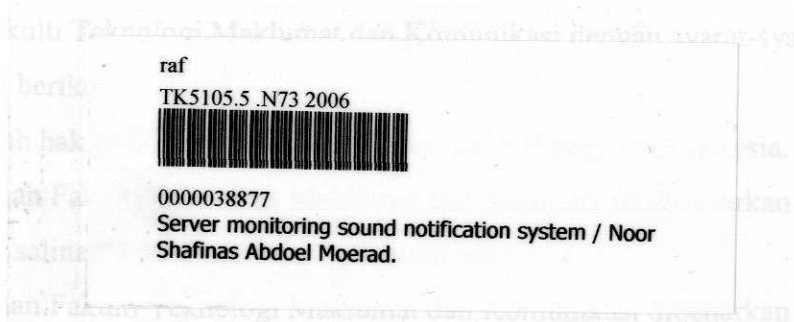


## SERVER MONITORING SOUND NOTIFICATION SYSTEM



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This report is submitted in partial fulfillment of the requirement for the  
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FACULTY OF INFORMATION TECHNOLOGY AND COMMUNICATION  
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## DEDICATION

To my beloved parents,  
you are the light that leading me to the place where I find peace.

My friends,  
who always by my side during my hard time

To the most special person,  
you are the strength that keeps me walking.

Thank you for all your support.

## ACKNOWLEDGEMENTS

First and foremost, I would like to express my highest gratitude to my lecturer En Othman bin Mohd who has tremendously helps me with his valuable advice and guidance during fulfilling my project. His excellent supervision and patience is one of the main reasons for the success of Server Monitoring Sound Notification System. Plus, I would like to express my deepest appreciation to all the lecturers who have given me an equivalent knowledge which enables me to fulfill this project. Last but not least I would like to show my appreciation to my beloved family and all wonderful BITC friends for their support and encouragements from the beginning to the end during fulfilling my project

## ABSTRACT

This Server Monitoring Sound Notification System (SMSN) is a connection status monitoring tools that enable network administrator to monitor and take action of the connected concurrent server in a time cycle interval. What makes this proposed server monitoring sound notification possible as an effective tool is that failures in networks have easily recognized by alert wav sound counterparts which current state of the network can be determined moment by moment using ICMP echo messages. This system offers wide range of functionality for keeping you aware of problems on your network by e-mail reporting. SMSN provides the audible notification that ensures that anybody within hearing distance can recognize there is an issue that needs attention. Server Monitoring Sound Notification System is built using Microsoft Visual Basic 6.0 environment to create connectivity between monitoring station and client pc.

## ABSTRAK

Sistem pemantauan dan notifikasi bunyi ini merupakan suatu sistem pemantauan status perhubungan yang membolehkan pentadbir rangkaian memantau dan mengambil tindakan berkenaan dengan klien yang berhubung dalam kitaran masa yang ditetapkan. Sistem ini adalah suatu sistem yang efektif kerana kegagalan fungsi di dalam rangkaian akan diwakili oleh bunyi dalam format wav yang akan dapat dikesan dari masa ke semasa dengan menggunakan pesanan ICMP echo. Sistem ini menawarkan fungsi yang meluas dalam meningkatkan keprihatinan terhadap masalah rangkaian melalui notifikasi *mail* elektronik sistem pemantauan dan notifikasi bunyi ini mempunyai bunyi penggera dalam format wav bagi memastikan pengguna akan mendapat pemberitahuan tentang masalah rangkaian yang memerlukan perhatian dengan kadar segera. Sistem Pemantauan dan Notifikasi Bunyi ini dibina dengan menggunakan perisian Microsoft Visual Basic 6.0.

