



EMERGING INTERNET-OF-THINGS APPROACH IN MONITORING AND AUTOMATION OF INDUSTRIAL ENVIRONMENT

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ABSTRACT

The online monitoring of work environment plays significant role in contemporary industry automation by utilizing internet-of-things (IoT) for different measures, including security, operation efficiency, and proactive response. This article proposes an IoT technique to monitor the environment air temperature, humidity, and the required safety concerns such as fire alert and security access control using video recording. The system hardware consists of DHT22 sensor, smoke detector, and motion sensor which are all integrated using ESP8266 microcontroller and wireless router as access point to internet. The proposed IoT approach is developed using variable scheduler scenario for adjusting the temperature and humidity level of the environment based on particular season of the year. A GUI dashboard is implemented based on Blynk application to display the real-time sensors' readings and changing the operation status of some IoT devices. The operation and functionality of this IoT application is validated and tested inside a dedicated laboratory to mimic different environment conditions. While maintaining convenience air temperature, the proposed approach achieves 8%-14% improvement in power efficiency of the air-conditioning unit.

KEYWORDS

Automation, Blynk application, ESP8266, IoT, monitoring system.

