

# RING BACK TONES



Submitted BY:

**Syed Ghayas Ud Din**  
**MCS (244021-014)**

Supervised by  
**Mr. Salman Azam**

**Department of Computer Sciences**

**BAHRIA INSTITUTE OF MANAGEMENT &  
COMPUTER SCIENCES ISLAMABAD**

**Bahria University Islamabad**



**IN THE NAME**  
**OF**  
**ALLAH**  
**THE MOST**  
**BENEFICIENT**  
**THE MOST**  
**MERCIFUL**



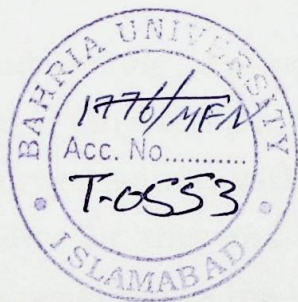
## **DEDICATIONS**

**I dedicate  
This project  
To my  
Loving Parents and all Teachers in my whole  
educational  
Career  
Whose prayers  
Always with me  
And  
My success  
Is only due to them**



## CERTIFICATE

We accept the work contained in this report as confirming to the required standard for the partial fulfillment of the degree of **MCS**.



Mr. Jehanzeb Ahmed  
Head of Department

Mr. Salman Azam  
Supervisor

Internal Examiner  
Mr. Zeeshan Arif

External Examiner  
Prof. Dr. Irfan Zafar



## **UNDERTAKING**

I hereby give the undertaking that no part of this report has been taken from any source (any company document or internet or any other electronic or printed source) without reference and if found so, I fully take responsibility for this and must fully and solely be held responsible and thus penalized as the University might decide.

**Syed Ghayas Ud Din**



## **ACKNOWLEDGEMENTS**

First of all I am grateful to **Almighty Allah**. Lord of Creations, of our lives and of everything in the Universe and **His Holy Prophet Muhammad (S.A.W)**, Whose blessings enabled us to perceive and pursuit higher ideas of life, who has given us the courage insight and knowledge to complete this project.

I would like to acknowledge the help of person who helped me lot in my educational career that is “Mr.Fazal Wahab” and his lots of encouragement, his devotions and his great advices during my educational stay in BIMCS during MCS degree.

I would also like to thank “Mr. Salman Azam “ for helping me in the Project. I would also like to mention the name of “Mr. Asim “ whose guidance especially in that project give me a lot of knowledge.

Finally, I would like to acknowledge Bahria University for giving a professional sense to me and forwarding me to the professional and practical life with full strength. I also acknowledge here that it is the university which has opened new horizons and universe for me to conquer and to seek knowledge, applying my abilities and skills.

**Syed Ghayas Ud Din**



## **ABSTRACT**

*The main goals of the project are to study product lines to provide an end-to-end solution of Value added services VAS, Study of system analysis and design of single multi-purpose platform which will provide VAS solutions, corporate solutions, network based solutions and customer care solutions with respect to telecom industry, study of system integration for ring back tone in an existing telecom network infrastructure, study of system design for ring back tone solution, study of system development solution for VAS billing interfaces and MIS generation and reporting, Study of service issues concerned with reliability and scalability..*



**TABLE OF CONTENTS**

<b>Chapter 1</b>	<b>Introduction</b>	<b>10</b>
1.1	Project Background	11
<b>Chapter 2</b>	<b>Voice portal</b>	<b>14</b>
2.1	Technology Options	15
2.2	Service Node	16
2.3	IN Based	18
2.4	Switch Node	20
<b>Chapter 3</b>	<b>Ring Back Tones Solution</b>	<b>22</b>
3.1	Ring Back Tone Solution	23
3.2	The Front End	25
3.3	The Back End	25
3.4	Billing Interface	25
3.5	Service Management	26
<b>Chapter 4</b>	<b>Calls Scenarios</b>	<b>27</b>
4.1	Call establishment with CRBT	29
4.1	ISUP Call Control Implementation	32
4.3	IN Signalling	34
4.4	CRBT with IN Call Party Handling	37
4.5	System Design	39
<b>Chapter 5</b>	<b>Billing Interface for Ring Back Tones</b>	<b>43</b>
<b>Chapter 6</b>	<b>Implementation of ring back tones</b>	<b>49</b>
<b>Chapter 7</b>	<b>Abbreviations</b>	<b>60</b>
	<b>References</b>	<b>62</b>



**TABLE OF FIGURES**

Figure 1	Technology Option for CRBT Deployment	15
Figure 2	Service Node Architecture	16
Figure 3	IN Based architecture	18
Figure 4	Switch Based Architecture	20
Figure 5	Ring Back Tone Solution	24
Figure 6	Call Flow for call establishment with CRBT	29
Figure 7	ISUP Call Control Implementation	31
Figure 8	IN Signaling For CRBT Subscribers	33
Figure 9	IN Signaling For Non-CRBT Subscribers	36
Figure 10	CRBT with IN Call Party Handling	38
Figure 11	INAP Test Utility	40
Figure 12	INAP Signalling	42
Figure 13	Billing system flow of modules	45
Figure 14	Billing Architecture	47
Figure 15	Network Design	52
Figure 15	RBT Content Life Cycle	59