ABSTRAK

Infant Warmer meruoakan perangkat kesehatan dirancang khusus untuk mengoptimalkan suhu tubuh bayi baru lahir. Sering kali bayi mengalami kesulitan dalam menyesuaikan suhu tubuhnya dengan suhu lingkungan sekitar. Jika suhu tubuh bayi tidak sesuai standar yang telah ditentukan, baik terlalu rendah maupun terlalu tinggi, bayi berisiko mengalami komplikasi serius, bahkan kematian. Penelitian ini menggunakan beberapa sensor untuk memastikan alat berfungsi dengan optimal. Sensor DS18B20 digunakan mengukur suhu ruangan infant warmer yang diatur oleh program PID, dari pengujian system PID yang dilakukan pada setting suhu 35 , 36°C, 37°C didapatkan hasil dari beberapa percobaan, Pengaturan paling optimal berdasarkan hasil pengujian adalah pada percobaan (Kp: 410, Ki: 225, Kd: 140), dimana waktu mencapai set suhu cukup seimbang, overshoot minimal, dan hasil pengukuran sesuai dengan incu analyzer. sehingga dianalisis pengukuran suhu sesuai mencapai suhu setting dan manstabilkan suhu di infant warmer. Kemudian sensor mlx90614 dapat mendeteksi suhu tubuh bayi tanpa harus menyentuh kulitnya secara langsung dengan menggunakan alat pembanding thermogun yang bersamaan menampilkan pembacaan suhu kemudian mencapai kestabilan dari pembacaan sensor yang telah diarahkan pada kulit, suhu rata-rata berkisar antara 35.1°C hingga 36.6°C persentase Error yang relatif kecil, yaitu sekitar 0.1% hingga 0.9%. Dari penelitian ini, dapat disimpulkan untuk peningkatan akurasi dan presisi sensor yang digunakan dalam alat Infant Warmerv diperlukan perbaikan dalam sistem distribusi panas alat Infant Warmer agar suhu terjaga secara merata di semua posisi.

Kata Kunci: skin non kontak, PID, Infant warmer.

ABSTRACT

Infant Warmer is a health device specifically designed to optimize the body temperature of newborn babies. Often babies have difficulty in adjusting their body temperature to the temperature of the surrounding environment. If the baby's body temperature does not meet predetermined standards, either too low or too high, the baby is at risk of serious complications, even death. This research uses several sensors to ensure the device functions optimally. The DS18B20 sensor is used to measure the room temperature of the infant warmer which is regulated by the PID program, from testing the PID system carried out at a temperature setting of 35 °C, 36 °C, 37 °C, the results of several experiments were obtained, the most optimal setting based on the test results was in the experiment (Kp: 410, Ki: 225, Kd: 140), where the time to reach the set temperature is quite balanced, minimal overshoot, and the measurement results are in accordance with the incu analyzer. so that the analyzed temperature measurements according to reach the setting temperature and stabilize the temperature in the infant warmer. Then the mlx90614 sensor can detect the baby's body temperature without having to touch the skin directly using a thermogun comparison tool that simultaneously displays the temperature reading and then reaches the stability of the sensor reading that has been directed at the skin, the average temperature ranges from 35.1 ° C to 36.6 ° C. The percentage error is relatively small, which is around 0.1% to 0.9%. From this research, it can be concluded that to increase the accuracy and precision of the sensors used in the Infant Warmerv tool, improvements are needed in the heat distribution system of the Infant Warmer tool so that the temperature is maintained evenly in all positions.

Keywords: skin non kontak, PID, Infant warmer.