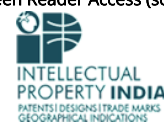


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## Patent Search

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### Abstract:

This study described a novel low-cost IoT system for balancing natural and artificial light to regulate interior illuminance levels. A shadow control with seasonally specified settings is also included in the device. The needed illuminance threshold is adjusted according to industry specifications or can be updated using a client's mobile app, which changes the automatically maintained threshold. It is also established for manual mode and managed using a similar mobile app, allowing users to adjust the LED intensity as well as blind placements. The entire system is controlled using fuzzy logic that resulted in a quick reaction, quick re-action to atmospheric alterations, and minimal processing needs. The entire system is built on basic micro-controller boards providing actuator nodes and the sensor is being operated by a RaspberryPi primary unit following highlighted open problems. The prototype contains more potential and might constitute a standard for low-cost commercial options for facilitating illuminance and shadowing controlling systems while ensuring system scalability. The suggested IoT system uses a dynamic shadowing mechanism to regulate natural and artificial light balance. The suggested method employs a scalability method to smart system integrating into buildings that rely on sensing, Arduino-driven actuating nodes, and a central Raspberry-driven unit. A control app is being created to allow user engagement by allowing them to configure seasonal automated options or manual functions. The needed illuminance threshold can be adjusted, and the shadow system adjusts to seasonal patterns in keeping with bio-climatic concepts. The control system uses a fuzzy logic method to guarantee rapid control without requiring a lot of processing. Thus, IoT plays an important role in smart buildings.

**Complete Specification**

Claims: The development of the system of IoT for controlling and monitoring the shadow inside the system has the following claims:

1. This invention aims to develop an Internet of Things (IoT) system to control light control in smart buildings.

From claim 1, Various control methods are used to regulate the lighting and shadowing systems depending on the readings of internal and exterior light sensors.

2. This system takes the authority for controlling both the natural and artificial balancing of light and shadowing inside the smart buildings.

From claim 2, The advancement of smart building (SB) control has accelerated in current decades intending to connect observed environment factors such as temperature, luminosity, humidity, and air quality along with smart building monitoring processing system including heating, ventilation, and air-conditioning (HVAC) scheme, and lighting system to maximize the indoor environmental system.

3. The proposed system uses fuzzy logic and contains sensing, actuator units.

From claim 3, fuzzy logic is used in the IoT system for quick response. Here, the sensing, analyzing, and actuation activities are separated and executed utilizing 3 distinct micro-controllers.

, Description: Any building which employs automated procedures to connect and control the building's facilities services and systems is referred to as a smart building. This is a dynamical structure made up of sensors, several devices, and Internet of Things (IoT) techniques that connect with a centralized decision-making or insights gateway, as well as with one another and exterior systems. Thus, the exchange of information will rely on one another and react to a variety of demands within the facility. Lighting is an important part of a building's foundation, and with developments in smart building technologies, energy conservation and lighting management are now more accessible than ever. IoT systems like Enlighted, fuzzy control model give lighting controls that allow the building to detect occupation trends and grow smarter. This innovative lighting

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