EEE DEPARTMENT, VELTECH MULTITECH, UG BEST PROJECTS

2015-2016

Improvement of efficiency and power factor in transformer less online UPS

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Uninterruptible power supplies (ups) are used to supply uninterrupted high quality power to critical loads.

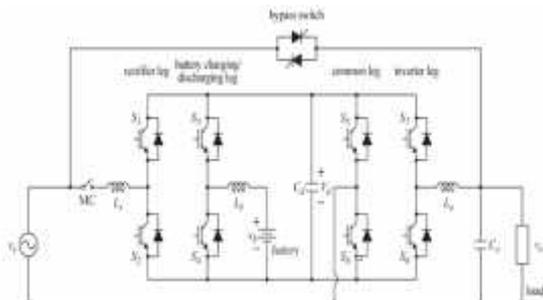Improves power factor from 0.6 to 0.9 using super capacitor

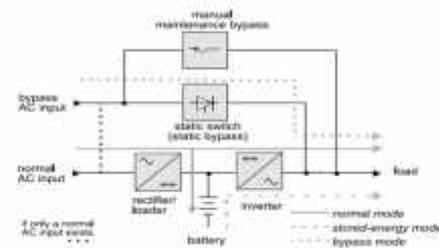UPS efficiency is of 95.6% and an input power factor of 99.7%.

OBJECTIVES

To improve the overall efficiency and power factor.

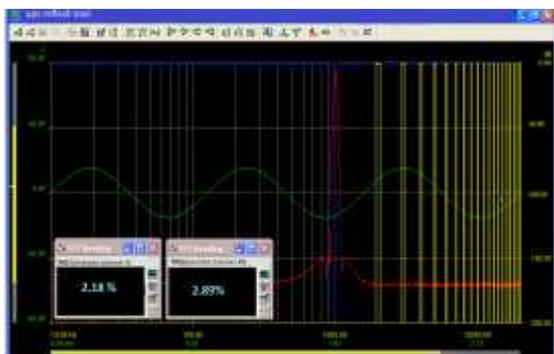To reduce the size, weight and cost of the system is improved

PROPOSED MODEL	MODES OF OPERATION

THD OUTPUT FOR RESISTIVE AND INDUCTIVE LOAD

The three basic parts of the UPS system were simulated and output of each is obtained.

Power Factor of 0.97 was taken into consideration for testing UPS under different loading conditions

Solar Based Wire-Plate Type ESP

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An electrostatic precipitator (ESP) is a filtration device that removes fine particles, like dust and smoke, from a flowing gas using the force of an induced electrostatic charge.

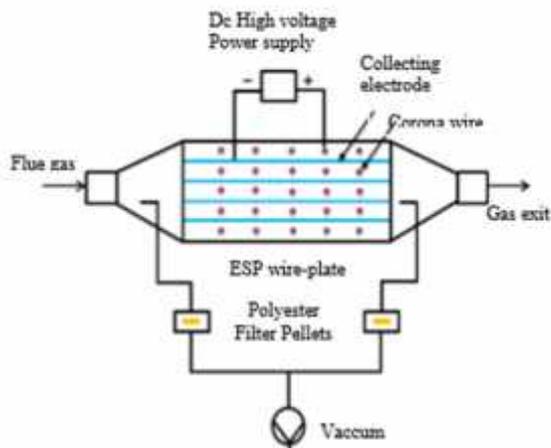To give stabilized high voltage for electrostatic precipitator high step up DC to DC converter is used.

