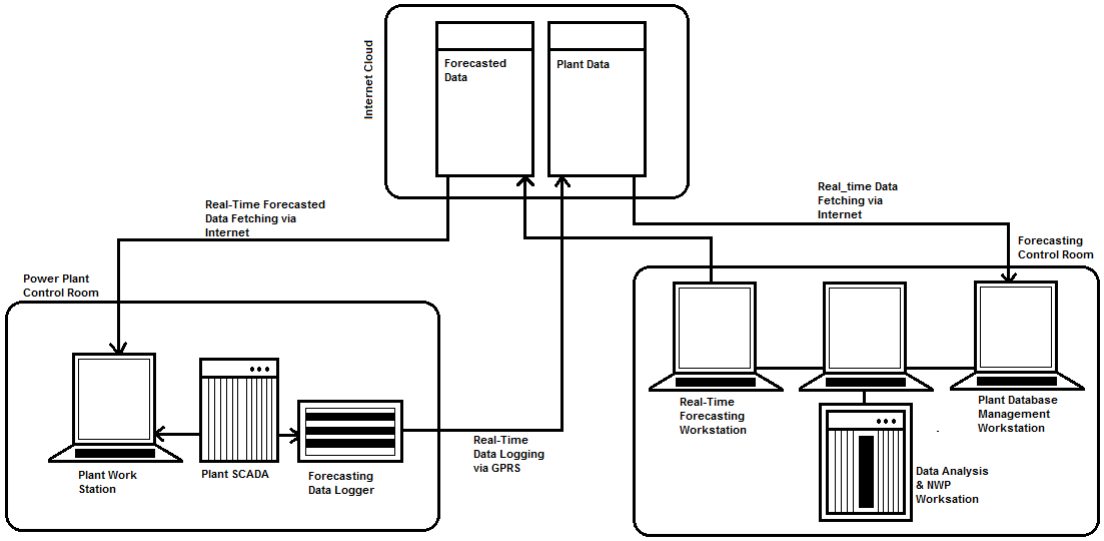

Figure 1: Future Work - Real-Time Forecasting System

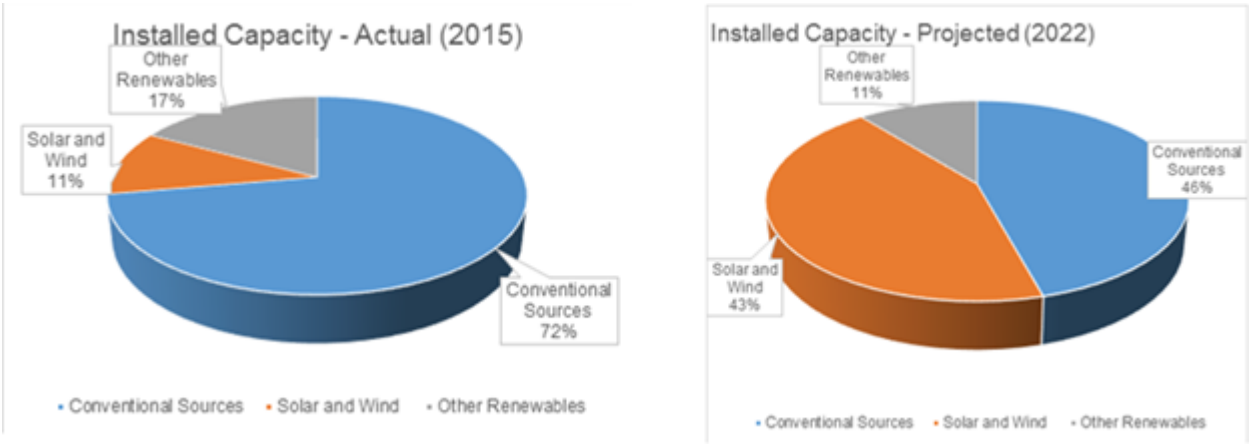

Figure 2: Actual and Projected Installed Electricity Generation Capacity Distribution

