ABSTRACT

Variations in temperature and humidity result from altitude, location, and environmental factors like solar radiation and wind, with daytime often having higher humidity levels. This pattern is consistent even within structures, exemplified by Bandung's Telkom University Landmark Tower (TULT), which also experiences such influences. In the academic year 2022/2023, Telkom University welcomed 8,036 new students, a majority of whom relied on TULT for their academic activities. The substantial student presence can notably impact temperature across different levels of the building. Employing the Multiple Linear Regression (MLR) and Internet of Things (IoT) methodologies are anticipated to predict temperature and humidity at distinct TULT heights. This process involves measurement and data analysis facilitated by Google SpreadSheet, exported in XLSX format for MATLAB processing, and subsequent estimation of temperature and humidity through MLR and IoT algorithms. Experimental results are assessed via Mean Squared Error (MSE) to gauge predictive errors per trial, using R2 or R Square to determine coefficients. Notably, the MLR model, trained on specific data, excels in projecting temperature and humidity for TULT's 6th floor compared to test data. Ultimately, the MLR model effectively clarifies variations in trained dataset-applied temperature and humidity data.

Keywords: Multiple Linear Regression, Internet of Things,Mean Squared Error,predictions