

ABSTRACT

Indoor air quality is an important factor that must be considered. Poor indoor air quality can reduce the productivity and comfort of occupants of the room and dangerous for groups that are prone to health problems. Because of the importance of indoor air quality, monitoring of indoor air quality is needed. Some parameters that determine indoor air quality are O₂, CO₂, PM_{2.5}, and TVOC. In this study an Android-based air quality monitoring system was created to make monitoring air quality easier. After the Android application is made, the next step is to measure, monitor the concentration of O₂, CO₂, PM_{2.5}, and TVOC. Then an attempt were made to reduce CO₂ concentrations by placing Dumb Cane plants in two rooms. Room I is Computer Basic Laboratory and room II is Basic Physics Laboratory , School of Electrical Engineering, Telkom University. From the results of the study found an increase in CO₂ concentrations in room I and II when there were human activities which reached 6.6 and 6.4 times compared to when there was no activity. Inversely proportional to CO₂ concentration, O₂ concentration qualitatively decreases during the practicum. Whereas the PM_{2.5} concentration in both rooms when there is no activity or when there is activity tends to follow the PM_{2.5} concentration pattern outdoors. The average concentration of CO₂ and O₂ in room 1 and room 2 when there is no practicum still according to the guideline value (room 1:421ppm;20,4%, room 2:402ppm;20,5%), while the PM_{2.5} concentration has exceeded the guideline value (room 1:51 μgm⁻³, room 2:64 μgm⁻³). TVOC parameter measurements were not continued because of problems with the TVOC sensor. After an attempt were made to reduce CO₂ concentrations by placing Dumb Cane plants in room I and room II, the results showed that in room I there was no decrease in CO₂ concentration while in room II there was a significant decrease in CO₂ concentration. This is due to the difference in the light intensity entering room I and room II. The smallest percentage reduction in room II is 34.4% while the largest percentage of reduction in room II is 56.4%.

Keywords: *air quality, CO₂, O₂, plant, PM_{2.5}*