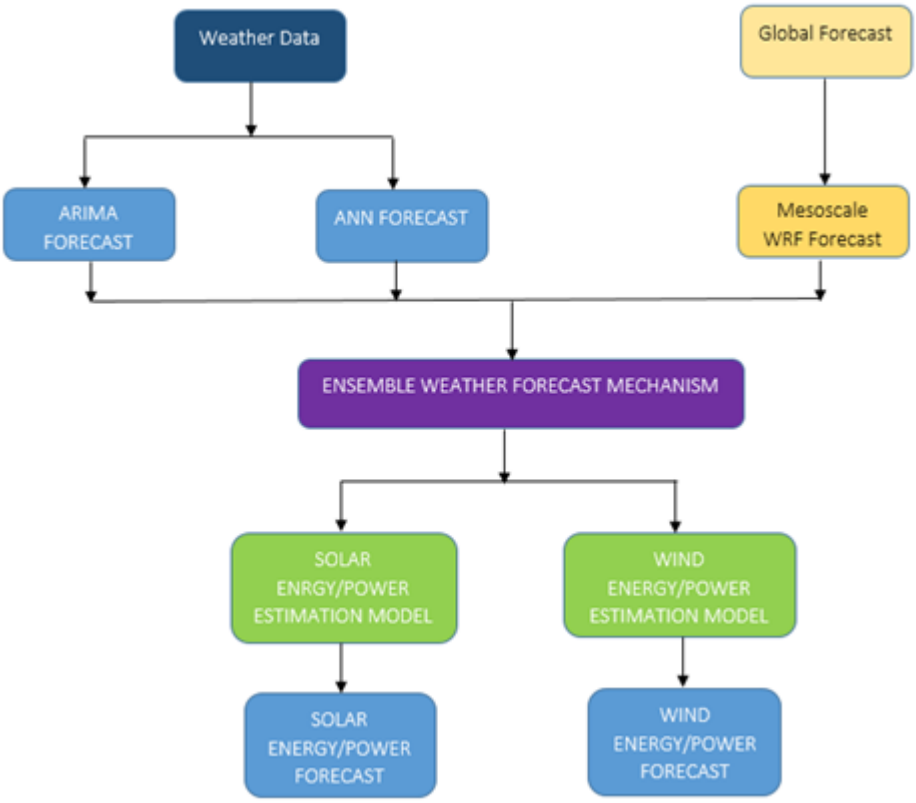

Figure 3: Block Diagram Ensemble Solar/Wind Power Forecasting

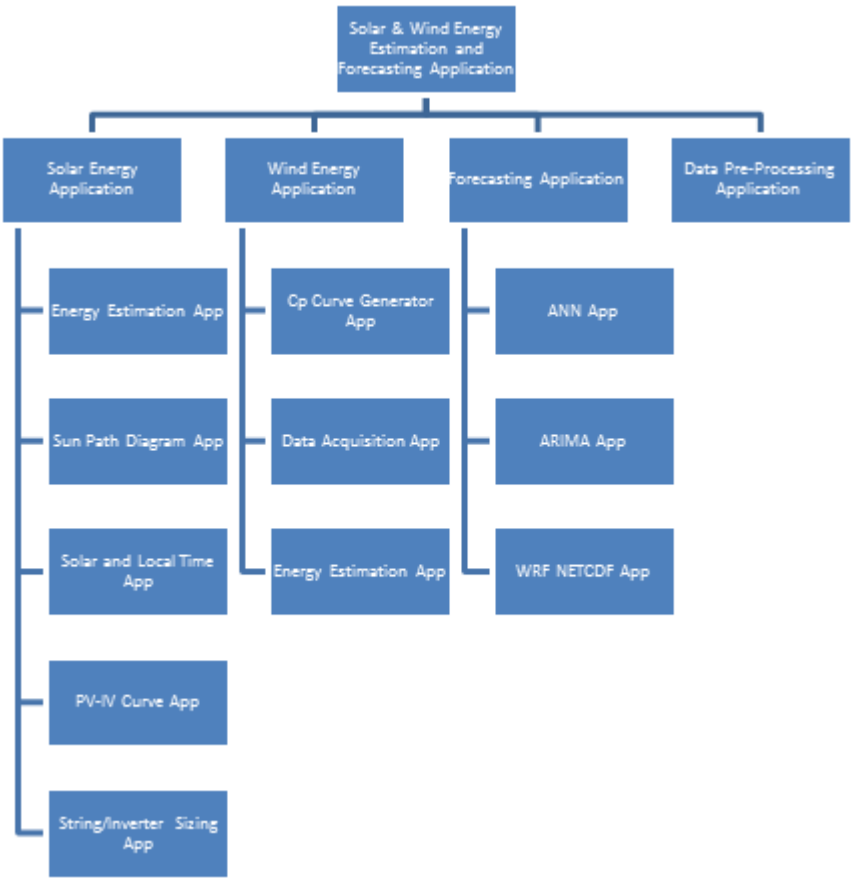

Figure 4: Organization of Application

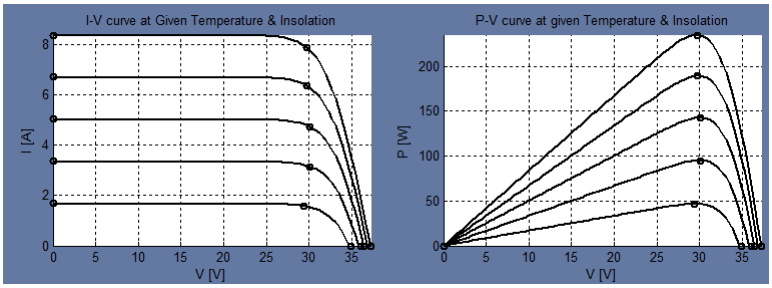

Figure 5: Polycrystalline Solar PV module I-V and P-V Curves at different Irradiances

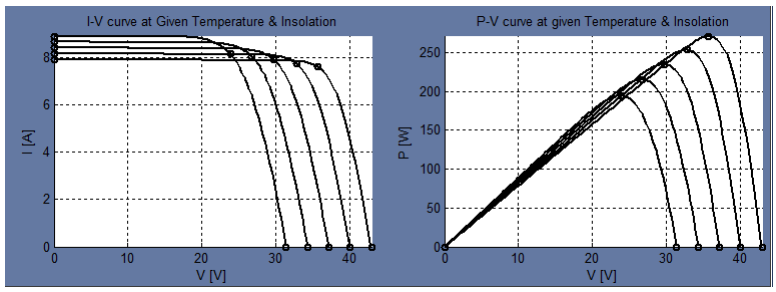

Figure 6: Polycrystalline Solar PV module I-V and P-V Curves at different Temperatures

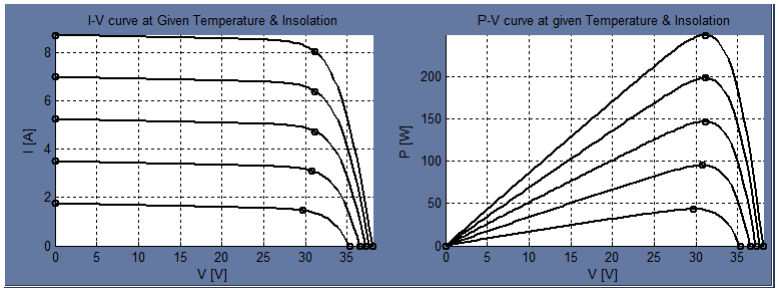

Figure 7: Monocrystalline Solar PV module I-V and P-V Curves at different Irradiances

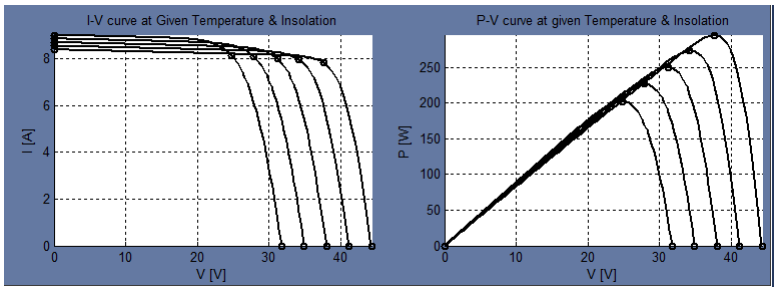

Figure 8: Monocrystalline Solar PV module I-V and P-V Curves at different Temperatures

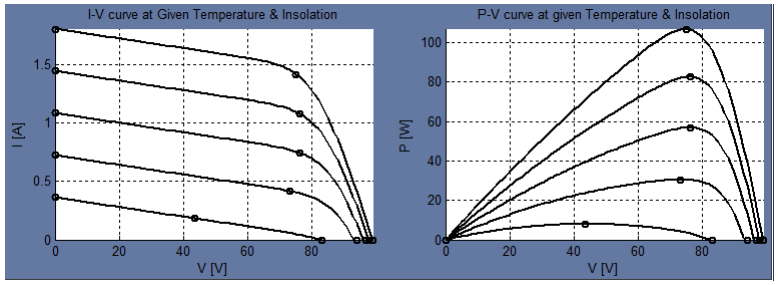

Figure 9: A-Si Thin Film Solar PV module I-V and P-V Curves at different Irradiances

