ANALYSIS OF ELECTRICITY UTILIZATION FOR CHILLER WATER SYSTEM TO REDUCE ENERGY CONSUMPTION

UNDERGRADUATE THESIS

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ANALYSIS OF ELECTRICITY UTILIZATION FOR CHILLER WATER SYSTEM TO REDUCE ENERGY CONSUMPTION

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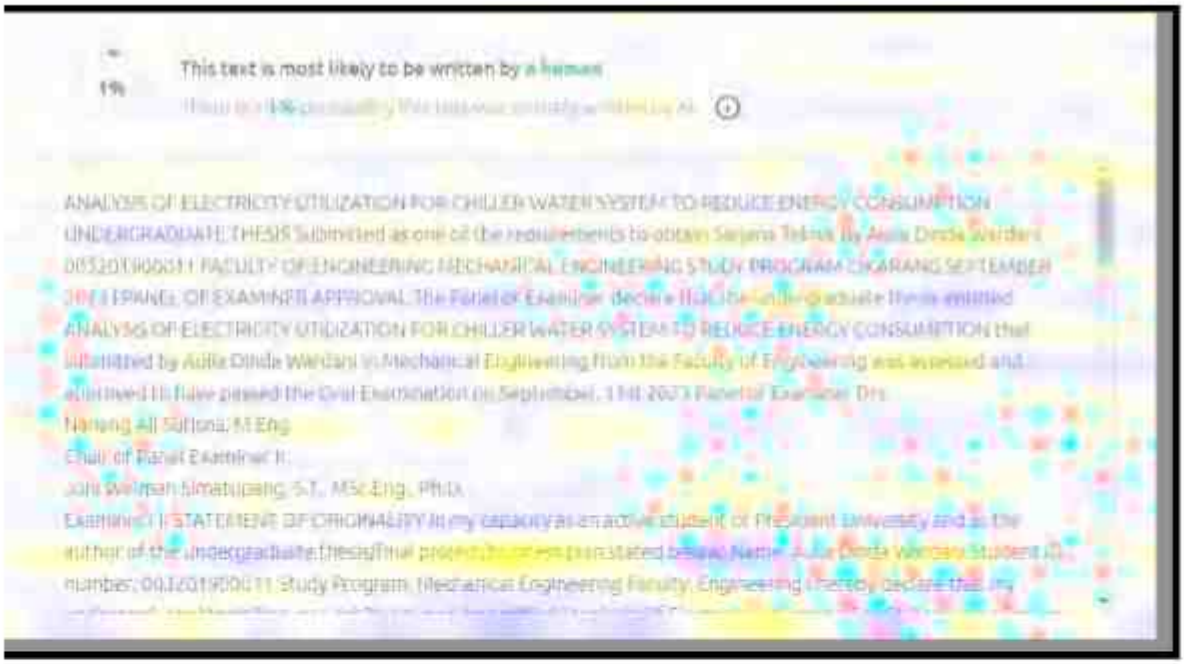

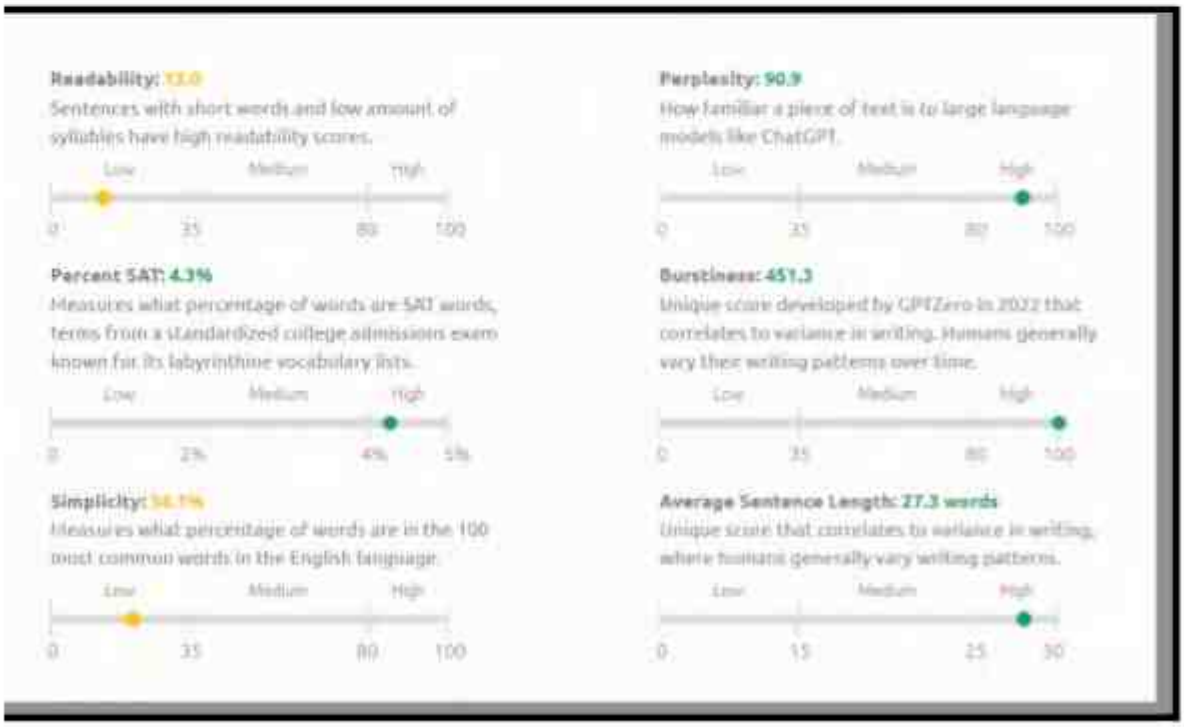

ABSTRACT

The use of a Chiller water system, especially the type of Air – Cooled Chiller system that is operated at high ambient temperatures will result in high consumption of electrical energy because more energy is expended to reach the desired temperature. The author conducted an investigation on the Air – Cooled Chiller system in one of the pharmacheutical industries in the Pulo Gadung Industrial Estate, East Jakarta, where the energy consumption in the chiller unit reached 190,000-250,000 Kwh per month or 39% of the total energy consumption. With the consideration of heat transfer calculations in the refrigeration cycle, the author proposes that the scaling of the crust and sludge on shell and tube on the evaporator chiller system can be carried out to maximize the heat transfer process in the chiller system absorption system. Then determine the optimization of the water leaving point set after the scaling process so that the energy released is not too large to reach the desired room temperature. The reduction of energy consumption will be seen through energy monitoring carried out per day while the achievement of room temperature is seen through recording the actual temperature in the room that uses supplay from the chiller. By scaling the shell and tube on the chiller evaporator and raising the set point of the water leaving chiler temperature, hope the target of reducing energy consumption can reach 10%. However, this research needs more investigation to see further developments regarding electrical energy consumption and standardization of the time of cleaning of crusts and sludge on shells and tubes on the evaporator chiler system.

***Keyword** : Reduce Energi, Chiler Water System, Pharmaceutical Industry*

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