

**Abstract:**
Premature infants (born before 37 weeks of gestation) are the largest group of infants who require a high-tech medical environment to survive. Basically, the monitoring of neonate’s temperature is a vital part of this environment within the neonatal intensive care unit (NICU). Therefore, developing a non-invasive temperature monitoring method is important for neonates’ daily clinical care, where ultimate goal was to ensure stable temperature environments for these pre- and new-born infants, without stressing their thermoregulation. Generally, the method of neonatal infrared thermography (NIRT) imaging was used to detect the thermal radiation from the neonate’s body, there by generating a mapping of the neonate’s skin temperature.