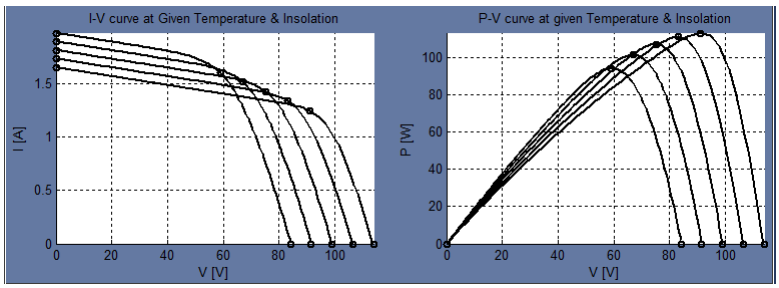

Figure 10: A-Si Thin Film Solar PV module I-V and P-V Curves at different Temperatures

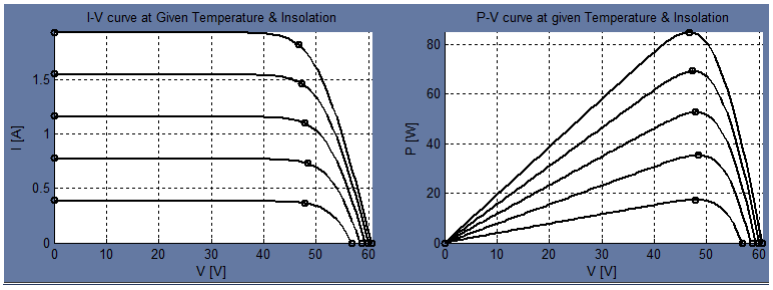

Figure 11: CDTE Thin Film Solar PV module I-V and P-V Curves at different Irradiances

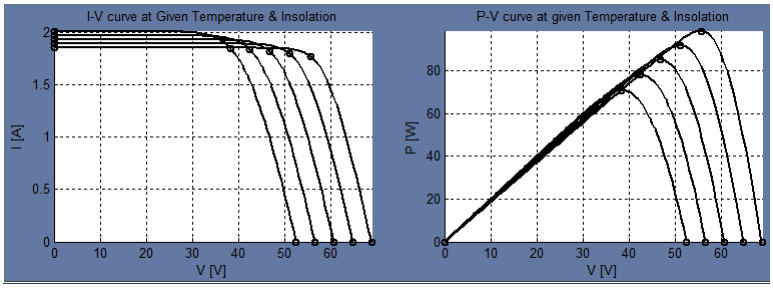

Figure 12: CDTE Thin Film Solar PV module I-V and P-V Curves at different Temperatures

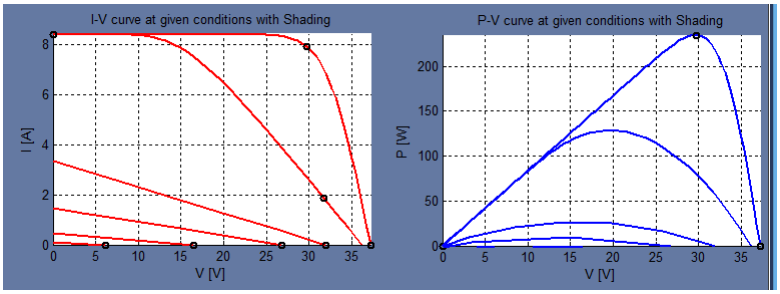

Figure 13: Polycrystalline Solar PV moduleP-V and I-V curves for Shading without Bypass Diode and at different number of shaded cells

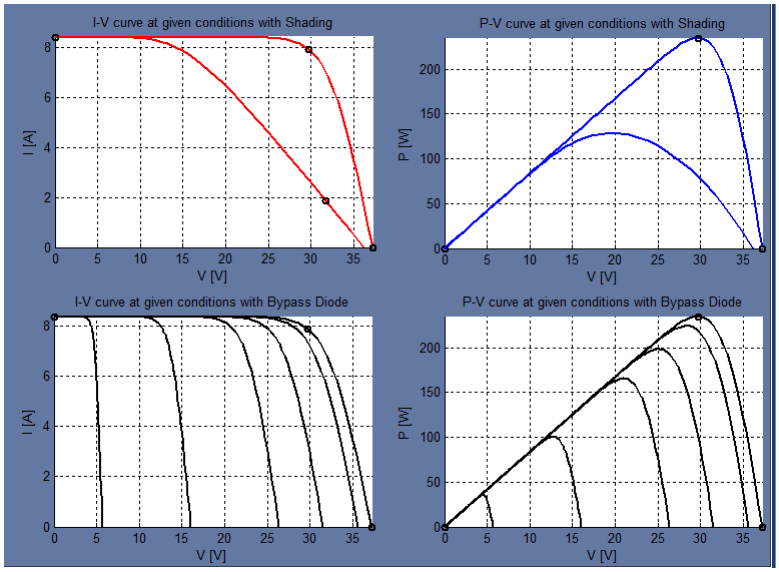

Figure 14: Polycrystalline Solar PV moduleP-V and I-V curves for Shading with Bypass Diode and at different number of shaded cells

