## **Position Control for Linear Actuator using PLC**

By

Muhammad Suhail 01-133102-247 Noor Aziz 01-133102-071 Muhammad Amjad 01-133102-049

## Supervised by

Sir Dr. Muhammad Ali Shami



2013-14

A Report is submitted to the Department of Electrical Engineering, Bahria University, Islamabad. In partial fulfillment of requirement for the degree of BS(EE).

## Acknowledgements

We are thankful to our Project Supervisor Dr. Muhammad Ali Shami for his efforts and to make us punctual in our work. We are grateful to our external Project Advisor Sir Jabir Abbas(C.E.O of Automation junction pvt limited rawat), he helps us in every aspects i.e. in availing of equipment and making sure his presence with us in the problems regarding the project.

## Abstract

The project is about product measurement and quantitative analysis unit. It performs these two functions; it measures the length of an industrial product (piece of glass slabs, piece of an iron sheet or pipe etc.) and quantity of products that we have to produce in the process.

CONTENTS	PAGE
Certificate	1
Dedication	li
Acknowledgements	lii
Abstract	lv
Table of Contents	V
List of Figures	Vi
1.1 Introduction	2
1.1.1 Project overview	8
1.1.2 Problem description	8
1.1.3 Project objectives	9
1.1.4 Project scope	10
2.1 Literature review	12
3.1 Existing system	14
3.1.1 Drawbacks	14
3.1.2 Limitations	14

3.2Proposed System	15
3.2.1 Limitation	15
3.3 Requirement Specification	16
3.3.1 Power Properties	16
3.3.2 Measurement properties	16
3.3.3Process Properties	16
3.4 Use Cases	16
3.4.1 Power Properties	16

CONTENTS	PAGE
3.4.2Measurement Properties	17
3.4.3 Process Properties	17
4.1 System Design	19
4.1.1 System Architecture	19
4.1.2 Design Consideration	20
4.2 Design methodology	20
4.3 High level design	21
4.3 Low level Design	22
4.3.1 Optical Encoder	22
4.3.2 Variable Frequency Drive	22
4.3.3 Database Design	23

4.3.4 Human Machine Interface	23
5.1 Programmable Logic Controller	25
5.2 Optical Encoder	25
5.3 Proximity Sensors	25
5.4 Variable Frequency Drive	25
5.5 Induction Motor	25
6.0 Conclusion	27
References	29
Appendices	31