

Transmitting IPv6 Packets over Bluetooth Low Energy based on BlueZ

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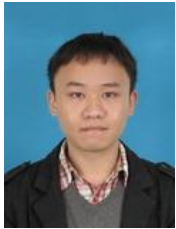
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Abstract—Recent years have witnessed the development of wireless sensor networks and Internet of Things (IoT) technologies, and IPv6-based solution for sensor networks has attracted more and more attention which can enable end-to-end IP communication via the Internet. As far as we know, we implemented the first prototype system to transmit IPv6 packets over Bluetooth low energy (BLE) based on BlueZ, the official Bluetooth stack of Linux. To adapt IPv6 packets to BLE link, in addition to the implementation of segmentation and reassembly (SAR), header compression (HC) is effective to improve the transmission efficiency and achieve lower power consumption. The 6LoWPAN workgroup of Internet Engineering Task Force (IETF) has proposed several standards and drafts to specify the header compression scheme for IPv6 packet delivery in low power wireless networks. Based on the compression format defined in RFC6282, we proposed a new mechanism for the management of contexts, which can improve both power efficiency and time efficiency, extend the content of context information and provide better flexibility.

Keyword—Bluetooth Low Energy, IPv6, Header Compression



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