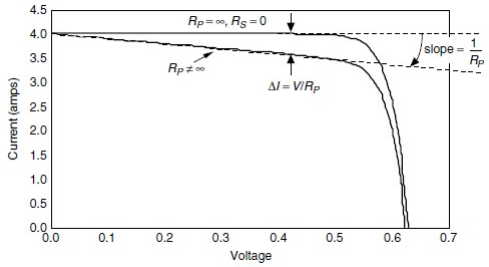

Figure 15: Effect of Parallel Resistance on I-V Curve

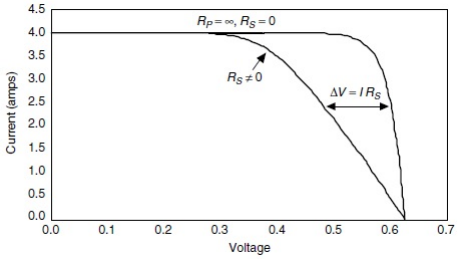

Figure 16: Effect of Series Resistance on I-V Curve

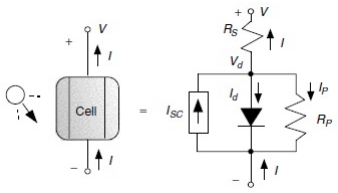

Figure 17: CompleteModel of PV Cell

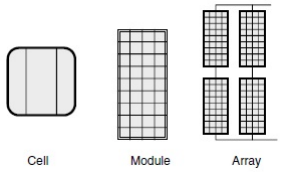

Figure 18: PV - Cell, Module and Array

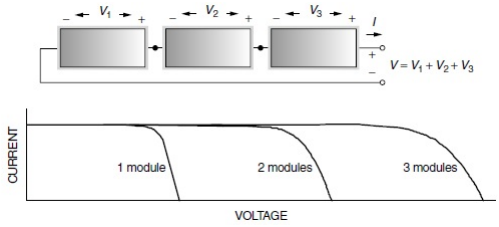

Figure 19: Effect of Series connected modules on I-V Curve

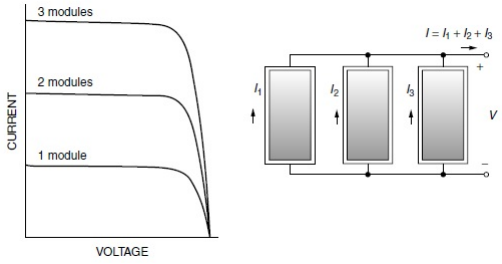

Figure 20: Effect of Parallel connected modules on I-V Curve

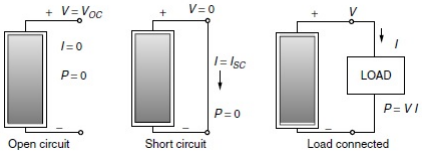

Figure 21: PV module - Open Circuit, Short Circuit and Load Connected

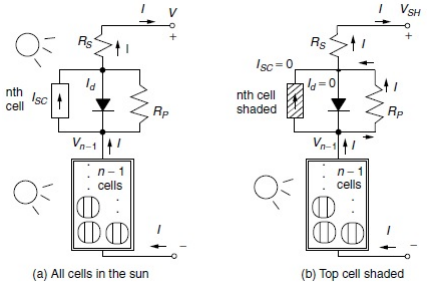

Figure 22: PV module with n Cells - top cell in sun, or in shade

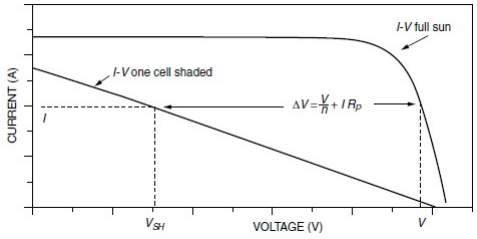

Figure 23: Effect of shading one cell in n cell module

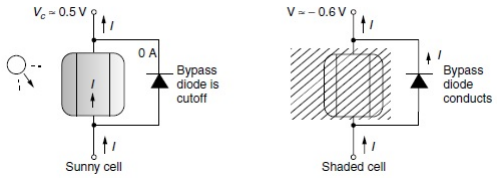

Figure 24: Mitigation of shading problem with Bypass Diode - In sunny cell bypass diode is cut-off, in shaded cell it conducts