## TABLE OF CONTENT

CHAPTER	SUBJECT	PAGE
	DECLARATION	i
	DEDICATION	ii
	ACKNOWLEDGEMENTS	iii
	ABSTRACT	iv
	ABSTRAK	v
	TABLE OF CONTENTS	vi
	LIST OF TABLES	xi
	LIST OF DIAGRAMS	xiii
	LIST OF SYMBOLS/ACRONYMS	xiv
	LIST OF ATTACHMENTS	xv
Chapter I	<b>INTRODUCTION</b>	
	1.1 Project Background	1
	1.2 Problem Statements	2
	1.3 Objectives	3
	1.4 Scopes	4
	1.5 Project Significance	5
	1.6 Expected Output	7
	1.7 Conclusion	8



**Chapter II****LITERATURE REVIEW AND PROJECT  
METHODOLOGY**

2.1	Introduction	9
2.2	Fact and Finding	10
2.2.1	Alchemy Eye Server Monitoring System	10
2.2.2	Wildmetrix 2005 edition For Server	11
2.2.3	System Status Server Monitoring System	12
2.3	Project Methodology	13
2.3.1	Chosen Methodology Justification	13
2.3.2	Planning Phase	14
2.3.3	Analysis Phase	15
2.3.4	Design Phase	17
2.3.5	Implementation Phase	17
2.3.6	Testing Phase	18
2.4	Project Requirement	19
2.4.1	Software Requirement	19
2.4.2	Hardware Requirement	20
2.4.3	Other requirement	21
2.5	Project Schedule and Milestone	21
2.6	Conclusion	22

**Chapter III****ANALYSIS**

3.1	Introduction	23
3.2	Problem Analysis	24

3.2.1	Problem Statement of Current System	24
3.2.2	Problem Solutions	25
3.3	Requirement Analysis	27
3.3.1	Area of Research	27
3.3.2	Functional Requirements	29
3.3.3	Software Requirements	38
3.3.4	Hardware Requirement	40
3.3.5	Network Requirement	41
3.4	Conclusion	42

#### **CHAPTER IV DESIGN**

4.1	Introduction	43
4.2	High Level Design	43
4.2.1	Raw input/data	43
4.2.2	System Architecture	44
4.2.3	User Interface Design	45
	4.2.3.1 Navigation Design	46
	4.2.3.2 Input Design	49
	4.2.3.3 Output Design	50
4.3	Network Architecture	51
4.4	Logical Design	53
4.5	Physical Design	54
4.6	Security Requirement	56
4.7	Conclusion	56

#### **CHAPTER V IMPLEMENTATION**

5.1	Introduction	57
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5.2	Software Development	57
	Environment Setup	
5.3	Hardware Configuration Management	58
	5.3.1 Hardware setup	58
	5.3.2 Network setup	59
5.4	Implementation Status	60
5.5	Conclusion	61

## CHAPTER VI TESTING

6.1	Introduction	62
6.2	Test Plan	62
	6.2.1 Test Organization	63
	6.2.2 Test Environment	64
	6.2.3 Test Schedule	64
6.3	Test Strategy	66
	6.3.1 Classes of Test	67
6.4	Test Design	68
	6.4.1 Test Description	68
	6.4.2 Test Data	74
6.5	Test Results and Analysis	74
	6.5.1 Test Summary	74
6.6	Conclusion	75

## CHAPTER VII PROJECT CONCLUSION

7.1	Observation on Weakness and Strengths	76
	7.1.1 Weakness	76
	7.1.2 Strengths	77
7.2	Proposition for Improvement	78

7.4	Conclusion	79
	<b>BIBLIOGRAPHY</b>	<b>80</b>
	<b>REFERENCES</b>	<b>81</b>
	<b>APPENDIX A</b>	<b>82</b>
	<b>APPENDIX B</b>	<b>87</b>

## LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Software Requirement table	19
2.2	Hardware Requirement table	20
2.3	Network Requirement table	20
2.4	Milestone for Server Monitoring Sound Notification System	21
3.1	Server/System Application Computer	40
3.2	Other Hardware Device	41
4.1	Input Design that has to be Key In by Network Administrator or User	49
4.2	Output Design	50
5.1	Implementation Status	60
6.1	Test Environment	64
6.2	Test Schedule for Functional Process	65
6.3	Unit Testing Schedule	65
6.4	System Testing Schedule	66
6.5	Description for All Interfaces	68
6.6	Test Description for Server Application	69
6.7	Test Description for Viewer Interface	70
6.8	Test Description for Database	70
6.9	Test Description for E-mail Reporting	71
6.10	Monitoring system Unit Testing	72
6.11	Monitoring Function and sound alert	72
6.12	Monitoring Function Database	73
6.13	Monitoring Function E-mail Reporting	73

