

- e) **M.B.Eteiba, E.T.El Shenawy, J.H.Shazly, A.Z. Hafez, “ A Photovoltaic (Cell, Module, Array) Simulation and Monitoring Model using MATLAB/GUI Interface”, International Journal of Computer Applications (0975–8887) Volume 69– No.6, May 2013.**

This paper presents the implementation of a generalized photovoltaic simulation model using MATLAB®/GUI interface. The model is developed using basic circuit equations of the Photovoltaic (PV) cells including the effects of solar radiation and temperature changes. These effects added in real time operation simultaneously. Since the PV module has nonlinear characteristics, it is necessary to model it for the design and simulation of maximum power point for such system applications. Photovoltaic system characteristic curves as current - voltage (I-V) and power - voltage (P-V) characteristics are drawn according to values change of the temperature and solar radiation which observed in MATLAB®/GUI interface. The simulation results showed that these factors and the corresponding PV model influence the maximum power obtained from PV modules under operating conditions. The simulation model also presented the design of the array and the batteries of the load connected to the photovoltaic system.