A System for Monitoring Gym Equipment with MbientLab MetaMotion Sensors

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Data Science

Key Words:

Cloud Manufacturing

Internet of Things

Time Series Data

InfluxDB

FTP

Abstract:

In this project, we built a system for monitoring the fix-resistance machines in the school gym using MetaMotion sensors from Mbientlab following frameworks and practices from cloud manufacturing. We end up with three different systems relying on either FTP or InfluxDB. The system is capable of monitoring if the gym equipment is occupied by checking the moving standard deviation of the acceleration reading of the accelerometer. The acceleration from using the equipment during workout sessions appears in pulses and is at least detectable compared to background noise. The moving standard deviation greatly smoothes the result and creates recognizable traits for identifying periods in which the gym equipment is being used.