ABSTRACT

In one aspect, the invention relates to a system and method for optimizing the dehumidification process in real time based on changing weather conditions. The system comprises one or more sensors configured to collect real-time weather data including, but not limited to, temperature, pressure, and humidity. The collected data is processed by one or more customized algorithms configured to dynamically calculate and adjust process parameters, such as air intake speed, coolant temperature, and compressor power. In certain embodiments, the system further comprises predictive maintenance functionality, enabling early detection of dehumidification and energy inefficiency. By adapting to diverse weather conditions and dynamically adjusting the process parameters, the invention achieves optimal dehumidification performance.