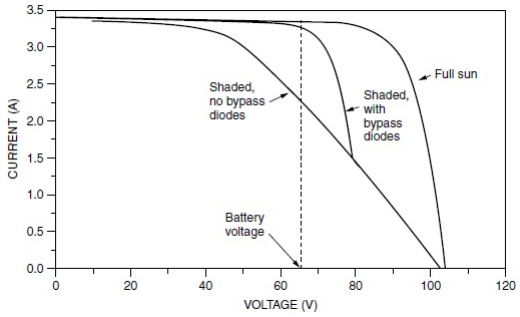

Figure 25: Effect of Bypass Diode on I-V Curve

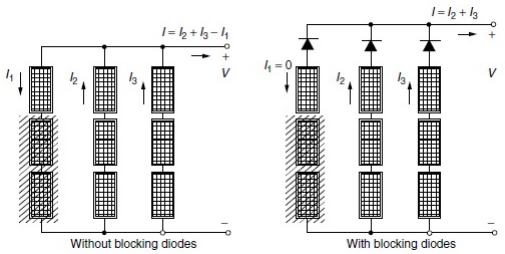

Figure 26: Blocking Diode prevents reverse flow of current through PV modules

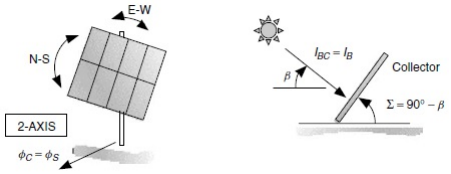

Figure 27: Charanka Solar Park PV Technology-Wise CUF Comparison

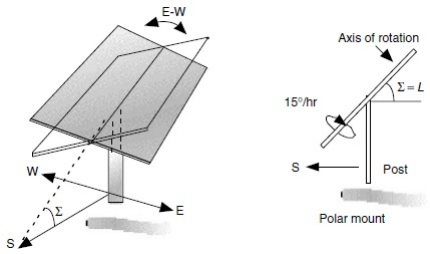

Figure 28: Charanka Solar Park PV Technology-Wise CUF Comparison

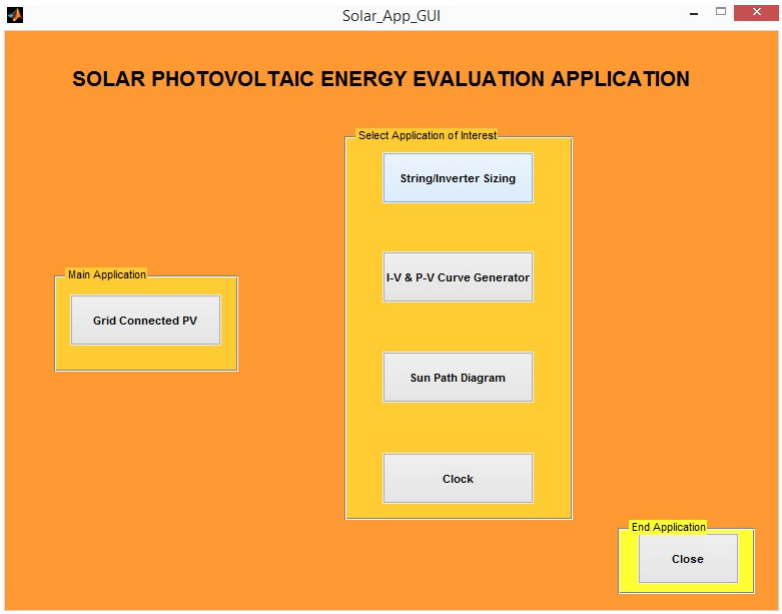

Figure 29: Starting Screen of Solar Application

