

Connecting Wireless Sensor Networks to the Internet

Bogdan BUTA, Walter COLITTI, Kris STEENHAUT, Virgil DOBROTĂ

Abstract

IPv6 over Low power Wireless Personal Area Networks (6LoWPAN) and the Constrained Application Protocol (CoAP) proposed by the IETF have accelerated the integration of Wireless Sensor Networks (WSNs) and smart objects with the Internet. They provide resource constrained devices with RESTful web service functionalities. The paper describes an end-to-end IP based architecture that integrates CoAP over 6LoWPAN Contiki based WSN with an HTTP over IP based application. This work also presents a way of implementing a transparent proxy that maps HTTP to CoAP, using URIs to identify resources and making integration of constraint nodes into the Web very simple. The client can access the WSN data from a Web browser using the application, or through the HTTP/CoAP proxy making single requests for resources. The main systems building blocks and functionalities are described too.