Overview study of major security issues in the Internet of Things (IoT) network

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Abstract: This study presents a comprehensive review of the primary security challenges inherent in the Internet of Things (IoT) ecosystem. As IoT devices become increasingly pervasive across critical sectors such as healthcare, smart cities, and industrial automation, their inherent vulnerabilities pose significant risks to data confidentiality, system integrity, and service availability. The research systematically categorizes and analyzes key security threats, including device heterogeneity and resource constraints, insecure communication protocols, insufficient authentication and authorization mechanisms, and the proliferation of botnets and malware. Furthermore, the review examines the unique challenges posed by edge computing and the integration of legacy systems. By synthesizing findings from recent literature, this paper identifies critical attack vectors and evaluates existing countermeasures, such as lightweight cryptography, blockchain-based solutions, and intrusion detection systems. The study concludes by highlighting persistent research gaps and proposing future directions for developing robust, scalable security frameworks essential for the safe and sustainable deployment of IoT technologies.

Keywords: IoT security, Internet of Things, cybersecurity, network vulnerabilities