ABSTRAK

An incinerator is a device used to burn waste, utilizing a furnace as a combustion chamber with high temperatures generated from burning the waste. It disperses gases produced from heating the water burner into the combustion chamber, which aids in increasing the temperature within. Utilizing incinerators can serve as a solution to waste reduction. However, their usage must be closely monitored, as improper use can result in the emission of smoke containing hazardous chemical compounds.

With these issues at hand, the author developed a control and monitoring system for the incinerator by creating the necessary system for incinerator machine users. This system assists users in controlling and monitoring the incinerator machine via smartphone. It can regulate the burner system and monitor the temperature, water availability, and residual combustion smoke in the combustion chamber. Chemical compounds monitored by this system include CO, CO_2, NOx, and SO_2.

After conducting experiments, the ultrasonic sensor was utilized to measure water availability, achieving an accuracy level of 96.83%. The thermocouple sensor used for measuring temperature in the combustion chamber exhibited an accuracy rate of 98.67%. Additionally, for detecting combustion smoke, the MQ-7 sensor was employed to detect carbon monoxide (CO) compounds, achieving an accuracy level of 87.72%. The MQ-135 sensor was utilized to detect compounds (CO_2) and (NOx) with an accuracy level of 84.06%, while the MQ-136 sensor detected compounds (SO_2) with an accuracy rate of 97.66%.

Keyword: *Incinerator, sensor, waste*