ABSTRACT

Air is an essential element for the survival of living beings, and ensuring its quality is key to maintaining health and comfort. However, air pollution has become a serious issue, especially indoors. This research aims to develop a solution in the form of an IoT-based air purifier with an intelligent system as an alternative to improve indoor air quality. By identifying common air pollutants in the environment, such as ground-level ozone, PM10, PM2.5, carbon monoxide, sulfur dioxide, and nitrogen dioxide, and understanding the contribution of human activities to air pollution, a device is designed to reduce its negative impact. The short-term solution proposed in this study is to use an air purifier that can filter indoor air pollutants. Thus, this research contributes to efforts to minimize the impact of air pollution on human health and the environment. Given these issues, this research focuses on developing an air purifier device. The device, developed with a fuzzy *logic* intelligent system, can achieve a purification efficiency of 92.5% in a room measuring 3.5m x 2.5m and 35.5% in a room measuring 10.5m x 8m. The noise level ranges from a minimum of 53dB to a maximum of 61dB. In the lowest mode, the power required to operate the air purifier is no more than 3W, with a maximum power requirement of 4.7W.