Internet of Things (IOT) vision is to connect almost everything to the Internet. IOT includes various networks such as Low-power and Lossy Network (LLN). LLN is a network of small smart devices communicating through low power and low-bitrate medium. Enhanced computation power of LLN small devices is a step toward the IOT reality. Internet Engineering Task Force (IETF) thinks about connecting LLNs to current IP based Internet. Small smart LLN devices benefit from constrained resources such as memory and power. So IETF has designed a set of special protocols in order to facilitate LLN devices Internet connection. LLN special characteristic requires noticeable modifications of protocols used in MAC, Routing and Application layers too. In this paper IOT concept and visions are presented and a survey is done on standards and protocols devised in order to connect LLN to the Internet. An overview of the most prevalent IOT applications is presented too.
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**Index Terms**

Computer Science  
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IOT, 6LOWPAN, RPL, COAP.