

Chapter 16

Digital Healthcare Security Issues: Is There a Solution in Biometrics?

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ABSTRACT

Digital healthcare system, which is undergoing transformation phase to provide safe, swift, and improved quality care, is experiencing diverse problems. The serious threats to the digital healthcare system include misidentification of patients and healthcare-related frauds. Biometrics is a cutting-edge scientific field which overcomes the weaknesses of password-based authentication methods while ensuring a friction-free user experience. It enables unprecedented authentication capabilities based on human characteristics that cannot be replicated by fraudsters. The growing demand for biometrics solutions in digital healthcare system is mainly driven by the need to combat fraud, along with an initiative to preserve privacy of the patient besides with healthcare safety. This chapter examines how biometric technology can be applied to the digital healthcare services.

DOI: 10.4018/978-1-5225-8241-0.ch016

EVOLUTION OF DIGITAL HEALTHCARE

Digital healthcare is the combination of both digital and genomic technologies with healthcare and society such that the efficiency of healthcare delivery is enhanced, and medicines are made more personalized and precise. The health problems and challenges faced by patients have been addressed simultaneously by both information and communication technologies. Digital healthcare involves both hardware and software solutions and services, including web-based analysis, email, telemedicine, text messages, mobile phones and applications, and clinic or remote monitoring sensors. Commonly, digital healthcare involves development of interconnected health systems to improve the use of computational technologies, computational analysis techniques, smart devices, and communication media to aid patients and healthcare professionals manage health risks and illnesses, as well as promote health and well-being.

In simple words, the growth of Internet of Things (IoT) (Gubbi, Buyya, Marusic, & Palaniswami, 2013) has revolutionized healthcare domain too. The multi-disciplinary digital healthcare involves many stakeholders, including researchers, clinicians, and scientists with a wide range of expertise in engineering, healthcare, public health, social sciences, health economics and management. Several personal healthcare tools like wearable sensors are the most popular elements of the healthcare domain. These wearables can be a device to measure physical parameters such as pulse, blood pressure, muscle exertion, blood oxygen, etc., or a sweat biosensor embedded on smartwatch to measure biochemical parameters such as hydration levels, body electrolytes, etc.

India Brand Equity Foundation has estimated that there are currently 930 million mobile users, 360 million internet users, and half a billion new smartphone users projected in the next five years. With these developments, it has been assessed that India will be a money-spinning market for sensors and mobile-based apps, especially in healthcare. Soon the doctor may be just a click away.

The digital healthcare is the confluence of healthcare and technology which are pivot elements in improving the efficiency of the healthcare management. The digital healthcare applications are still in budding stage in India while significant inroads have been made in the use of digital health and healthcare IT initiatives globally. The “E-health” (National Health Portal of India, n.d.) initiatives under the Government of India’s “Digital Healthcare Program” aimed at addressing the healthcare gap in the country are slowly but surely revolutionizing the public health scenario in the country. Coupled with the large number of start-ups that are driving the penetration of technology in the healthcare sector, this joint public private focus on digital is paving the way to the future.

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