6.15	Test Input Data (IP address)	74
6.16	Test Summary Report for Unit Testing and System Testing	74

## LIST OF DIAGRAMS

FIGURE	TITLE	PAGE
1.1	SMSN Environment	7
2.1	SMSN Waterfall Model	14
3.1	Flowchart of Current Server Monitoring System	26
3.2	SMSN DFD (Data Flow Diagram)	30
3.3	ICMP Generates Messages	32
3.4	An ICMP Message Consisting of 4 bytes of PCI and an optional message	32
3.5	Encapsulation for a Complete ICMP packet	33
3.6	Use of the Ping Program to Test Whether the Computer "sysa" is Operational.	34
3.7	Server Monitoring Sound Notification Network Environment	41
4.1	SMSN System architecture	45
4.2	SMSN Watch Interface	46
4.3	SMSN Setting Interface	47
4.4	SMSN Alert Message Box	47
4.5	SMSN About Interface	48
4.6	SMSN Help Interface	48
4.7	Navigation Design for SMSN	49
4.8	Network Architecture of SMSN	52
4.9	Logical Design of SMSN System.	54
4.10	Physical Design of Server Monitoring Sound Notification System (SMSN).	55
5.1	Software Development Environment Setup	58

## LIST OF SYMBOLS/ACRONYMS

GUI	-	Graphical User Interface
IP	-	Internet Protocol
LAN	-	Local Area Network
MB	-	Mega Byte
NIC	-	Network Interface Card
PC	-	Personal Computer
RAM	-	Random Access Memory
ICMP	-	Internet Controls Message Protocol
SMS	-	Short Message Service
SMTP	-	Simple Mail Transfer Protocol
DFD	-	Data Flow Diagram



**LIST OF ATTACHMENTS**

<b>ATTACHMENT</b>	<b>TITLE</b>	<b>PAGE</b>
<b>APPENDIX A</b>	<b>Gantt Chart</b>	<b>88</b>
<b>APPENDIX B</b>	<b>User Manual</b>	<b>93</b>

## CHAPTER I

### INTRODUCTION

#### 1.1 Project Background

In today's IT world, technology has taken a central role. Business industries rely on a variety of servers and network equipment to ensure that data flows seamlessly between employees, offices, and customers.

Server monitoring is an essential part of successful server operations. Through an effective server monitoring system, user is able to determine whether it meets service level agreements. Good reactive and proactive monitoring will help to maintain high availability for controlled servers.

Activities in complex networks are often both too important to ignore and too tedious to watch. Unlike currently on market server monitoring system, network administrator has to concentrate and pay attention to the server progresses from time to time. With this new proposed server monitoring sound notification system, network administrator is able to focus on other task instead of focusing on the server progress. Server monitoring sound notification system replaces visual monitoring with natural sounds, where an alert sound represents a specific kind of network event. This proposed system combines network state information from multiple data sources, by mixing audio signals into a single audio stream in real time. This project has the purpose to detect server downtime to alert the user by executing wav sound and email reporting. This allows the system administrator to concentrate on more important things while monitoring the network via peripheral hearing. Plus, this monitoring system able to send email to network administrator to ensure any serious problem or downtime won't get out of hand. This makes this Server Monitoring Sound

Notification System (SMSN) more flexible and reliable, where the network administrator doesn't have to be there all the time while fulfilling other working task.

## 1.2 Problem Statements

- i. Current approaches to live monitoring of network behavior notify the network administrator by sending mail or page responsible person only when things seem to go wrong. These approaches are highly problem-centered and provide mainly negative reinforcement; the monitor notifies an operator only when problems occur. It does not, as a rule, regularly inform one when things are going well. These tools are both visual and intrusive where operators must either be interrupted by alerts or periodically suspend other work to check on network status.
- ii. This proposed project, server monitoring sound notification system represents the operational state of a system or network with sound alert environment. The sounds played are used to alert and notify improper network performances. This environment plays in the background while the operator continues other tasks. Without looking anywhere and without interrupting other pressing activities, the operator can hear peripherally whether action is required.
- iii. Current approach with graphical view such as graph and message need more attention from every network administrator even they have more work task to perform. As the result, network administrator unable to detect server downtime if the network administrator is busy and unable to read the alert messages. Therefore, network administrator will only notice server downtime as they received a complained from the user which is quite late to recover business value loss due to it.
- iv. With this server monitoring sound notification system, network administrator can notice network downtime as soon as it happens. Network administrator is able to detect server downtime according to the sound and alert message box pop-up.