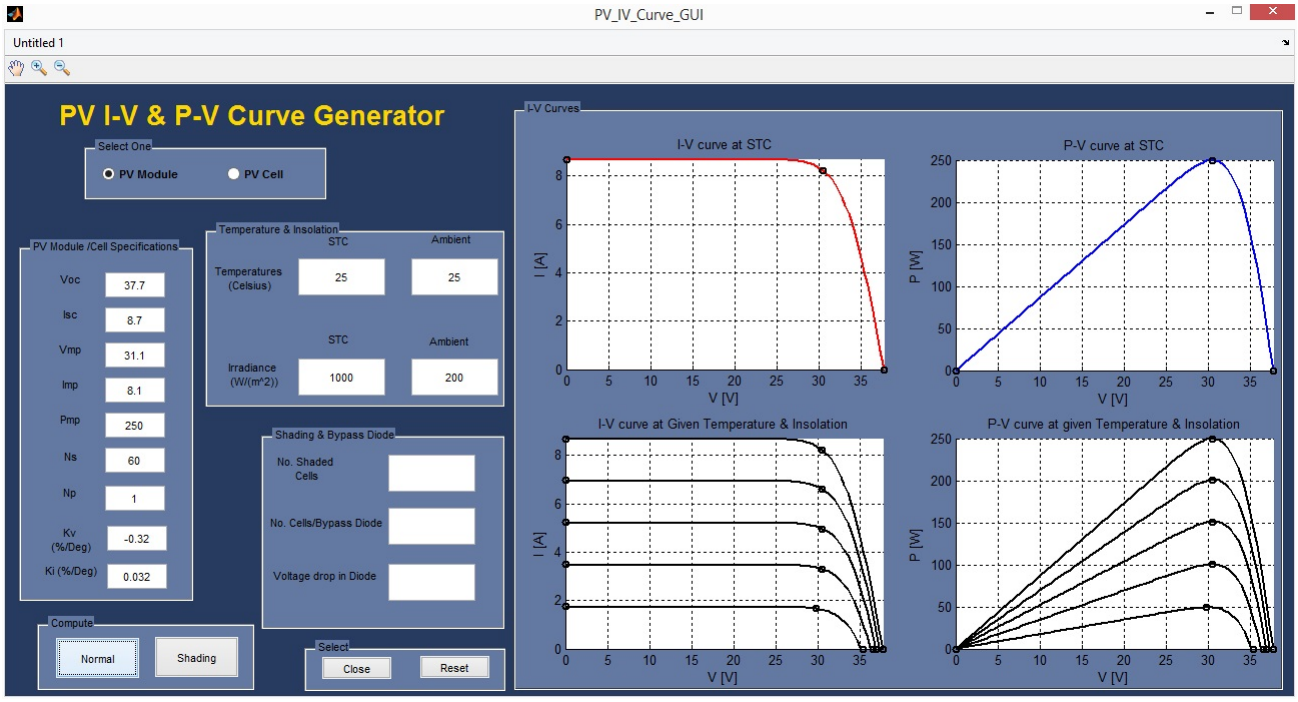

Figure 30: PV I-V and P-V Curve Generator Module

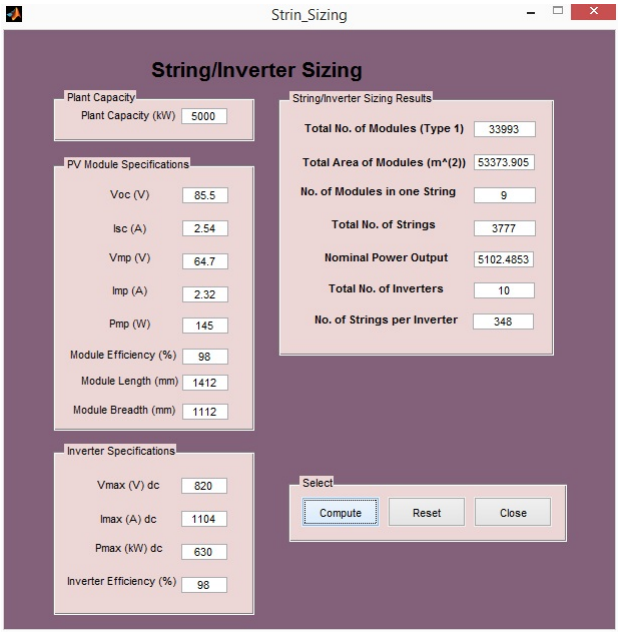

Figure 31: String and Inverter Sizing Module

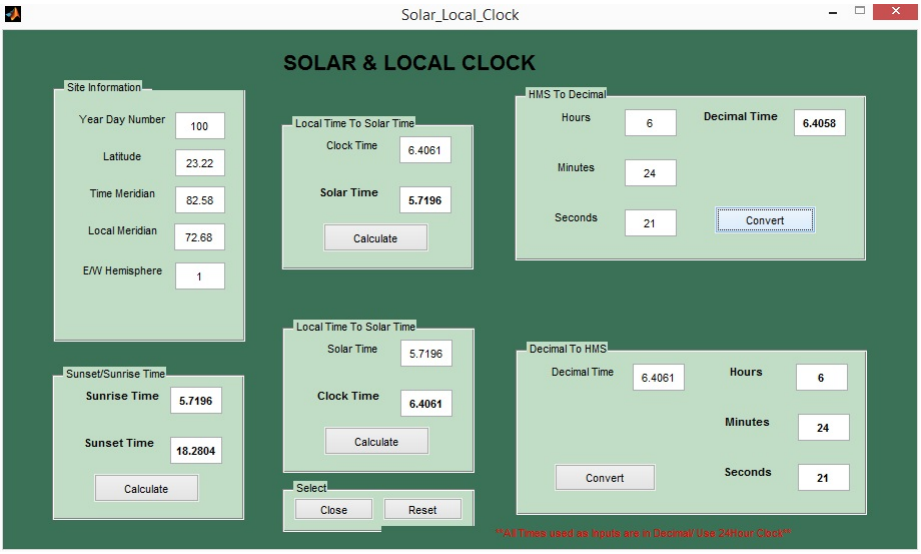

Figure 32: Solar and Regional Clock Module

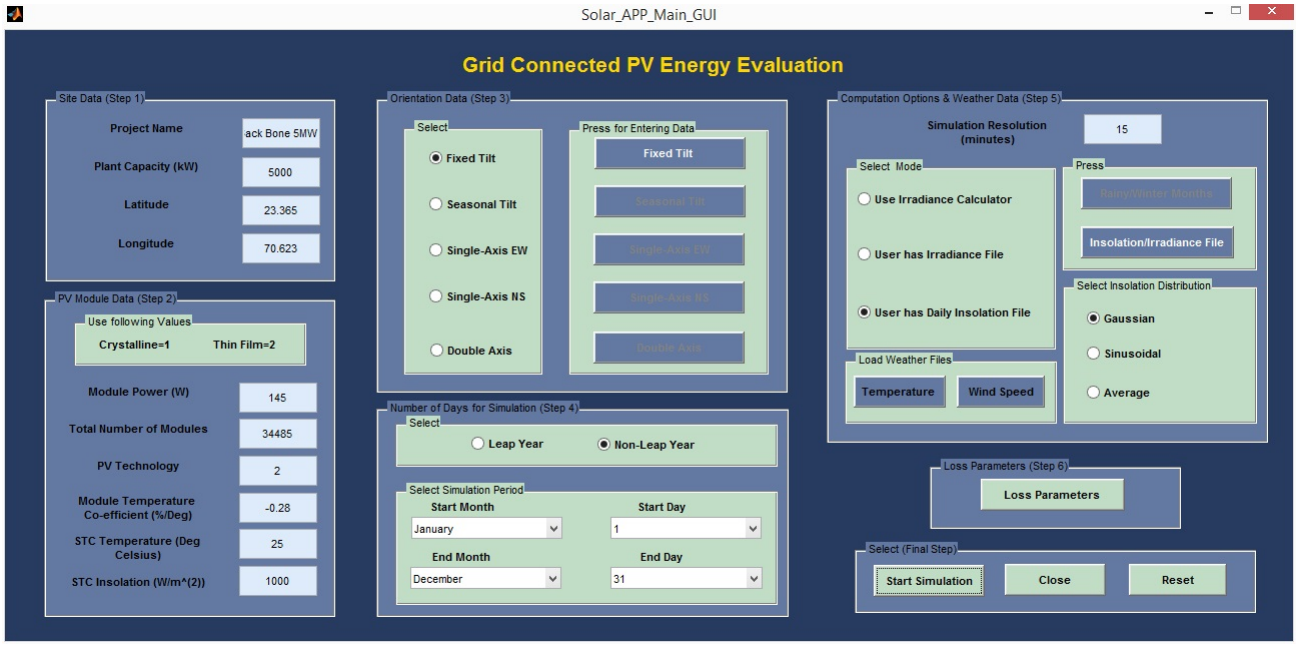

Figure 33: Grid Connected PV Energy Evaluation Module

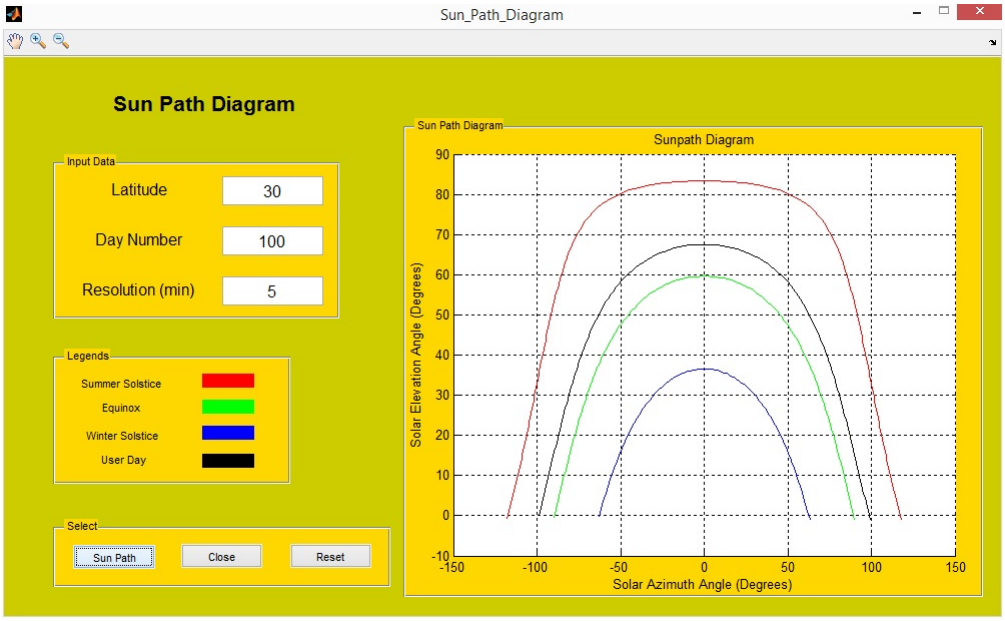

Figure 34: Sun Path Diagram Module

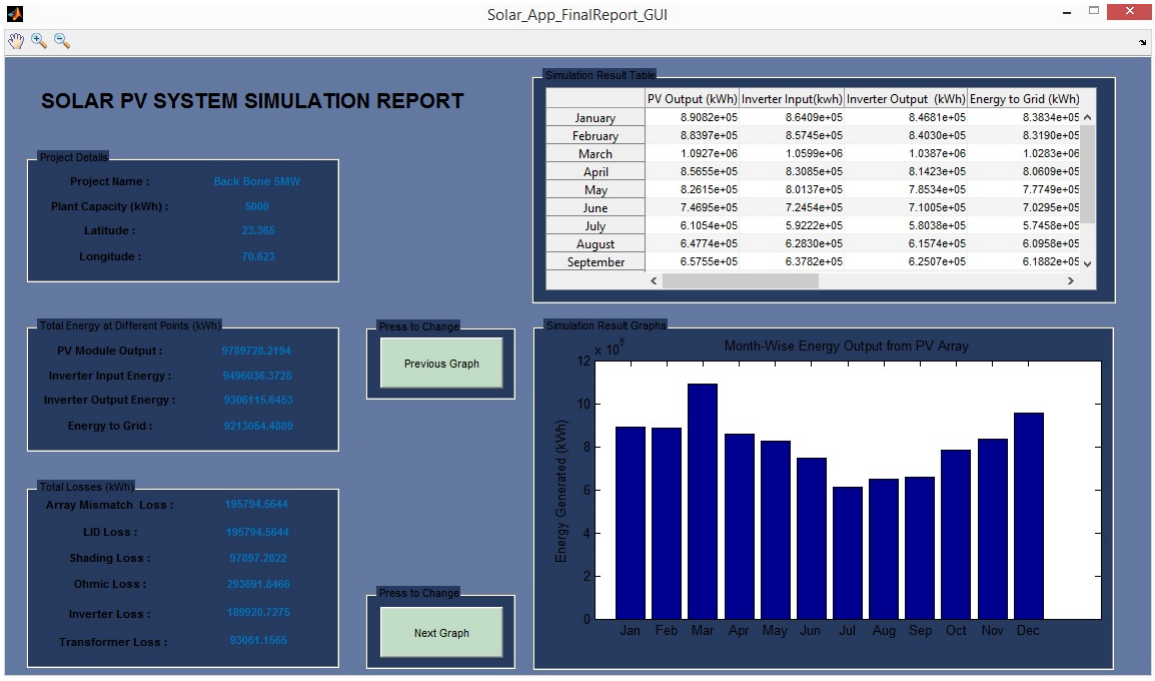

