

IoT and iTV for interconnection, Monitoring, and Automation of common Areas of Residents (2017)

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Internet and, in particular, computer networks have become a key issue in our daily lives, due to the birth of wireless technologies. Internet of Things (IoT) aims to integrate sensors and actuators in daily objects, maximizing miniaturization and minimizing the economic cost of these hardware components. The purpose is to connect these components to the Internet through wireless and fixed networks, and thereby produce information in real time which is then stored for later processing. On the other hand, Interactive TV (iTV) combines traditional TV with interactivity similar to that of the Internet and the personal computer. The evolution of TV technology has brought computing power to this device, offering services apart from the traditional ones, making it a device capable of running applications and maximizing its networking potential. This work presents a framework that includes and integrates a wireless sensor network, an IoT platform, and a real interactive TV application. It covers the deployment and communication of the wireless sensor network through the interoperability of data, to final consumption, through a real interactive television application. It has been tested within a residential community to provide real-time information, in order to improve the quality of life of its inhabitants. In addition, it incorporates the possibility of analyzing this information to establish processes with the objective of reducing energy consumption, thus improving sustainability and contributing to the efficient use of existing resources. The proposed framework serves as the basis for any deployment of similar characteristics.

Keywords: WSmart city, internet of things, IoT, future internet, interactive TV, arduino, zigbee, thingspeak, WSN