Wearables and iot drive realtime monitoring

Technology, Internet

As it is the internet is a vast ocean of data streaming in real time. Data streams also emanate from diverse other sources such as IoT connected to sensors and wearables. The maximum benefit of these devices and the data they generate can be derived only when such data is monitored and analyzed in real time.

Wearables and IoT data

Talk about wearables and the first thing that comes to mind is smart watches and fitness trackers equipped with sensors that can monitor temperature, heart rate and other parameters. Then there are other wearables that can monitor rate of respiration and sports helmets with impact detection capability. Consider the healthcare scenario and IoT as well as wearables come into play. Patients equipped with wearables that stream data continuously allow for realtime monitoring of their condition. Doctors in other locations can receive alerts based on the data the wearables transmit. Should the need for treatment arise then the doctors can take the help of data from iOT sensor equipped medical equipments to locate them. Patients undergoing treatments can be monitored all the time when such devices are in place. Looking beyond the health data, wearables with GPS can also pinpoint location of an individual and let others know precisely where he is. For instance, truck drivers can be equipped with wearables that monitor their condition and stream data to a central office. The truck can have sensors connected to the central office that monitors its position, progress, speed and also condition of its engine, tires and other parts. Logistics, for example, can find that wearables and IoT greatly improve quality of services. The same logic can be transplanted to manufacturing processes. Basic

automation in equipments includes use of PLC/CNC to automate steps with various indicators to show pressure and temperature among other parameters. It still requires a human to observe the process. The simple implementation of sensors feeding data to a central control unit does away with the need for human supervision.

At the same time, IoT offers twin benefits of monitoring in real time. One is the process itself and materials being processed send out a stream of data that can be logged for later analysis. The data stream can also be flagged to trigger alarms in case of malfunctions or stoppage and reduce costly waste. Equipments that run the processes can have their own set of sensors streaming data about their performance and condition. This considerably enhances preventive maintenance that leads to prolonged life and reduced cost. The same principle can be applied to automotives where IoT streaming data delivers information about a car and its various parts. Take agriculture and IoT implementations here can help remote monitoring of pumps as well as chemical levels, pH, temperature and moisture content and other parameters, especially in greenhouses. Fitting wearables to people working in these environments generates additional data such as their whereabouts and also status of their health. Then there is the frightening Orwellian prospect of smart cities equipping all citizens with wearables and IOT connectivity to keep them tracked each moment of their lives. This, however, is the topic of another discussion.

Beyond monitoring and collection of data – control

Monitoring is the easy part of streaming data in the interconnected world. Making use of it through event stream processing with AI and machine learning is where such data can be of use in making fact based decisions that lead to cost reductions, improvements in processes and quality enhancements. For instance, time, temperature, pressure and humidity may be prime parameters in an industrial process. Sensors sense these and transmit it to a monitoring system. Such data, however, can be put to practical use to ensure best performance of the process when it is put to use with a backend controlling program with machine learned algorithm to manage the controllers in the equipment and ensure consistency of the process. The data becomes inputs for sophisticated, automated control systems. For this to come about the industry would need to retain the services of a development company that is familiar with IoT, sensors and their working, manufacturing processes and implementation of machine learning with AI. One can, of course, simply analyze data to understand how processes can be improved but implementing better and highly sophisticated automated control systems based on real time streaming of IoT data is a much better option.