

The Impact of Internet of Things on Academic Institutions

Bongs Lainjo

Cybernetic International, Canada

Abstract

Internet of Things (IoT) is an emerging technology that continues to transform the digital environment. It is mainly based on the concept of increased connectivity, improved efficiency, and better accessibility. Globally, it is estimated that approximately fifty billion devices are connected to the internet through wired or wireless networks. IoT is progressively becoming a critical tool in academics. Its integration in the learning programs at various levels of education has significantly contributed to improved student performance. As a result, administrators in academic institutions have started to view IoT integration as a valuable opportunity to improve student performance and administrative efficiency. The main objective of this study is to explore the impacts of the IoT in monitoring students' health, energy management, enhancement of teaching and learning, classroom access control, and ecosystem monitoring. A case study of Riga Technical University will be used as the point of reference in the analysis of various aspects of IoT integration in academic institutions. The use of IoT technology in education improves the use of the technology in online streaming for sustainability, and in monitoring student's health. It also enhances the easy connection between students, teachers, administrators, and sensors. It has also promoted cloud computing in education, big data, wearable technology, and augmented reality. However, this has not gone without several challenges. IoT is highly vulnerable to security threats, such as a distributed denial of service attacks and malware attacks. This has made it critical for IoT service providers to continuously improve cybersecurity capabilities of IoT. In a bid to improve the use of IoT in education institutions, it is important to adequately secure the system and hence get the best out of this technology. Detailed analysis of these aspects of IoT integration in academic institutions are based on a case study of Riga Technical University, which is in Latvia where literacy levels and educational technology are high. Latest findings (2019) indicate that 28 per cent of IoT apps are attributed to other institutions; followed by libraries with 26 per cent; with pre and post-secondary following third with 16 per cent each and secondary institutions with 14 per cent.

Keywords: academic institutions; big-data; cybersecurity; devices; IoT; teachers; Latvia.