

# EEE DEPARTMENT, VELTECH MULTITECH, UG BEST PROJECTS

2014-2015

## Design of fault detection kit for induction drives

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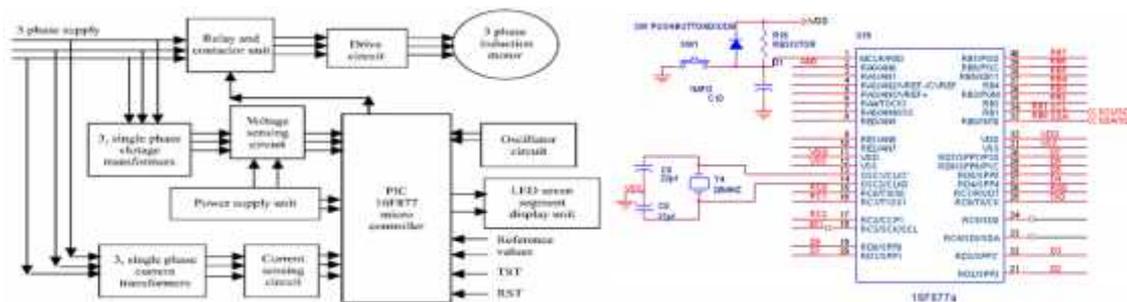
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Induction motor is known for its rugged construction and usage under various loads.

Even though its life span is more it is affected by various faults.

Such faults when not rectified at early stages causes major fault and efficiency of the motor will decrease.

This project is about designing a kit to monitoring the motor and display error message when fault is occurred and with it the motor also stops running thus the motor are prevented from the fault.

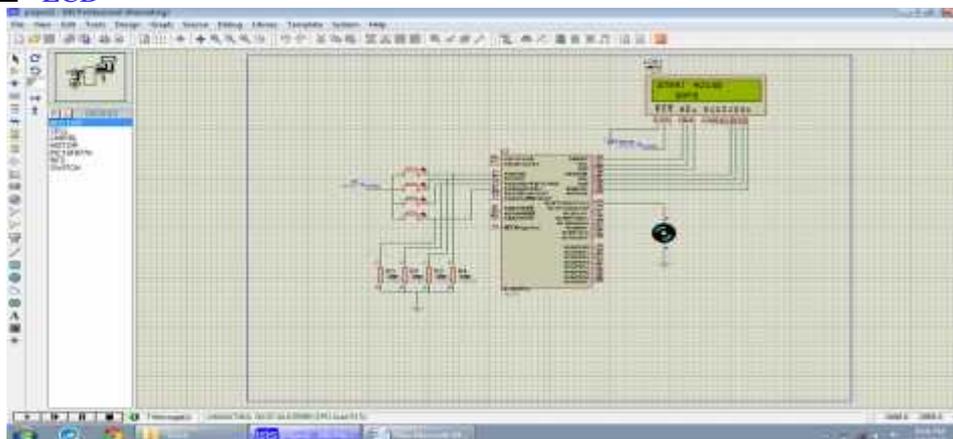


### HARDWARE:

- PIC 16F877a
- STEPDOWN TRANSFORMERS
- PIC GENERAL CIRCUIT BOARD
- RELAY
- VOLTAGE REGULATOR
- BRIDGE RECTIFIER
- LCD

### Software:

- pic c compiler
- proteus software



# Auto Calibrated surround System

Remigius. V

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Pleasure of enjoying the surround sound is fully based on the calibration made on the surround system.

