

AN ENERGY MONITORING AND DOMOTIC CONTROL SYSTEM BASED ON “INTERNET OF THINGS” TECHNOLOGY

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ABSTRACT

The “Internet of Things” or simply IoT, is a technology where small electronic devices can be connected to the internet, allowing the development of new applications and services. Recently, applying IoT technology to energy efficiency systems has attracted interest, notably for real-time efficiency monitoring. In this article, we present the design and development of ChuchusMOTE, an energy monitoring and domotic control system, based on a network of wireless sensors and actuators communicating through MQTT (Message Queue Telemetry Transport), an asynchronous protocol that is used to send data and enables real-time visualization. We implemented electronic modules based on NodeMCU, a wireless development board that includes communication modules that are compatible with the MQTT protocol. ChuchusMOTE was deployed to monitor in real-time energy variables of solar panels (voltage, current, power and generated energy), the consumption of electrical energy, and estimate the energy consumption of the “Renewable Energy Laboratory” at Universidad Privada Boliviana. Furthermore, ChuchusMOTE controls and automatize the lab’s lightning, solar heating and air extraction systems.

Keywords: Internet of Things, Energy monitoring, Domotics.

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