Implemented with MPPT technique to obtain maximum power from the solar panel

The objective of this project is to show that it is possible to build-up a cost-efficient electrostatic precipitator and also using the solar energy as power supply for ESP
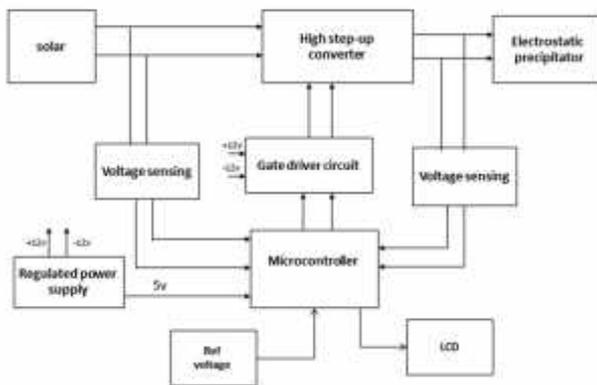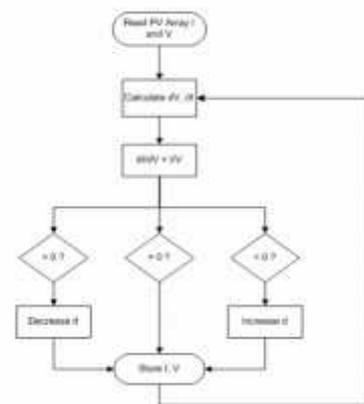

ELECTROSTATIC PRECIPITATOR   **HARDWARE KIT**

Power Quality Improvement Using Dynamic Voltage Restorer with Fuzzy Logic Control Based Synchronous Reference Frame Theory

K.Pradeep
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P.Pradeep

To implement fuzzy based synchronous reference frame theory for Dynamic voltage restorer (DVR) to improve the power quality such as sag, harmonics etc.
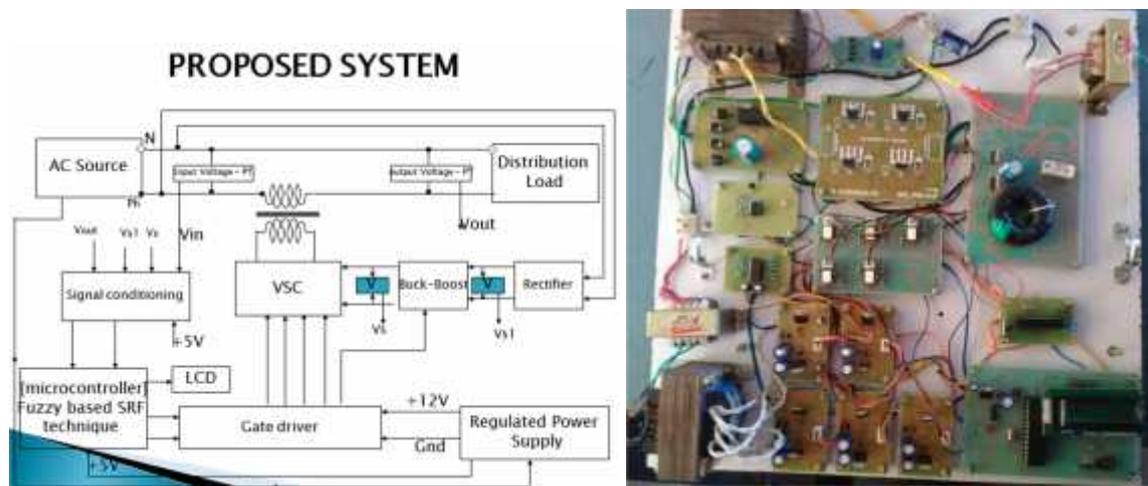
Buck boost converter is implemented to improve the DC link voltage stability with the usage of PID controller

The DVR functions by injecting three single phase AC voltages in series with the three phase incoming network voltages during sag, compensating for the difference between faulty and nominal voltages.

All three phases of the injected voltages are of controllable amplitude and phase.

Three pulse-width modulated (PWM) voltage source inverters (VSI) fed from a DC link supply the active and reactive power.

During undisturbed power supply condition, the DVR operates in a low loss standby mode.

