IOT-BASED FAN CONTROL SYSTEM

Erix Ferdiansyah
Program Studi Teknik Elektro, Fakultas Sains & Teknologi
Universitas Teknologi Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : erikferdiansyah46@gmail.com

ABSTRAK

Internet of Things (IoT) technology rapidly evolves, offering innovative solutions to enhance human life. According to data from the Indonesian Electricity Statistics in 2024, the household sector accounted for 50.80% of total electricity consumption. Inefficient electricity usage, particularly from fans, significantly contributes to high household energy consumption. This inefficiency poses challenges, especially when users are not in the same room as the fan, leading to unnecessary electricity usage. Therefore, a solution that enables the fan to be automatically adjusted or controlled remotely, conserving energy and enhancing comfort, is required. The development of an automatic fan system employing PIR and DHT11 sensors based on the Internet of Things (IoT) utilizes Arduino technology. The control system under study consists of a PIR sensor and a DHT11 temperature sensor, a program embedded in the Arduino microcontroller, and a relay used as an automatic switch. The accuracy of the DHT11 and PIR sensors was tested, yielding an error rate of 0.33%. In the PIR sensor's test for object movement detection, the success rate was 90%, with an error rate of 10%. The tool demonstrated 10 successful trials out of 10 scenarios, resulting in an overall success rate of 90% compared to actual reality.

.

Keywords: Internet of Things (IoT), PIR Sensor, DHT11 Sensor