

## ABSTRAK

Sistem HVAC, singkatan dari Heating, Ventilating, and Air Conditioning, memainkan peran penting dalam menjaga kenyamanan, terutama di negara-negara tropis seperti Indonesia. Central Air Conditioning, sistem pendinginan terpusat, sering digunakan dalam fasilitas berskala besar seperti bandara. Studi ini berfokus pada sistem pendinginan bandara, mengeksplorasi komponen seperti Chiller, *Cooling tower*, Pompa CWP CHWP, dan AHU/FCU.

Penulis mengamati dampak pelepasan panas oleh *cooling tower* terhadap kinerja Chiller. Peningkatan suhu air *cooling tower* dapat membebani efisiensi Chiller, memengaruhi kontrol suhu keseluruhan. Faktor seperti filler yang kotor atau berlumut, penurunan kecepatan kipas, dan adanya endapan pada basin *cooling tower* berkontribusi pada peningkatan suhu. Pemantauan tepat waktu dan pemeriksaan secara real-time penting untuk mencegah kondisi-kondisi ini.

Menjaga suhu optimal kritis untuk kenyamanan penumpang, dan studi ini mengusulkan desain dan implementasi perangkat pemantauan berbasis IoT untuk suhu dan kecepatan kipas pada *cooling tower* dengan menggunakan telegram sebagai media pemantauan atau *user interface* di Bandara Internasional Sultan Hasanuddin di Makassar. Meningkatkan kenyamanan penumpang sangat penting untuk pengalaman positif penumpang dan mendorong kedatangan awal di bandara, berkontribusi pada Pax Good Experience.

Kata Kunci : *Cooling tower*, sistem pemantauan, sensor ESP32 *user interface*

## ABSTRACT

*The HVAC system, an abbreviation for Heating, Ventilating, and Air Conditioning, plays a crucial role in maintaining comfort, especially in tropical countries like Indonesia. Central Air Conditioning, a centralized cooling system, is often utilized in large-scale facilities such as airports. This study focuses on the airport cooling system, exploring components like Chiller, Cooling tower, Pump CWP CHWP, and AHU/FCU.*

*The author observes the impact of heat dissipation by the cooling tower on the Chiller's performance. Elevated cooling tower water temperatures can burden the efficiency of the Chiller, affecting overall temperature control. Factors such as dirty or algae-covered fillers, decreased fan speed, and deposits in the cooling tower basin contribute to temperature increases. Timely monitoring and real-time checks are essential to prevent these conditions.*

*Maintaining critical optimal temperatures for passenger comfort, this study proposes the design and implementation of an IoT-based monitoring device for temperature and fan speed on the cooling tower using Telegram as the monitoring medium or user interface at Sultan Hasanuddin International Airport in Makassar. Enhancing passenger comfort is crucial for a positive passenger experience and encourages early arrivals at the airport, contributing to Pax Good Experience.*

*Keywords: Cooling tower, Monitoring System, ESP32 Censor, user interface*