ADVANTAGES

- The fuzzy based synchronous reference frame (SRF) theory is used to control the VSI to improve the better compensation.
- Improved power quality
- Better voltage regulation with the usage of buck boost converter
- PID controller is used to control the buck boost converter

AUTOMATIC OBSTACLE DETECTING AND OPTIMUM PATH FINDING LINE FOLLOWING ROBOT

**Arun pandian.V**
Aswin.S
Devaraj.S

Objective

To make an efficient line follower robot with obstacle detecting technology.

To find an alternative best possible path when an obstacle is observed during the passage of a line follower robot.

The path finding technique is implemented using INFRARED SENSORS

- Line follower robot is a robot that automatically follows a given black path throughout a given trail.
- It can be made using MICROCONTROLLERS or MICROSPROCESSORS.
- Here the line follower is made using microcontroller ATMEL 89S52.
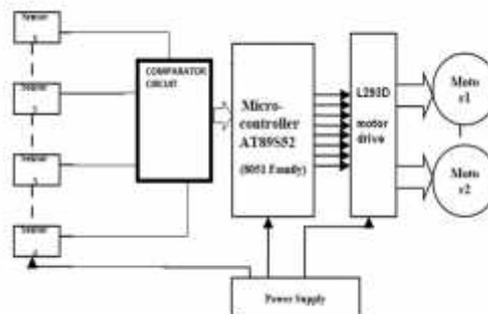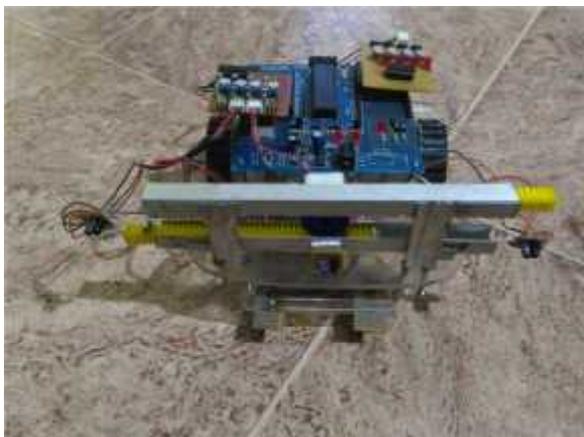
OVER CURRENT AND OVER FLUX PROTECTION FOR TRANSFORMER USING NUMERICAL RELAY

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A "Numerical Relay" is a type of protective relay which operates when the line parameters exceed a preset value.

This project is an attempt to design and fabricate a multi-functional protective relay using PIC micro controller.

In order to design it, first the line parameters need to be measured and when these values exceed the preset values.
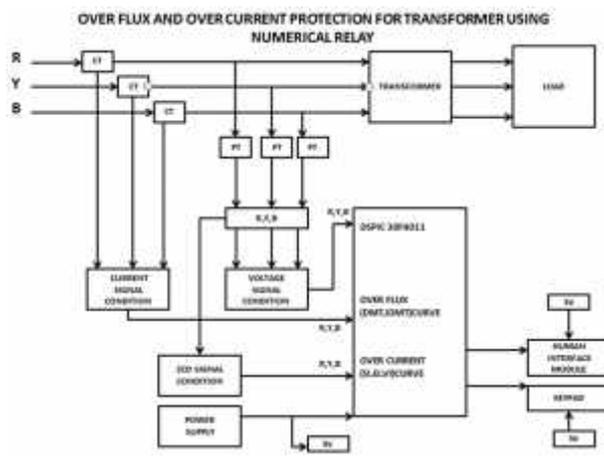
Desirable which means maximum sensitivity of the over flux -current relays to the current , voltage and frequency a minimum reaction time.

This high sensitivity may lead to operation of relays in normal transient events, such as transformers energizing. Therefore, proper methods must be used to prevent mal-trip of the relays, due to these transient currents.

This project presents a over currents and over flux caused by fault from transformer energizing.

And DMT and IDMT characteristics are implemented for over flux relay

To improve the protection system SI, VI and EI Time current characteristics were implemented

PROPOSED SYSTEM

HARDWARE KIT