ABSTRACT

In this thesis, performance analysis of systems for enhance the efficiency of power output from a photovoltaic module is presented. A single axis electro - optically controlled sun tracking system for photovoltaic module was designed and fabricated for maximizing daily mean energy utilization at supply end. Design of two different component systems is required for this prototype; one is mechanical, which for changing of position of module and the other is electronic which is for proper position of tracking system. The proposed electronic circuit for sun tracking system is simple in design and market available components are used to implement which makes the system low cost. In this design, it is found that up to 37.95% more power was generated by employing the tracking system, compared to fixed system for Tezpur ($26^0 50'$ N and $92^0 50'$ E), Assam, India. A working system has been demonstrated to validate the design. Problems and possible improvement are also mention in this thesis.