
CONTENTS

APPROVAL	ii
SELF DECLARATION AGAINST PLAGIARISM	iii
ABSTRACT	iv
ACKNOWLEDGMENTS	v
PREFACE	vi
CONTENTS	vii
LIST OF TABLES	ix
LIST OF FIGURES	x
1 INTRODUCTION	1
1.1 Background	1
1.2 Problems Statement	2
1.3 Objectives	3
1.4 Hypotheses	3
1.5 Research Methodology	4
1.6 Problem Limitation	5
2 REVIEW OF LITERATURE AND STUDIES	6
2.1 Photovoltaic	6
2.1.1 Photovoltaic Characteristics	6
2.1.2 Photovoltaic Modelling	8
2.2 Maximum Power Point Tracking (MPPT)	10
2.2.1 Perturb & Observe Algorithm	11
2.2.2 Reinforcement Learning (RL)	11
2.3 DC-DC Converter	15
2.3.1 Boost Converter	15
3 DESIGN MODEL AND SYSTEM	20
3.1 Simulation Flow	20
3.2 Simulation System Design	21
3.2.1 Photovoltaic Model	21
3.2.2 MPPT Controller Modelling	22
3.2.3 Boost Converter Modelling	25

3.3	Scheme of simulation and analysis	27
3.3.1	Various Irradiance Condition	27
3.3.2	Various Temperature Condition	28
3.3.3	Various Irradiance and Temperature Condition	28
3.3.4	Analysis Scheme	28
4	RESULT AND ANALYSIS	30
4.1	Results of Simulink System Modeling	30
4.2	Simulation Result	31
4.2.1	First scheme: Various irradiance condition	31
4.2.2	Second scheme: Various temperature condition	33
4.2.3	Third scheme: Various irradiance and temperature condition	35
4.3	Parameter Analysis	37
4.3.1	Dynamic Parameter	37
4.3.2	Static Parameter	39
4.3.3	Efficiency Parameter	40
5	CONCLUSION AND FUTURE WORK	43
5.1	Conclusions	43
5.2	Future Work	43
	BIBLIOGRAPHY	45