

ABSTRACT

The storage of medical fluids in the world of health is an important effort to maintain the safety and quality of medical fluids. The placement of medical fluids must be stored in a safe place and in accordance with the regulations or regulations set. This final project aims to develop a medical fluid storage system to maintain quality and safety through real-time temperature monitoring using the ESP32 microcontroller. The design of this system serves to measure and display the temperature data in the storage box in real-time and maintain its temperature automatically. The system has an automatic cooler that is activated if the temperature inside the storage exceeds the threshold of about 17°C, so it can maintain the quality of medical fluids and stable temperature. The method used in the design of the system hardware consists of a DHT22 temperature sensor, a peltier cooling module, and an ESP32. Tests show that the device can maintain a stable storage temperature and provide a fast and effective cooling response, lowering the temperature from about 25°C to the range of 14°C - 15°C in less than three hours with the help of peltier active cooler and ice pack passive cooler

Keywords: ESP32 microcontroller, Medical fluid storage, Temperature and humidity, Monitoring, Cooling