

Risk Assessment for Heterogeneous IoMT devices

Internet of Medical Thing is evolving rapidly, and it can potentially change the healthcare industry. It is becoming more diverse, and successful at identifying, predicting, and monitoring emerging diseases. However, it is still in its early stages of growth, and associated risk are significant concern. This study has initially focused on the broader IoT domain and narrowed it down to the Internet of medical devices assessing the associated risks. It demonstrates that the current approaches do not always provide a risk-free device therefore we propose a framework based on the standards for selected devices.

Abstract

The adaptation of the Internet of Medical Things (IoMT) has provided efficient and timely services and has transformed the healthcare industry to a great extent. Monitoring patients remotely and managing hospital records and data have become effortless with the advent of IoMT. However, security and privacy have become a significant concern with the growing number of threats in the cyber world, primarily for personal and sensitive user data. In terms of IoMT devices, risks appearing from them cannot easily fit into an existing risk assessment framework, and while research has been done on this topic, little attention has been paid to the methodologies used for the risk assessment of heterogeneous IoMT devices. This paper elucidates IoT(Internet of Things), its applications with reference to in-demand sectors, and risks in terms of their types. By the same token, IoMT and its application area and architecture are explained. We have also discussed the common attacks on IoMT. Existing papers on IoT, IoMT, risk assessment, and frameworks are reviewed. Finally, the paper analyses the available risk assessment frameworks such as NIST, ISO 27001, TARA, and the IEEE213-2019 (P2413) standard and highlights the need for new approaches to address the heterogeneity of the risks. In our study, we have decided to follow the functions of the NIST and ISO 270001 frameworks. The complete framework is anticipated to deliver a risk-free approach for the risk assessment of heterogeneous IoMT devices benefiting its users.