



DECISION SUPPORT SYSTEM FOR CONTAINER HANDLING IN PORT OPERATION

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Dissertation submitted to the Faculty of Information Technology, University of Moratuwa, Sri Lanka for the partial fulfillment of the requirements of the Degree of MSc in Information Technology.

2008

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Abstract

Since container ships and port terminals involve a huge capital investment and significant daily operating costs, it is of crucial importance to efficiently utilize the internal resources of container terminals and transportation systems at South Asia Gateway Terminals Pvt Ltd. This in turn requires highly sophisticated control strategies in order to meet the desired performance measures. In shipping port sector, containers are the most dynamic and complex to manage. To provide adequate strategy for the increasing traffic, ports must either expand facilities or improve efficiency of operations. The main goal of the present work is to be used as a help tool in a port decision support system. Keeping align with the organizations expansion and improvement process, Information Technology Department is extending Decision Support System capability between its operation managers. Currently there is no Decision Support System to take day to day decision at South Asia Gateway Terminals Pvt Ltd. Operation department managers want to track their operator activities when something goes wrong. As well as they need daily activity reports in some specific area. Variety of inter-related decisions has been made during daily operations at a container terminal. The ultimate goal of these decisions is to minimize the berthing time of vessels, the resources needed for handling the workload, the waiting time of customer trucks, and the congestion on the roads and at the storage blocks and docks inside the terminal; and to make the best use of the storage space. Given the scale and complexity of these decisions, it is essential to use decision support tools to make them. The project goal is implementing a system using new technology to fulfill their requirements. This system should be accessible through anywhere in the company and daily incident, performance and utilization reports should be e-mailed to the managers at a particular time. This project dissertation describes technology adopted; approach to solve the identified issues, analysis and design, implementation, evaluation and testing, and conclusion of the newly developed Decision Support System for Container Handling System. Having implemented this software solution, it was able to get history data, online data and the predictable data within a short period of time. Thus it saves considerable man



hours which IT department spends to get those data. Also, unnecessary data redundant is now reduced. Since it is not difficult to find and monitor required information of the container operation. Getting information is now fast and reliable.

Decision Support System for Container Handling in Port Operation



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September 2008

Declaration

I declare that this dissertation does not incorporate, without acknowledgment, any material previously submitted for a Degree or a Diploma in any University and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organization.

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Dedication

I dedicate this book to the Dr. Gamini Wijayarathna that taught me some valuable lessons in my project. Thank you for throwing the rock that helped me break through. You were a necessary component to push this book out of me. Thank you for the being that you were. I dedicate this book to everyone that has ever poured into my life without hidden motives and agendas. I dedicate this book to my friends helping me the secret to how not to look like what you have been going through. I dedicate this book to my mother, thank you for being a pillar of strength for me when I was weak. Thank you for not throwing me away when I disappointed you. Thank you for loving me, even when I was being unlovable. Thank you for dusting me off every time. I fell on my face and encouraging me to "get up and keep going". I love you for that! Finally, I dedicate this book for my wife Chandima Kularatne who shares me with the world unselfishly for loving me past me and loving me in a place that no one ever has.



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Acknowledgements

First of all, my special thanks go to Dr. Gamini Wijayarathna. The actual inspiration to write this book has come from my teacher Dr. Gamini Wijayarathna, who taught us software engineering at faculty of Information Technology Moratuwa. I could not have been written this book if I had not been his guide. I would also like to express my sincere thanks to my supervisors for his constant and constructive guidance throughout the project. I would like to thank friends for helping me along the path that has led me to this high point in my career. You guys have been great spiritual and professional mentors as well as great friends. Along with that, I have several amazing friends who managed to put up with me while I was writing this book, which is an accomplishment in itself. With that being the case, I would like to extend a very special thank for my friends. I couldn't have done it without you guys behind me. I want to thank my wife Chandima Kularatne for her unabated support while writing this book and her diligence and dedication to our family. Thanks for having so much patience with me and my book. Also I thank my mother and two sisters, talking about favorite subjects included in this book have always been very inspirational. Finally I would like to say thank you very much for those who are gave a support directly and indirectly.

Abstract

Since container ships and port terminals involve a huge capital investment and significant daily operating costs, it is of crucial importance to efficiently utilize the internal resources of container terminals and transportation systems at South Asia Gateway Terminals Pvt Ltd. This in turn requires highly sophisticated control strategies in order to meet the desired performance measures. In shipping port sector, containers are the most dynamic and complex to manage. To provide adequate strategy for the increasing traffic, ports must either expand facilities or improve efficiency of operations. The main goal of the present work is to be used as a help tool in a port decision support system. Keeping align with the organizations expansion and improvement process, Information Technology Department is extending Decision Support System capability between its operation managers. Currently there is no Decision Support System to take day to day decision at South Asia Gateway Terminals Pvt Ltd. Operation department managers want to track their operator activities when something goes wrong. As well as they need daily activity reports in some specific area. Variety of inter-related decisions has been made during daily operations at a container terminal. The ultimate goal of these decisions is to minimize the berthing time of vessels, the resources needed for handling the workload, the waiting time of customer trucks, and the congestion on the roads and at the storage blocks and docks inside the terminal; and to make the best use of the storage space. Given the scale and complexity of these decisions, it is essential to use decision support tools to make them. The project goal is implementing a system using new technology to fulfill their requirements. This system should be accessible through anywhere in the company and daily incident, performance and utilization reports should be e-mailed to the managers at a particular time. This project dissertation describes technology adopted; approach to solve the identified issues, analysis and design, implementation, evaluation and testing, and conclusion of the newly developed Decision Support System for Container Handling System. Having implemented this software solution, it was able to get history data, online data and the predictable data within a short period of time. Thus it saves considerable man hours which IT department spends to get those data. Also, unnecessary data redundant is now reduced. Since it is not difficult to find and monitor required information of the container operation. Getting information is now fast and reliable.

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