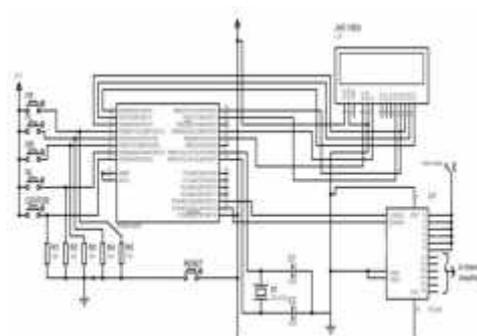
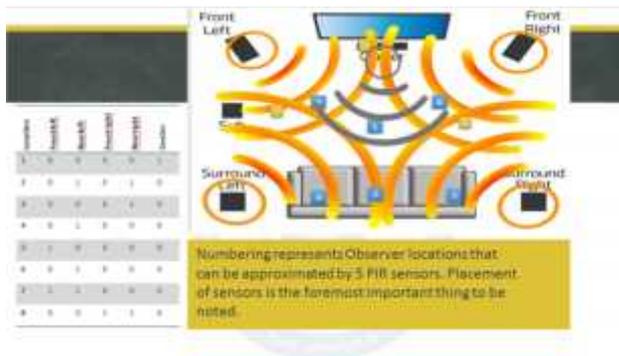
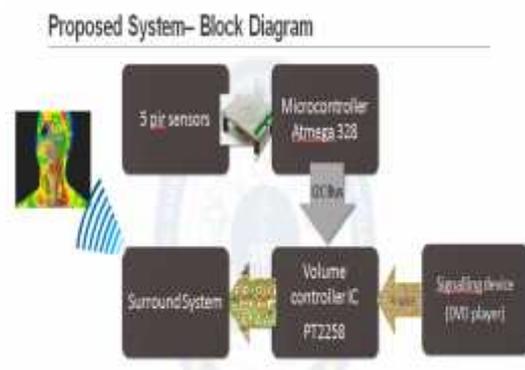
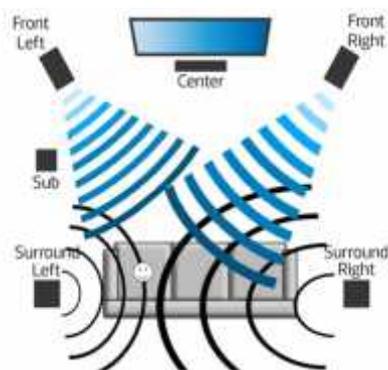
Many calibration techniques available in existing system. But none of them adjust the volume of the speakers in real time.

Those techniques calibrate the speaker volume once, when the system was installed. If the observer is moved from the calibrated position, the audibility of the each speaker varied. So the observer can't experience a surround.

Instead sound from nearer speaker will be high and observer losses his/her audibility of the farer speaker.

Only special effects from farer speaker can be audible.

The proposed system regularly adjusts the volume of the speakers. Thus the observer can hold the audibility of every speaker when move around.



# DESIGN AND REALIZATION OF MOBILE ROBOT FOR POWER LINE INSPECTION

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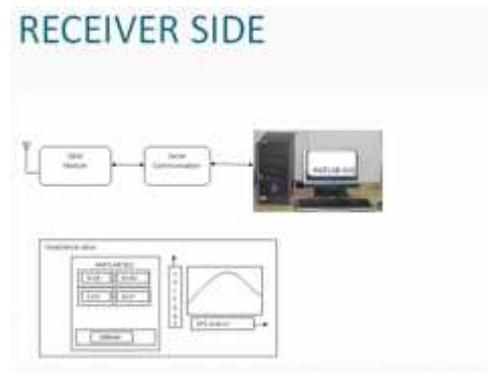
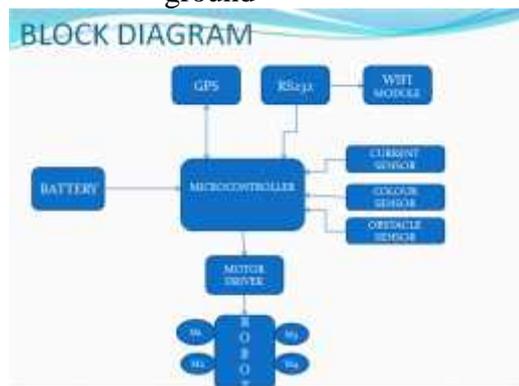
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The objective of this project is to inspect the power line automatically without interrupting power supply.

For that we are using robot with included current, color sensor and obstacle sensor.

When the problem detected it will transmit the exact area location to the receiver through wireless transmission. Location can be found by GPS.

- Patrol inspection mainly using helicopters equipped with infrared and corona cameras is widely used to detect faults in line.
- Aerial inspection is costly and always there is a risk of contact with live lines and loss of life.
- Hence a mobile robot is designed to accomplish inspection from closest distance.
- Robot is designed with various sensors , transmitting and a receiving system in ground



## DESIGN OF MOBILE ROBOT



## MATLAB GUI PAGE



## RECEIVER SECTION



## RECEIVER SECTION

- The wireless transmitter will transmit RF signal which is received by the receiver in the ground.
- Then the output of the receiver is connected to the pc which will display the information such as current value , distance travelled , corona status , GPS location.
- The values will be displayed in the MATLAB GUI designed page.

