Logic modeling	31
<hr/>	
6. Data modeling	35
<hr/>	
7. Developing forms and reports	43
7.1. Distributing the system	47
7.2. Hardware and Software limitations	51
<hr/>	
8. Conclusion and recommendation	52
<hr/>	

## References



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

## LIST OF FIGURES

<i>Figure</i>	<i>Page</i>
Figure 1.0 Current information flow between the Head office and Factory Operations	03
Figure 2.1 Sequence of process in cotton fabric mill	06
Figure 2.2 Two burner gas singing machine	08
Figure 2.3 Plant for scouring	10
Figure 2.4 Sequence of bleaching process	12
Figure 2.5 Cross sectional view of bleaching machine	13
Figure 2.6 Continuous bleaching machine	13
Figure 2.7 Plant for continuous bleaching range	14
Figure 2.8 Entry of cotton fabric to the mercerization machine	15
Figure 2.9 The system development life cycle	18
Figure 3.1 Route card	21
Figure 4.1 Context diagram	23
Figure 4.2 Detailed DFD	25
Figure 5.1 E-R diagram for the tracking system	36
Figure 5.2 Detailed DFD with associate attribution	42

Figure 5.3 New E-route card	44
Figure 5.4 User login screen	46
Figure 5.5 LAN system	48
Figure 5.6 File/server architecture	49
Figure 5.7 Client/server architecture	49



## LIST OF TABLES

<i>Table</i>	<i>Page</i>
Table 1.0 Approximate composition of raw cotton	11
Table 2.0 Requirements Catalog	26
Table 3.0 Determining project benefits	29
Table 4.0 Determining project costs	29
Table 5.0 Cost benefit analysis sheet for tracking system project	30
Table 6.0 Data Dictionaries for the related Tables	39
Table 7.0 Difference between the file and client servers	50
Table 8.0 Hardware and software limitations	51



University of Moratuwa, Sri Lanka  
www.lib.mrt.ac.lk





## ACKNOWLEDGMENTS

I would like to thank my parents, my wife and to my sister for helping and encouraging me to write this thesis. My thanks are also extended to Dr. Janaka Wijayanayaka (University of Kelaniya), Mr. D. P. D. Dissanayake (University of Moratuwa) and Mr. Hari Venkatesan (CEO-Kuruwita Manchester Textile Mills Ltd.) who gave me their advice and assistance during the preparation of this thesis. Also I am indebted to my colleague Niranjan Perera for helping me to write when I was plagued with self-doubts.



University of Moratuwa, Sri Lanka  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)