TABLE OF CONTENTS

CHAPTER NO.	TITLE	PAGE NO.
	Abstract	
	List Of Tables	
	List Of Figures	
	List Of Symbols	
	List Of Abbreviations	
1	**Introduction**	1
	1.1 Review of the Literature	2
	1.2 Organisation of The Thesis	4
2	**Resoanant Converters**	7
	2.1 Introduction	7
	2.2 Switch-Mode and Soft Switching Converters	7
	2.3 Types of Resoanant Converters	9
	2.3.1 Quasi-Resonant Converter	9
	2.3.2 Multi-Resonant Converter	10
	2.3.3 Conventional Resonant Converter	10
	2.4 Load Resonant Converter	11
	2.4.1 Series Loaded Resonant Converter	11
	2.4.2 Parallel Loaded Resonant Converter	13

	2.4.3 Series- Parallel Loaded Resonant Converter	15
	2.5 Conclusion	17
3	**Modeling Of Load Resonant Converters**	18
	3.1 Introduction	18
	3.2 Modeling of Series Loaded Resonant Converter	19
	3.3 Modeling of Parallel Loaded Resonant Converter	22
	3.4 Modeling of Series- Parallel Loaded Resonant Converter	25
	3.5 Modeling of PMDC Motor	28
	3.6 Conclusion	29
4	**Development Of Controllers for Series Loaded Resonant Converter**	30
	4.1 Introduction	30
	4.2 Design for SRC	30
	4.3 Design of Conventional Controller	32
	4.4 Fuzzy Control of SRC	34
	4.4.1 Identification of Inputs and Output	35
	4.4.2 Fuzzification of Inputs and Output	36
	4.4.3 Rule Base and Inference Mechanism	37
	4.4.4 Defuzzification	39

	4.5 Simulation Results	40
5	**Hardware Implementation of Controllers for Series Loaded Resonant Converter**	48
	5.1 Introduction	48
	5.2 Tms320f2407 Dsp	48
	5.3 PWM Generation	49
	5.4 Hardware Implementation	50
	5.4.1 Power Converter Circuit	52
	5.4.2 High Impedance Differential Input Amplifier Circuit	53
	5.4.3 Optocoupler Circuit	53
	5.4.4 MOSFET Driver Circuit	54
	5.5 Experimental Results	54
	5.5.1 Pi Control	54
	5.5.2 Fuzzy Control	55
6	**Development And Hardware Implementation of Controllers for Parallel Loaded Resonant Converter**	65
	6.1 Introduction	65
	6.2 Design For PRC	65
	6.3 Design of Conventional Controller	67
	6.4 Fuzzy Control	68

	6.5 Simulation Results	69
	6.6 Experimental Results	76
	6.6.1 Pi Control	76
	6.6.2 Fuzzy Control	77
7	**Development And Implementation of Controllers for Series-Parallel Loaded Resonant Converter**	84
	7.1 Introduction	84
	7.2 Design For SPRC	84
	7.3 Design of Conventional Controller	87
	7.4 Fuzzy Control	87
	7.5 Simulation Results	88
	7.6 Experimental Results	96
	7.6.1 Pi Control	96
	7.6.2 Fuzzy Control	96
8	**Conclusions**	105
	8.1 Suggestions for Further Work	105
	References	107