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MACHINE MAINTENANCE MANAGEMENT SYSTEM

A thesis submitted to the Graduate School in partial

fulfillment of the requirements for the degree

Master of Science (Information Technology)

University Utara Malaysia

by

Heng Cheng Bu

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ABSTRACT (BAHASA MALAYSIA)

Projek ini dihasilkan dengan tujuan untuk membangunkan sistem sokongan pemutusan mesin industri. Sistem ini adalah penting terutamanya dalam bidang industri yang berteknologi tinggi, di mana mesin-mesin yang berkos tinggi digunakan dalam operasi pembuatan untuk mencapai tahap kualiti dan output yang diingini. Justeru ini, ia adalah amat penting untuk menguruskan mesin-mesin ini dengan cara yang berkesan demi mempertingkatkan pencapaian mesin, di samping mengurangkan kos operasi.

Rational Unified Modeling Process telah digunakan untuk membangunkan sistem model analisis dan rekabentuk dalam "*Machine Maintenance Management System*". Aplikasi berasaskan web (PWS) serta *Microsoft Visual Basic* diintegrasikan untuk membangunkan sistem antaramuka. *Microsoft Access* digunakan untuk membangunkan database.

Dalam proses sistem prototaip, sistem ini telah dicubakan di MKPI (Matsushita Kotobuki Peripheral Indonesia). Pengubahsuaian perisian mesin dan pembagunan rangkaian setempat antara komputer di pejabat dan talian pengeluaran boleh dilakukan untuk mengimplementasikan fungsi-fungsi sistem ini dengan sepenuhnya.

ABSTRACT (ENGLISH)

This project develops a machine maintenance management system to be used in high technology manufacturing industries. Machine performance influences the entire manufacturing operation, from product quality to on-time delivery. Thus, machine maintenance management system is essential to improve machine performance while reducing production costs immensely.

Rational Unified Modeling Process is used to develop the analysis and design models of the machine maintenance management system. An integration of Web-based application (PWS) and Microsoft Visual Basic 6.0 is used to develop the system interface. Microsoft Access is used to develop the system database.

Upon the system prototyping process, the system has been tested in MKPI (Matsushita Kotobuki Peripheral Indonesia). Further work, such as modification of machine software and set-up of networking between computer production line and office could be done to materialize the full implementation of the system functionality.

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This project is dedicated to my parents and my master in life, Daisaku Ikeda.

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LIST OF ACRONYMS

MKPI	Matsushita Kotobuki Peripheral Indonesia
MMMS	Machine Maintenance Management System
PWS	Personal Web Server
IMETS	Ion Milling Etching Tracking System
PDR	Plasma Design Rail
STS	Surface Technology System
CVD	Chemical Vapour Deposition
UTS	Ultratech Stepper
UML	Unified Modeling Language
AMS	American Maintenance System
RCM	Reliability Centered Maintenance
CMMS	Computer Maintenance Management System
PM	Preventive Maintenance
FMEA	Failure Mode Effect Analysis
RUP	Rational Unified Process

Chapter 1

INTRODUCTION

The use of computer system to control and manage the machines is increasingly important in manufacturing. These machines need to be managed properly and effectively as it will affect the company's operating-costs. This chapter gives an overview of machine maintenance management system in PT Matsushita Kotobuki Electronics Peripherals Indonesia (MKPI).

The problem statement, objectives, project scope, hardware and software requirements of this project are discussed in this chapter.

1.1 Background

Computer system control is getting important in high technology industries in controlling and managing of their machine performance. For instance, Seagate Penang had implemented a system called IMETS to control their ion milling

The contents of the thesis is for internal user only

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