World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:10, No:10, 2016

Comparison of Power Consumption of WiFi Inbuilt Internet of Things Device with Bluetooth Low Energy

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Abstract : The Internet of things (IoT) is currently a highly researched topic, especially within the context of the smart home. These are small sensors that are capable of gathering data and transmitting it to a server. The majority of smart home products use protocols such as ZigBee or Bluetooth Low Energy (BLE). As these small sensors are increasing in number, the need to implement these with much more capable and ubiquitous transmission technology is necessary. The high power consumption is the reason that holds these small sensors back from using other protocols such as the most ubiquitous form of communication, WiFi. Comparing the power consumption of existing transmission technologies to one with WiFi inbuilt, would provide a better understanding for choosing between these technologies. We have developed a small IoT device with WiFi capability and proven that it is much more efficient than the first protocol, 433 MHz. We extend our work in this paper and compare WiFi power consumption with the other most widely used protocol BLE. The experimental results in this paper would conclude whether the developed prototype is capable in terms of power consumption to replace the existing protocol BLE with WiFi.

Keywords : bluetooth, internet of things (IoT), power consumption, WiFi
Conference Title : ICWSN 2016 : International Conference on Wireless Sensor Networks
Conference Location : London, United Kingdom
Conference Dates : October 17-18, 2016