RESEARCH AND DEVELOPMENT

Name of the Researcher	Designation & Department	Research Topic	Year of Completion
Dr. Z.J. Khan S.K. Gupta	EX-Professor, Department of Electrical Engineering	Study & investigation of Photovoltaic Power System with multi-utility Applications.	Ongoing

BRIEF SUMMARY OF THE WORK: Pollution free electrical energy has become need of the day. one of the great source of renewable energy abundantly available in our country is solar power. This research work is being carried out as part of doctoral work at RCERT, Chandrapur. The main objective of the research work is to investigate and find mechanisms to harness optimum solar energy on each day with changing sun declination through out the year, and convert it in to electricity for using it in various applications. This includes urban as well as rural areas which require power for lighting, water pumping, remote sensing units, and communication systems etc., especially inaccessible areas where it is very difficult and uneconomical to provide conventional utility power.

A dual axis tracking system has been evolved, designed & fabricated for this purpose which carries poly-solar panels as a payload. A Microcontroller which is programmed for 365 days sun light hours, controls the motion of tracking system to track the sun from sun rise to sun set .Another axis on which the sun changes its tilt angle is declination angle of the sun,. This angle has been considered to find change in panel tilt angle on seasonal basis and a manual mechanism has been devised to track the sun declination angle on seasonal basis. A Data Acquisition System has been designed and fabricated to log daily output data of solar panels (tracking panels & fix panels of same capacity).Daily & monthly analysis has been done to calculate % increase in harnessed energy.

INDUSTRY RELEVANCE : The work is of great use in providing pollution free green solar energy for various applications in urban as well as rural areas, especially remote areas to provide electrical power to critical equipments.

RESEARCH OUTCOMES : One Patent has been obtained and published on this research work.
Title of invention: -- "Dual axis energy Efficient Solar Power optimizes system."
Application No. :-- 201721020690 Adt.30-06-2017.