Figure 35: Grid Connected PV Energy Result Screen

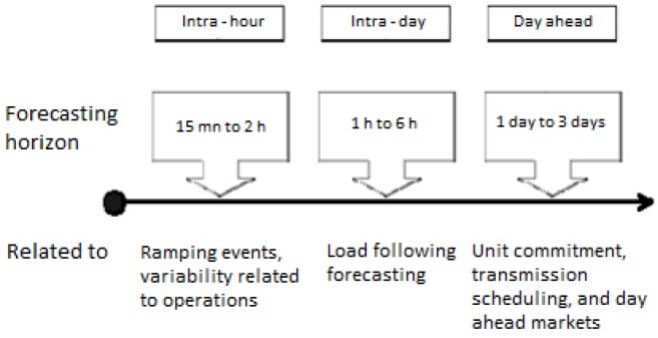

Figure 36: Time Horizons for Solar Forecasting

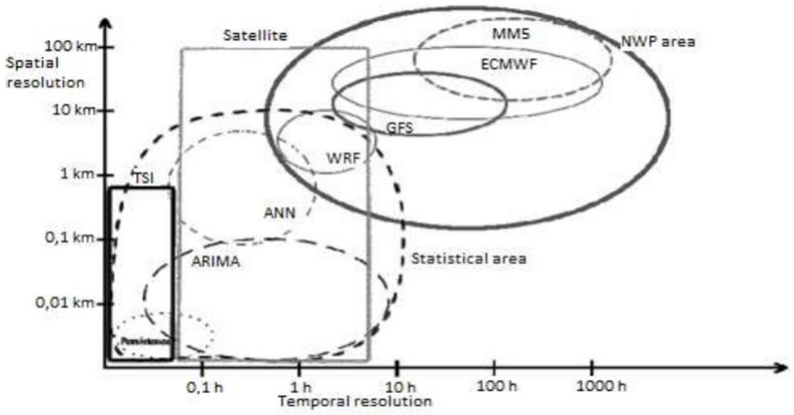

Figure 37: Time Horizons for Solar Forecasting

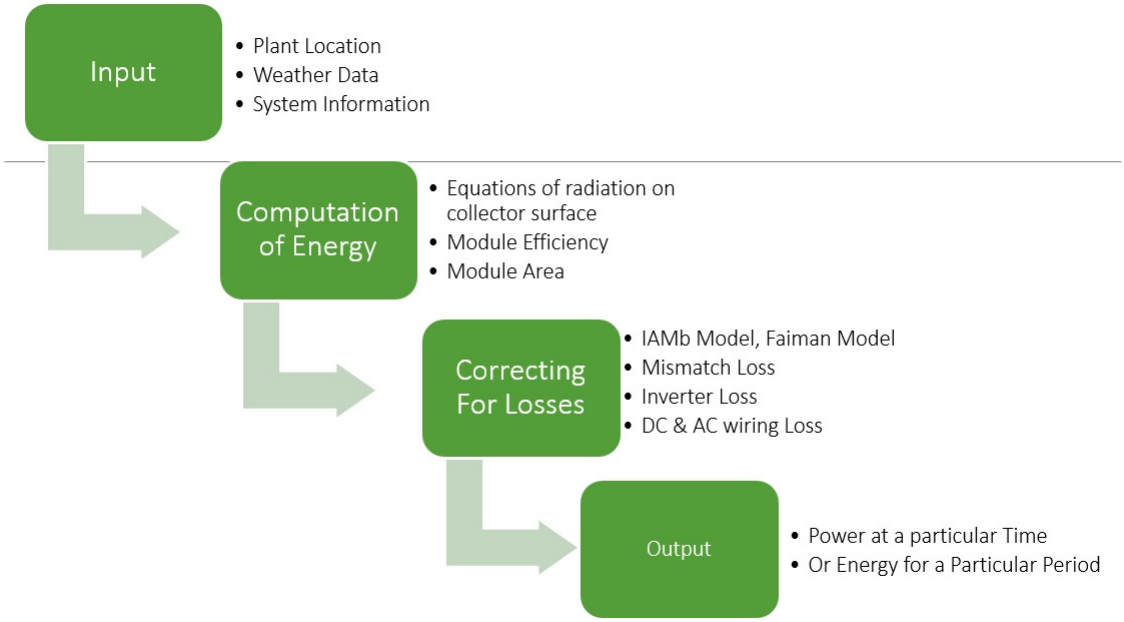

Figure 38: Time Horizons for Solar Forecasting

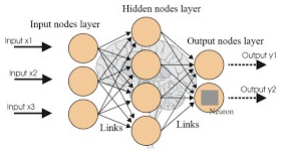

Figure 39: Feed-Forward Neural Network Schematic

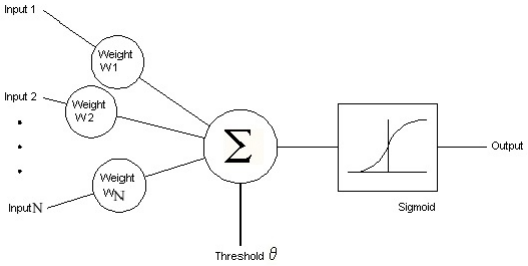

Figure 40: Artificial Neuron Model