### 1.3 Objectives

- i. To minimize network downtime

By using server monitoring sound notification system, network administrator is more alert to the sound played according to the network situation. Therefore, network administrators are able to detect any downtime or failure earlier. Network administrators are free to perform other working task either than wasting their time sitting in front of a computer to be aware of server downtime.

- ii. To provide complete notification and more reliable monitoring system

This proposed server monitoring system that is using sound alert notify the network administrator of network failure or even while the server is functioning well. Therefore, network administrator doesn't have to trouble themselves watching the monitor from time to time but just pay attention to the sound played.

- iii. To alleviate the burden of the I.T. administrator

This server monitoring system is build to aid I.T. administrators in their duties of keeping the network running at optimal efficiency. SMSN provides email reporting to notify I.T. administrator even if the I.T. administrator is out of the office which is more efficient and flexible.

## 1.4 Scope

- i. This system is suitable to be used in a computer lab in any learning institution or small office that will be represent by one monitoring station connected to maximum 4 pc at a time in a LAN.
- ii. This system platform is on a Windows XP which is commonly used nowadays.
- iii. This proposed project; server monitoring sound notification system is purposely will be design to ease the work of network administrator and IT operators. With this implemented project, it has the ability to notify network administrator by using sound alert before problems get serious out of hand. This helps protect valuable data and reduce the likelihood of costly network failures.
- iv. Plus, it will display the server name of the current active server using the message box simultaneously with alarm if there is connection lost whether there is any pc problem or the pc server is shut down or the cable is unplugged.
- v. This SMSN ping pc to see if there is any reply from the particular server in order to display the status of connected running server.
- vi. This SMSN purpose is to gives alert where the network administrator or technician to take action regarding the connection lost to restore it to normal condition and store it in a database for records in order to track network performance and to ensure reliability of data.
- vii. SMSN provides email reporting to the network administrator when it is needed to ensure network administrator was informed regarding the latest status of the connected pc from time to time.

