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`Design of power factor meter using internet of things for power factor improvement, remote monitoring and data logging (Article) (Open Access)

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Abstract

Nowadays, many residential and commercial buildings that used electricity needs to take care the power factor to avoid penalty from the utility companies. A power factor that is close to one provides a good indicator for the overall power quality. Therefore, power factor improvement plays a significant role to reduce electricity consumption and more efficient system operation. In this paper, the design of power factor meter using Internet of Things will be discussed. Voltage and current sensors outputs were interfaced to Arduino, in which the real power and apparent power were calculated to determine the power factor. Results showed the effectiveness of our proposed device in measuring power factor. Moreover, the measured data points were logged in an SD card and can be accessed by computer with Matlab graphical user interface (GUI). In addition, IoT framework analysis for smart meter which can provide power factor improvement, remote monitoring, and data logging was further discussed in this paper.

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