



FINAL YEAR PROJECT REPORT

**DESIGN AND IMPLEMENTATION OF PLC
BASED THREE PHASE AUTOMATIC POWER
FACTOR CONTROLLER**

**In fulfillment of the requirement
For degree of
BEE (Electronics)**

By

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Project Abstract

This project is a step to diminish the wastage of electricity and to make the electrical system efficient as there is great energy crisis in Pakistan so what we can do is to remove or decrease the wastage or power loss and improve the power system furthermore this project is an attempt to design and implement automatic power factor controller panel or system using PLC (programmable logic controller).

The decomposition of our project comprised of Motor Control Circuit, Motors, Power Factor Correction Control Circuit, Power Factor Correction Capacitors, Sensors & Transducers (Real power transducer and Power factor transducer), and Fatek PLC.

There are two three phase induction motors of 1hp each which can be operated through HMI and pushbuttons which are digital inputs to the PLC. Protection like MPCB and EOCR is there to safely switch off or trip the motors under short circuit and overload conditions.

Three step power factor correction capacitor banks has been build which is working in two modes that is automatic and manual. Single phase capacitors are used to make three phase delta connected capacitor to improve the power factor of the electrical system.

There are two analog values coming to analog board of Fatek PLC from real power transducer and power factor transducer which are then processed according to the ladder diagram.

Fatek FBs 20MA PLC is used as a controller in this project. PLC is monitoring the real power and power factor of the whole load and then by processing both the analog values from two transducers along with the help of ladder programming taking actions by switching on/off capacitor bank to improve the power factor.

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