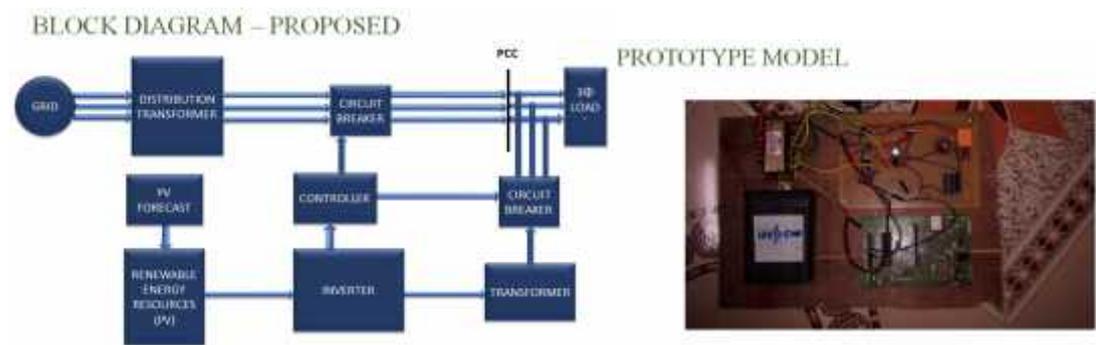
# EFFECTIVE UTILIZATION OF RENEWABLE ENERGY RESOURCES BY AUTOMATION

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- Electric utilities and end users of electric power are becoming increasingly concerned about meeting the growing energy demand.
- Seventy five percent of total global energy demand is supplied by the burning of fossil fuels.
- Whenever the renewable energy available is enough to meet the demand, the grid power can be disconnected from the load by circuit breaker.
- The above requirement can be obtained by the proper forecasting of RES (PV).
- After forecasting, controller will compare the load current and the PV current according to that it will operate the circuit breaker.
- Then the PV alone will supply the load. So that the consumption of GRID power is minimized.
- Generally the load in the distribution side is supplied by power obtained from the grid or inter-connected grid. So the consumption of non-renewable energy resources is maximum.
- By proper forecasting of renewable energy resources the load can be supplied efficiently without the utilisation of grid power.
- When the load current of RES is greater than or equal to the load current of grid, the controller will provide the control signal for the operation of both circuit breakers.



This project provides an idea that how to utilize the renewable energy resources effectively. Interconnecting the grid and renewable energy resources may cause major power quality issues and stability issues. Finding solution for the above problem may enhance the project in further way.

# Wireless power transfer system for roadway powered moving electric vehicle

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Electric vehicles are charged on roadway by wireless power transfer system.

However, all-electric vehicles, such as plug-in electric vehicles and battery electric vehicles, are distributed narrowly at present owing to some battery-related drawbacks such as large size, heavy weight, high price, long charging time, and short driving range. These problems are not easily solved by current battery technology.

In order to achieve high output power and power transfer efficiency we are using wireless power transfer system.

In the WPT (Wireless Power Transfer) for Roadway Powered Moving Electric Vehicles AC supply will be given using High Frequency Transformer, so that Transformer can produce high magnetic flux in the primary side of the induction coil.

It will be transferred to secondary side of the induction coil and using filters it is given to DC regulator, vehicle moves.

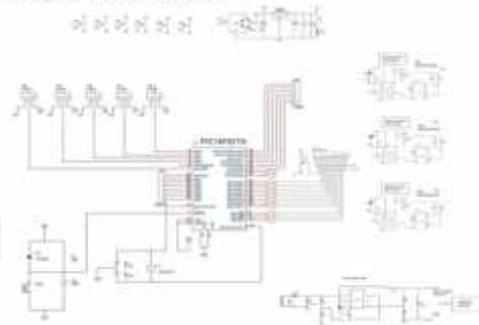
Same Transmission concept will be placed at certain distance and vehicle when passes through first place, gets charged and moves to some distance.

Same way from second place it gets charged and moves. So like this it goes on. In LCD we can display the transmission path of the vehicle.

## POWER TRANSFERRING SYSTEM:



## CIRCUIT DIAGRAM



## PROTOTYPE MODEL



## EXPECTED OUTCOMES

- Output power is high
- power transfer efficiency is high
- This system provides power(100kw) with power transfer efficiency (80%)at 26 cm air gap.