ABSTRACT

A solar power meter is a device used to measure solar radiation through the use of the photovoltaic principle to sense the intensity of solar power. This research involved the design and implementation of a portable solar meter using silicon pin photodiodes that are relatively accurate and sensitive. Measurement of solar radiation is accomplished by using a silicon pin photodiode, with a current output which is then processed by the microcontroller. The microcontroller then displays the solar power intensity value on the LCD screen, as well as storing the data obtained via the microSD module. The main goal is to get a solar power intensity value that can be transferred to a microSD storage medium. The anticipated result is a carefully crafted solar meter with high measurement accuracy, precision and resolution. The designed system has been successfully realized, although with an error value of 30%. The photodiode shows an additional electric current response according to the received light intensity. The use of additional sensors increases the precision of the recorded values. Subsequent iterations can be packaged more concisely by featuring reduced margins of error through expanded sensor integration and enhanced data sampling.

Keyword: *Photovoltaic, Photodiode, Silicon, MicroSD*