

22. Title: Neonatal incubator

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Keywords: Neonatal incubator

Domain: Healthcare

Introduction: An inexpensive neonatal incubator is developed with broad range of operating temperature and efficient functionality in rural and urban settings. The incubator controls the humidity and utilizes temperature and humidity sensors coupled to a control system for displaying, controlling and issuing an audio alarm, in case of deviation from the temperature/humidity set point. The main objective of this technology is to provide an economic solution for neonatal care in economically constrained settings like rural hospitals by utilizing low-cost components like Peltier plates for heating/cooling, circulation fans, generic control circuits for control and inexpensive construction methods and materials.

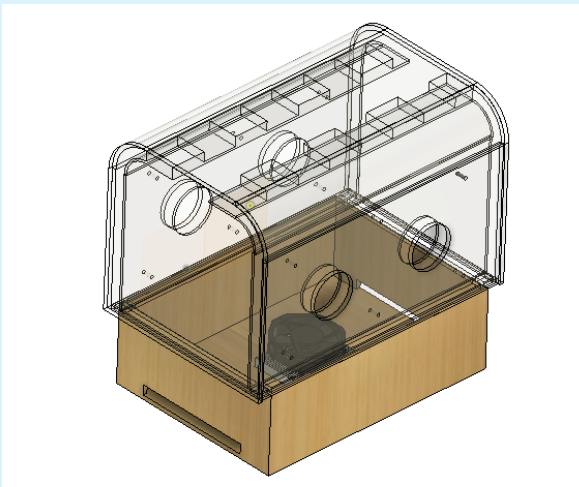


Image: Neonatal incubator

- » It provides both heating and cooling depending on the outside temperature for maintenance of desired survival temperature of a neonate in the incubator.
- » The incubator effectively operable under high temperature environments also i.e., an operational range of 20°C-40°C.
- » The incubator maintains the air quality, by using HEPA (High Efficiency Particulate arrestance) filters with >99% efficiency.
- » The incubator is capable of maintaining relative humidity effectively in the range of 40-95% Rh.

Advantages:

- » Reduction in cost of the unit.
- » Provision of both heating and cooling in the same incubator, unlike the current designs with only heating provision.
- » It utilizes low cost, low maintenance components which reduce the need for skilled manpower and regular maintenance.
- » It also has a battery backup to serve as auxiliary power in case of power outage.

Applications: In hospitals especially in rural region of India

Scale of Development: A functional prototype incubator is developed at laboratory scale.

Technology Readiness Level: 4

IP status: Indian Patent Application 201811021412