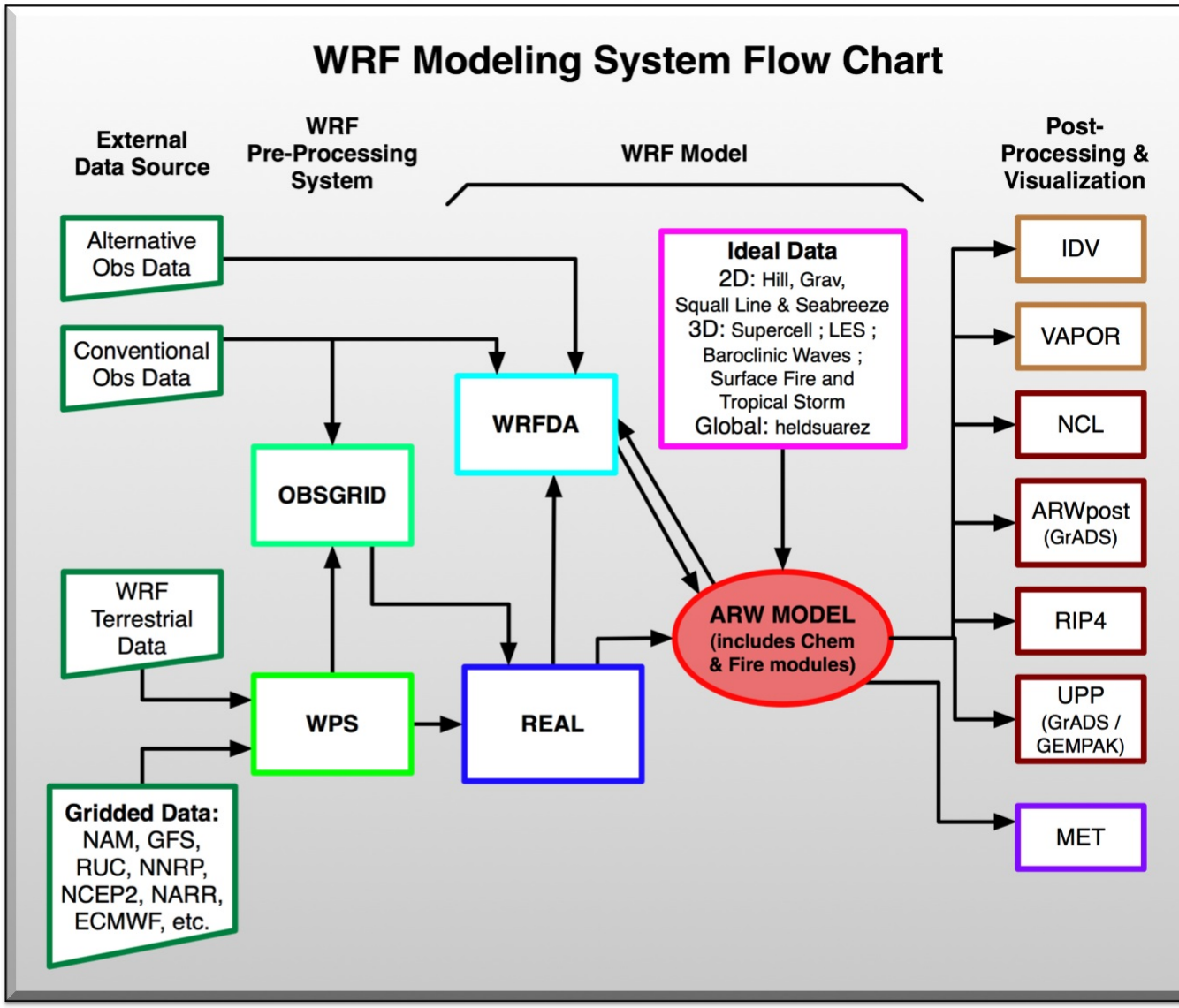

Figure 41: WRF Software Schematic

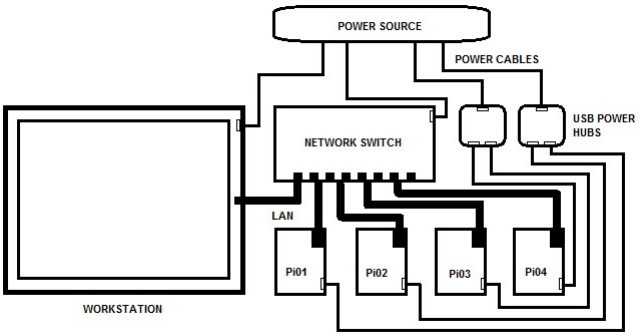

Figure 42: Raspberry-Pi Cluster Schematic

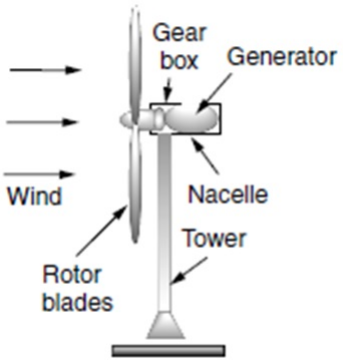

Figure 43: Wind Turbine

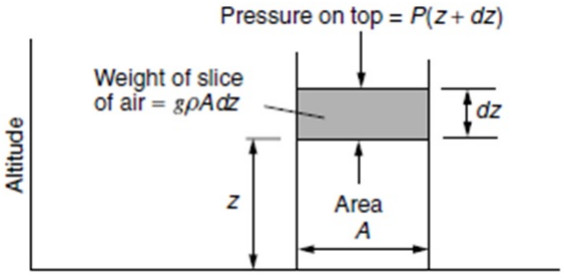

Figure 44: Effect of Altitude on Pressure

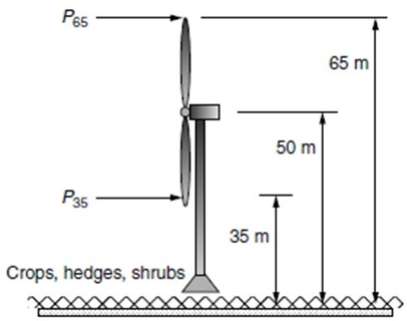

Figure 45: Effect of Hub-Height and Terrain on Wind Velocity

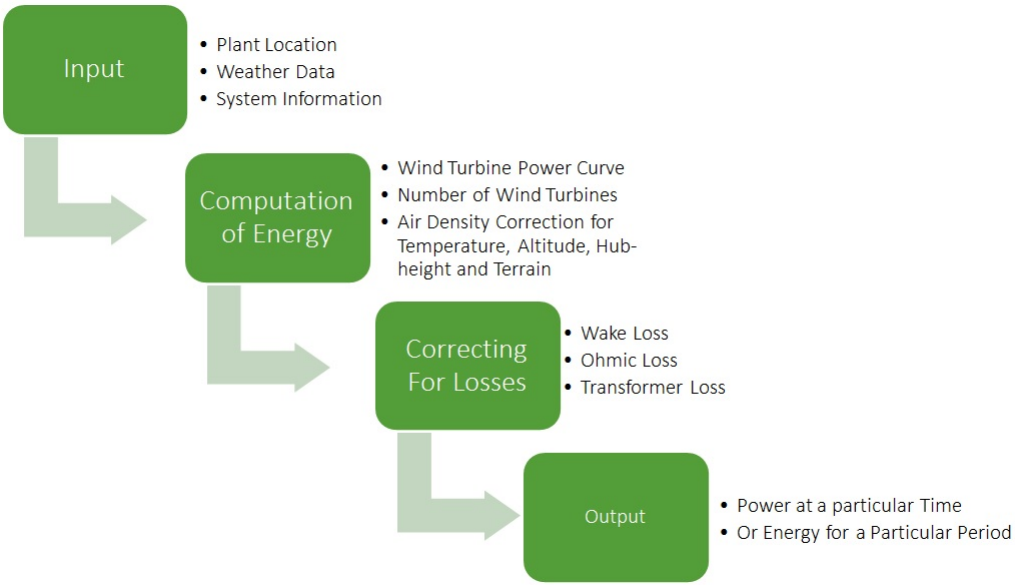

Figure 46: Wind Turbine Energy Estimation Schematic