

## ABSTRACT

*Observations of corrosion due to bad air pollution in various places cannot be separated from local and remote emission sources. Two pollutant parameters that can cause corrosion, namely sulfur dioxide gas (SO<sub>2</sub>) and hydrogen chloride (HCl) can be emitted from a local or remote scale. Therefore this research was conducted to determine the concentration of SO<sub>2</sub> and HCl gases that cause corrosion and other meteorological parameters spread across 3 stations at Telkom University based on low-cost sensors in real-time. The first measurement station is at Telkom University Landmark Tower (TULT) with a height of ~70m above the ground, the second station is in the General Lecture Building (GKU) with a height of ~35m above the ground, and the location of the third station is in the Deli Building with a height of ~15m. These measurements were carried out from November to December 2022. Based on sensor testing, the measurement results of the passive sampler method are 18 ppb where this figure is in the measurement range of the ZE12A-SO<sub>2</sub> sensor, which is 3-34 ppb. In addition, sensitivity testing was carried out on the ZE12A-SO<sub>2</sub> sensor. An experiment was carried out by measuring SO<sub>2</sub> gas from burning charcoal. The measurement results show that SO<sub>2</sub> gas fluctuates based on the on-and-off conditions of the fan. This indicates that the sensor is quite sensitive to the gas being measured. The parameters of temperature, humidity, wind direction, wind speed, and rainfall can affect the two research parameters, namely SO<sub>2</sub> and HCl gas.*

**Keywords:** *HCl, Corrosion, Internet of Things (IoT), Low-cost Sensor, SO<sub>2</sub>.*