

INTERNSHIP AND SURVEY

Edelweiss Financial Services Limited

May 2018 - July 2018

- TCA report on Django server based UI
- Added more to TCA report for prediction.
- Helped traders to see and download their TCA report file of their transactions for their clients

Leh Solar Power Plant Survey

June 2019

- Examine the Leh Ladakh conditions for solar growth for further scope in solar setup in Leh
- Survey of 4 solar plants of 12kWp units
- Percentage degradation data

PROJECTS

Degradation rate of solar power plants | Dual Degree Project

July 2019 - Present

To create models for solar cells and find the dependency of parameters on the degradation rate

Work done till date:

- Implemented single diode model for solar cell with five parameters
- Used Bokeh server to plot the I-V curve interactively with varying parameters sliders.

Solar module mounting orientation and axis tracking effect

March 2019– April 2019

- Determined the best possible orientation of solar panel for maximum power output in different regions.
- Performed parametric analysis on System Advisor Model software by varying tilt and azimuthal angle.
- Conclusions after analysis in 3 different regions (northern, southern and equatorial) each in 2 seasons (summers and winters):
- Tilt angle should be equal to the latitude angle
- Solar panel should be facing south in northern hemisphere and vice versa but for equatorial region the azimuthal angle for maximum output changes with summer and winter season

Image compression using wavelet transform algorithm

March 2019 – April 2019

- Implemented image compression algorithm using 4-taps, 2-D Daubechies Wavelet Transform on 512 x 512 grayscale image and reconstructed the image using Inverse Daubechies Wavelet Transform
- Implemented whole system on Cyclone IV-E Altera FPGA using Nios II processor in platform designer interfaced with SDRAM module on-board which is capable of storing input and output image data of large sizes
- Applied low pass and high pass filtering followed by downsampling by 2 on rows and columns sequentially to obtain LL, LH, HL and HH image components
- Implemented thresholding on image and performed Huffman encoding to obtain compressed image data which is decoded and then reconstructed back

Power Amplifier design

March 2019 – April 2019

- Simulated in ADS a 2 stage power amplifier with matching & bias T circuits with unilateral design approach
- Designed, fabricated & tested the PCB using Vector Network Analyzer for gain and bandwidth specifications

Modelling gesture control

March 2019 – April 2019

- Modelled 3-D Gesture Control using ADXL345 Digital Accelerometer interfaced with Arduino board
- Estimated inclination angle of the three axes with an error of less than 5% and plotted the same in real time

IITB-RISC Microprocessor design

March 2019 – April 2019

- Designed a 16-bit system with 8 registers having multi-cycle point to point communication infrastructure
- Synthesized VHDL code integrating the controller-FSM and data path for FPGA demonstration

Portable Solar cum Vibration Energy Harvesting Mobile Charger

March 2019 – April 2019

- Designed a suitable AC-DC converter and a DC-DC Boost converter for vibration and solar circuit output
- Prototyped and tested working model of the charger with optimized size and performance

AREAS OF INTEREST

- Solar System Design, Reliability of devices, Data Structure and Algorithm

Extra curricular Activities

- Gold, GC Badminton
- Flute class
- German Class
- Black belt 1st Dan Shotokan Karate