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## **A Smart Meter Design and Implementation Using Zigbee Based Wireless Sensor Network in Smart Grid**

In this paper Wireless Sensor Home Area Network (WSHAN) with Zigbee interfaced smart meter is designed and implemented. Because of the increasing demands on electricity, traditional electric grid needs to be replaced with intelligent, robust, reliable and costly effective smart grid applications. Wireless Sensor Networks (WSN) has a critical role to set up a reliable and costly effective smart electric power grid applications. Our system measures energy usage, logs data real time and shows time of use (TOU) values. The system also controls any device connected to power outputs. While powering on and off, zero-cross of AC signal is detected to calculate phase shift. The smart meter provides correct power usage and transmits data with Zigbee to PC (Personal Computer). The user monitors the power information and remotely controls the system.