

“Minimize penalty in industrial Sector of Power consumption by Engaging APFC (Automatic power factor Correction) Unit”.



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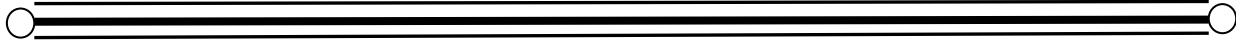
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Dedication

To All of Our Respectful Teachers and Dear Friends,

Thank you for everything.

To Our Families,

Thank you for your continuous encouragement and support.

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In the name of ALLAH, who is the most merciful, the most compassionate; the one and only supreme power, the one whose makes everything possible and the one without whose will the simplest is impossible.

All thanks to our beloved Family members for their prayers, guidance, support and care. They dreamed for our future and advised us to work hard to fulfill their dreams. Without their financial and moral support it would not have been possible for us to become supreme professionals. Actually we can't express their wills, wishes and efforts by just a bunch of words.

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Abstract

Chapter 1

Introduction

1.1 Literature Review

Many researchers work hard and developed many techniques for the correction of power factor. Fuld et al. proposed a technique with buck and boost at three phase supply, output voltage i.e 400 V, and spacious input voltage varieties.

Freitas et al. produced a technique that effects of AC generators induction and synchronous machines and distribution synchronous devices.

Jones and Blackwell proposed a technique for a synchronous motor at unity power factor from no-load to full-load situation.

Kim et al. developed an excellent performance technique with high-efficient line conditioner. Line Conditioner consists of a three-leg rectifier-inverter, function on boost and buck converter.

Above all, and much more work for power factor Improvement for inductive loads. We developed a new algorithm for automatic detection and improving of Power Factor consisting of both induction motors and resistive load. The detection and correction of power factor is very efficient and quick.

Microcontroller manipulates the proposed algorithm to measure the reactive power (KVAR) and correct it to the desired value.

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