BABY INCUBATOR

The project aims at developing an automated temperature and controlling system for baby in incubator. This project continuously monitors and controlling the temperature with the help of heater and cooling system, so that this project provides standby temperature for baby. The project also displays the live temperature on a LCD display and automatically controlling the temperature range.

This Baby Incubator project provides 35 to 37 degrees Celsius stand by temperature for born babies and if the temperature raises it automatically cool the area through cooling system and if the temperature range is low it automatically increase the temperature range in to normal condition with the help of heater system. This is very User-friendly and cost effective system.

One of the most important elements in a newborn's survival is the infants temperature regulation. Mammals have the advantage of being homeotherms, meaning that they are able to produce heat, allowing us to maintain a constant body temperature. However, homeothermy may be overwhelmed in extremes of cold or heat. The newborn baby has all the capabilities of a mature homeotherm, but the range of environmental temperature over which an infant can operate successfully is severely restricted.

The infant has several disadvantages in terms of thermal regulation. An infant has a relatively large surface area, poor thermal insulation, and a small amount of mass to act as a heat sink. The newborn has little ability to conserve heat by changing posture and no ability to adjust their own clothing in a response to thermal stress.

Responses may also be hindered by illness or adverse conditions such as hypoxia (below normal levels of oxygen). Heat exchange between the environment and the infant is like any physical object and its environment. Heat is exchanged by conduction, convection, evaporation, and radiation. Heat exchange by conduction is relatively small. Conduction depends on the thermal conductivity of a substance in contact with the body. Since babies are usually laid on a mattress, which has a relatively low thermal conductivity, the heat loss from the baby to the mattress is relatively small. Heat loss from the infant by convection is dependent upon air speed and air temperature.

We developed this project, which is relatively inexpensive to sense the temperature. The temperature is read by the ADC (Analog to Digital Converter) module of the microcontroller Unit. This ADC data is processed and converted into the actual temperature reading by the microcontroller. This processed data is sent to the LCD for user display. The Microcontroller automatically takes the decision of Switching ON/OFF cooling system depending on the temperature settings fed into it. To perform the above mentioned intelligent tasks, intelligent program written using embedded ‘C’ is loaded into it.

***Block Diagram:***

