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Micro search engine for IoT: An IoT search engine prototype for private networks (Article)

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Abstract

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Background: The Internet of Things (IoT) has been heralded as the “next big thing” waiting to be realized. IoT revolves around increased machine-to-machine communication and it encompasses various embedded sensors and actuators that assist users in monitoring and controlling objects remotely in many fields and applications. Methods: IoT’s special characteristics introduce challenges in the field of retrieval technology. These challenges constitute of real-time data retrieval with the huge amount of data that can be produced from the sensors. This paper explains the design concepts used to develop a search engine for IoT to tackle these issues. The developed search engine appears to be promising. The performance of the network proved very powerful under normal conditions, however, it could not sustain heavy load under the stress test due to the restricted build of the Z1 motes. Results: The searching capability proved to be quite strong in terms of searching speed and acceptable results; however more tests need to be implemented especially in terms of parallel searching. The GUI is simple and produces multiple features, but lacks interactivity. The security aspect ensures the security of the database with the partial prevention of SQL injection attacks. Conclusion: However, more security measures are required to protect against eavesdropping and unauthentic clients. © 2018 Bentham Science Publishers.

Author keywords

Computer networks Data retrieval Internet of things Prototype Search engine Wireless sensor networks

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