## 1.5 Project Significance

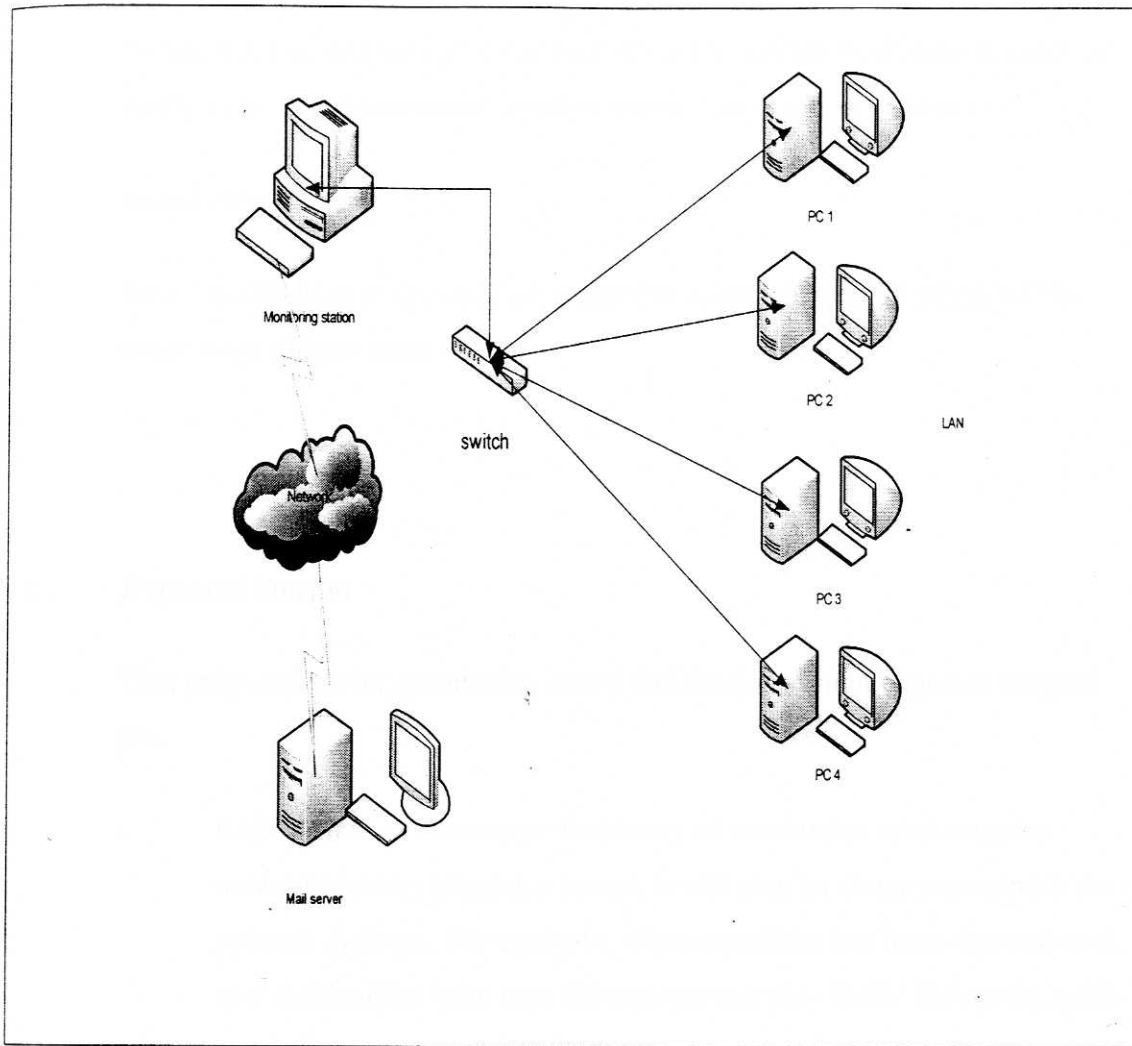
This monitoring system will give the benefits to network administrator and operators which rely on various servers and network equipment to ensure data flows seamlessly for a conducive learning environment or in a small office to notify server status from time to time.

What makes this proposed server monitoring sound notification possible as an effective tool is that failures in networks have easily recognized by alert sound counterparts which current state of the network can be determined moment by moment. This system offers wide range of functionality for keeping you aware of problems on your network. SMSN provides the audible notification that ensures that anybody within hearing distance can recognize there is an issue that needs attention.

When a problem has been detected or a user-defined threshold has been met, SMSN will play sound alert that shows attention is required and that SMSN has detected a situation to which you have requested to be notified.

When the device being monitoring comes back on-line or otherwise comes out of an alert state, another message box and sound restored wav will be played to notify the network administrator that the problem has been resolved or even the network performance is in stable condition. This is the outstanding features of SMSN compared to other monitoring tools as most of them will only give alert if the problem has occurred. This Server Monitoring Sound Notification System (SMSN) provides practical services suit to today's needs.

Figure 1.1: Server Monitoring Sound Notification Environment



This server monitoring sound notification system (SMSN) provides 3 notification methods:

i. Audible alert:

SMSN able to notify user when connection lost and restored via pc speaker to alert network admin or technician on duty to take further action regarding the connection lost problem.

ii. Graphical and text alert:

Popup window and data grid that will always be refresh from time to time to notify network administrator whether connection is lost or restored

iii. Email alert:

Email notification to network administrator where connection status will be email from time to time.

## 1.6 Expected Output

This proposed server monitoring sound notification system expected outputs are:

- i. Represent the existence or frequency of occurrence of an ongoing network state by playing a sound. It will play an abnormal sound if the network is down. For example, when a problem has been detected or a user-defined has been met, this system can play WAV file on the local pc to alert us via sound that attention is required.
- ii. Restored sound alert will be played to show that connection has been restored and in a stable condition.
- iii. To analyze network performance where the network status will be sent via email to network administrator or technician on duty.
- iv. Datagrid database displayed at the main interface for user references of connection status.