The Republic of Iraq
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(morning study)

"محاكاة بروتوكول توجيه شبكة إنترنت الأشياء باستخدام++OMNET"

An IoT network routing protocol simulation using OMNET++

مشروع التخرج هو احد متطلبات الحصول على درجة البكالوريوس في تخصص شبكات المعلومات في تكنولوجيا المعلومات.

A Graduate Project Submitted to the department of Information Networks of the College of Information Technology, University of Babylon, in Partial Fulfillment of the Requirements for the Bachelor's degree in the Information Networks of Information Technology.

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Abstract

Internet of Things (IoT). It refers to the network of physical devices embedded with sensors, software, and other technologies that enable them to connect and exchange data with other devices and systems over the internet. These devices can range from simple household appliances like smart thermostats and light bulbs to complex industrial machinery and environmental sensors. Routing in IoT networks plays a critical role in ensuring efficient and reliable communication between devices. Since IoT networks often involve a large number of devices with diverse communication capabilities and varying energy constraints, designing effective routing protocols is essential. The proposed method based on implementing a simulation of an IoT network routing protocol using AODV (Ad hoc On-Demand Distance Vector) routing protocol in OMNET++, as this application represents an important advance in understanding how data is routed in the Internet of Things environment. The project aims to provide a robust and accurate simulation platform that enables researchers and engineers to test and evaluate the performance of routing protocols in an IoT environment. The project relies on advanced technologies such as OMNET++ and the C++ programming language to achieve excellent performance and high accuracy of results. By understanding the use of these simulations and the benefits they provide, engineers and researchers can effectively improve their designs and tests, reducing the costs and effort needed to develop and improve IoT routing protocols. The results based on different network evaluation metrics and enhanced with the used AODV protocol.