TABLE OF CONTENTS

PREFACE

The thesis is divided into eight chapters.

Chapter 1: Introduction

This chapter justifies the problems that are undertaken for the study and decides the objectives as well as the systems.

Chapter 2: Literature Review

This chapter deals with the state of the art in improving the photovoltaic efficiency of Dye-Sensitized solar cells (DSSC). This chapter has details about DSSC, its components, its working and its principle, and various ways of improving efficiency with the description of challenges. The advantages and disadvantages of DSSC are also discussed.

Chapter 3: Experimental Section

This chapter deals with materials and detailed experimental procedures of the targeted objectives.

Chapter 4: Optimizing Steps and Overcoming Challenges of DSSC Fabrication

This chapter discusses DSSC fabrication challenges and steps optimization.

Chapter 5: Synthesis of Graphene and its Application in DSSC Fabrication

In this chapter, graphene synthesis via various routes and its application in DSSC are discussed.

Chapter 6: Performance Analysis of Gel DSSC

This chapter presents preparation of bio-degradable gel electrolyte and its modification.

Chapter 7: Conclusions

Conclusions of all experimental work are discussed in chapter 7.

Chapter 8: Future Work

This chapter presents future recommendation to continue and progress this work.