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Understanding IoT: Is Healthcare Harnessing the Potential?

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Digital technology has paved the way for businesses and industries alike to utilise its benefits to incredible calibers, such as providing ergonomic solutions solely by “smart” machines or eliminating tedious methods of organising large quantities of data. However, the healthcare industry in particular can find itself to be most affected by digital technology and the Internet of Things (IoT).

By the year 2020, it is predicted that IoT inventions will result in a digital healthcare market of $117 billion, bringing to the table a plethora of inventions that will revolutionise the industry and save millions of dollars. According to analysts, the digital healthcare revolution and its innovative methods will completely change the way society optimises technology.

First, it is expected that all patients will soon be able to use “advanced wearable devices” solely for at-home use that automatically sends data to a healthcare provider regarding their condition status thanks to digital sensors worn on the body. This is especially helpful for individuals who have chronic conditions, such as cancer, high blood-pressure, or kidney disease requiring constant dialysis.

Additionally, advanced wearable devices prevent patients from making unnecessary visits to the hospital - which in fact, is one of the most expensive elements of healthcare next to hospitals paying professional labour and the pharmaceutical prices of life-saving drugs. As a result, patients will have a 24/7 working support staff of nurses to call in case of any arising concern or emergency. The wearable device connects to a real-time application that establishes a consistent digital dialogue between a patient and their provider. With it, providers implement a sense of security to the patient due to the constant back-and-forth of digital “smart” communication that constantly updates the provider with not only the patient’s status, but the opportunity to instantly administer medication reminders because of careful and accurate observation.

If more healthcare systems participated in this system, billions of dollars could be saved for future technological investments and human research. Moreover, the digital partnership and relationship

between the patient and provider creates a solidified foundation of unquestionable trust and reliability on the provider. Lastly, this digital communication ultimately depends upon the patient, which in turn can help motivate them to always take responsibility for their health and hold themselves accountable for their health-related actions.

Moving on from wearable devices and health system applications, IoT has the ability to create a profound IP cloud network that is able to meticulously organise overwhelming amounts of data; this data comes from not only patient conditions, but provider statuses, the coordination of medications distributed at a pharmacy, and most importantly - a cloud system eliminates the opportunity for error in inventory and workflow with digital interconnections.

Apart from the digital communication, IoT opened the doors to radio frequency identification (RFID), which is a type of technology that combines the implementation of electromagnetic (or electrostatic) coupling with radio frequency to identify an object, product, or individual. The main benefits of using RFID are to improve patient safety and reduce costs. For example, an RFID tag is able to monitor the time of a patient's specific activity, physical location, and overview of their entire health record with a microchip. Unlike tracking patients with a barcode in a psychiatry hospital, for example, multiple RFID microchips embedded on a tag upon different individuals are able to be simultaneously read in one sitting - cutting down time finding each person and manually interacting with them and therefore, efficiently surveilling an entire area of a hospital. These RFID chips also track blood and temperature, making checking vitals less of a time-consuming task.

Last but certainly not least, managing inventory is a completely different matter in comparison, but one that is vital to the functionality of a hospital. The overall chaos of inventory control diminishes thanks to IoT and puts the responsibility completely on machines to track medications and perfectly interpret and send data to pharmacies.

The healthcare industry has not even begun to scratch the surface of the opportunities IoT provides. Smart wearable devices and a constant digital communication between the patient and provider is only the beginning of a promising era for medical technology.

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