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STUDY OF THE EFFECT OF RADIATION ON PV CELL CHARACTERISTIC BY SOPHISTICATED EMBEDDED SYSTEM

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Abstract

In this paper, a novel technique has been introduced to measure the effect of radiation over ($Cd_{0.90}$-$Zn_{0.10}$)S PV cell characteristic. This system was designed around PIC 8bit microcontroller with 10-bits inbuilt A/D converter and applied for solar radiation monitoring. The measurement system uses home made pyranometer constructed by photodiode & supported system which is calibrated by KIPP ZONEN SPLite 09123 pyranometer. The measured data is collected in a E^2PROM through A/D converter until uploaded to computer. The acquired data is sent through RS232 interface to computer for further analysis. The recorded data is analyzed off-line to minimize system cost, complexity and system down-time. The accuracy is fairly good. Commercial system only allows the monitoring and recording of weather conditions. Automation is implemented over PV solar, design and implementation scheme for the developed system is discussed in this paper. The collected data will be useful to find suitable circumstances to enhance the performance of PV cell. The design and implementation of low cost Automated Radiation Monitoring System (ARMS) is motivated by the need to offer an alternative for commercial system.

Keywords- microcontroller; radiation, pyranometer;