Digital Twin Application in Healthcare Facilities Management

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ABSTRACT

Healthcare facilities are essential in providing health and as result, they require effective facilities management systems. Unfortunately, current approaches to healthcare facilities management (FM) are based on "if it breaks, we fix it" approach. This is due to the lack of effective real-time information update and bi-directional coordination to monitor, manage and control critical healthcare facilities. Thus, there is a need in ensuring a preventive maintenance approach. This research investigates the extent to which healthcare facilities management can be enhanced using digital twin technology. Digital Twin (DT) enables the virtual representation of a physical asset and all the instances using real-time information. DT collects data from physical assets in real-time and uses the data to create virtual models of the physical objects. This research employs a set of methods such as literature review and interviews to address its objectives. The study further identified issues with critical healthcare facilities amenable to digital twin approach, reviews digital twin enabling technologies, and presents a system architecture for DT application in healthcare facilities management. The research concludes with a discussion of the potential benefits of DT application in healthcare facilities management.