

## **Planning, Analysis and Design of an Intelligent Building for Sustainability**

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### **ABSTRACT**

Intelligent building is the future of building industries. Most modern public buildings are planned and build to decrease expenses by reducing energy consumption and to withstanding sustainably. The present work was carried out regarding residential building which was built in the form of intelligent building. The residential building was aimed to construct through interconnected with IoT (Internet of Things) enabled devices and with sensors in order to control the building with less energy consumption and additionally automotive timesaving process. This residential building that uses both technology and process to create a facility that is safe, healthy and comfortable and enables productivity and well-being of its occupants. Intelligent buildings yield cost reductions over all these areas by optimizing energy use through automated control, communication and management systems. They also guard against repair costs, employee time, productivity loss, revenue loss and the loss of customers to competitors. Developing a functional plan/master plan following the latest standards and the functional requirements of the building was carried out in AUTOCAD. The complete analysis of the structure was carried out in STAAD Pro. Various structural components comprising slabs, beam, column, footing, the staircase was designed manually. The manual design was confirmed to Indian Standards as per the different codes of the Bureau of Indian Standards, specifically have followed the limit state design of structures. The present work provided the necessary and essential exposure to various IoT devices and applications related to civil engineering.

**Keywords:** *Intelligent building, sensors, comfort, energy efficient, productivity*