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DESIGN AND IMPLEMENTATION OF NEW BORNS NEONATAL INTENSIVE CARE UNIT FOR PREMATURE INFANT BASED ON INTERNET OF THINGS

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ABSTRACT
There are four million babies worldwidewho die in the first month of life, one million die on their first day. Preterm birth is attributed, either directly or indirectly, to at least 25% of neonatal deaths, and low birth weight (LBW) newborn's are at the greatest risk. About half of the worldwide total, or 1.8 million babies each year, die for lack of a consistent heat until they have the body fat and metabolic rate to stay warm. This project helps to prevent the death of such babies. Thecontroller based baby incubator helps to all peoples, the cost of this project is very less than today's baby incubator which are used inbig hospital. So, everyone which belongs to economical backward also use of it. This project not only used for monitoring and controlling the temperature but also provide number of advantages such as monitoring humidity, voice of baby, weight, temperature etc. In smart incubator a child's medical data can be checked through mobile phones or computers by the doctors or nurses from the place where they are accessing by the cloud storage through the internet .The accurate values are displayed so that the doctors can check the baby's health easily and they can avoid babies having health problems.

INRODUCTION
The current technological development is a boon for various healthcare services in day to day life, which helps in remote monitoring of health parameters from the patients.A Neonatal Intensive Care Unit (NICU) is an intensive care unit specialized in the care of ill or premature newborn infants. This unit monitors the vital parameters of the child by usingsensors.Neonatal Incubator is self-contained unit in NICU which ensures the ideal environmental conditions for the neonates. This also protects the infant from infection, allergens. It can regulate air humidity and temperature to maintain the integrity of skin of the neonates.In current method the nurse or a doctor need to attend periodically to the newborns and allows live monitoring of the parameters over the Internet which improves the quality of information in the neonatal healthcare.

LITERATURE SURVEY
[1] Unnat Pinsopon and ChaninBunlaksananusorn, Start up role of social capital.
The medical data can be viewed from mobile phones and computer systems from the place where they are and from they can take actions.The design is based on Wi-Fi and infrared technologies that measure the essential parameters that must be controlled for preemies. Variations occurred in this result immediately given alert message to given infrared technologies that measure the essential parameters that must be controlled for preemies. Variations occurred in this resultimmediately given alert message to given alertto the relevant hospital management and alsothe patient home.

[2] Jaiganesh.R, Smart incubators Applicationusing Arduino Controller.
An incubator is an apparatus used to monitorand maintain environmental conditions suitable for a newborn baby. It is used in preterm births or for some ill full term babies. The baby's health conditions are maintained properly. The incubator monitors oxygen supplementation and pressure levels. It also monitors temperature, radiation pulse activityand air humidity, gas around the environment.

[3] George Cajazeiras Silveira,Internet ofthings.
This cuff automatically takes the blood pressure and displays the data for review by providers. The

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Oxygen hood is a clear box thatfits over the baby's head and supplies oxygen.
This is used for babies who can still breathe butneed some respiratory support. Ventilator is a breathing machine that delivers air to the lungs. Babies who are severely ill will receive this intervention. Typically, the ventilator takesthe role of the lungs while treatment is administered to improve lung and circulatory function.

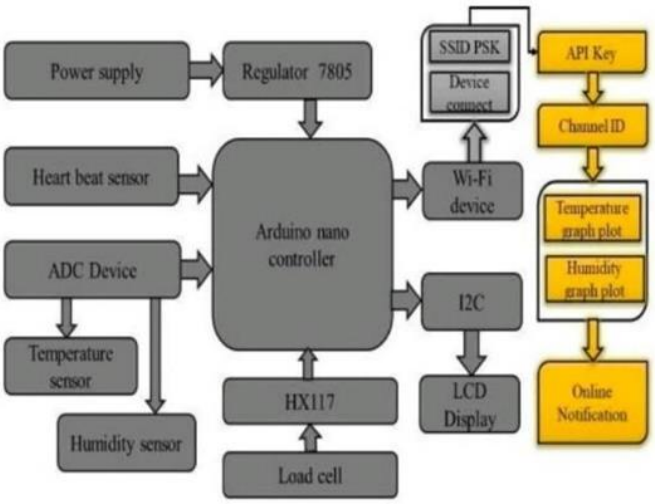
EXISTING SYSTEM

Several accidents are occuring due to malfunction of incubator. The existing system proposes the use of a temperature sensor to sense the temperature of the incubator . Any increase in the temperature beyond the specified range turns the alarm on and theheater in the incubator gets turned off by directly accessing it. This enables the staff to receive notification through mail during an emergency so that necessary preventive actions can be taken and ensures the maintenance of temperature inside the incubator.

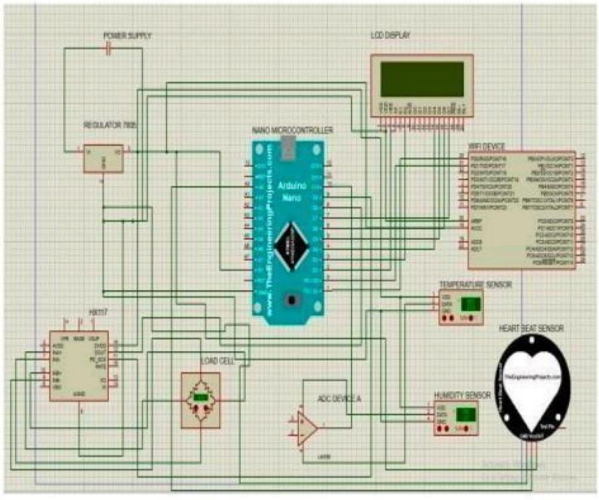
PROPOSED SYSTEM

The proposed system involves the use of WIFI, integrated to various sensor units, such as pulse, temperature and humidity sensors. Firstwe will measure the temperature and humidityof the incubator and monitor the system usingWi-Fi module to webpage The readings will beshown on the LCD screen. Pulse sensors will give continuous data and heart-beat at anytime. So using this model we can easily controlthe temperature, humidity and measure the infant's heartbeat. In case of any gas leak in the oxygen tube it will be defected and intimate through buzzer.

BLOCK DIAGRAM



CIRCUIT DIAGRAM



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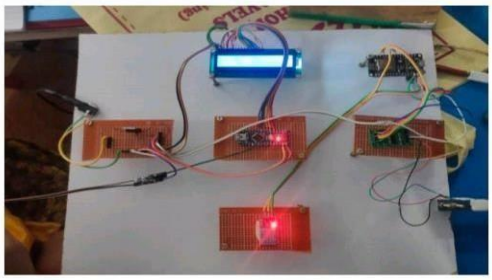
RESULTS

The controller-based baby incubator offers a cost-effective solution for addressing neonatal mortality, particularly in regions withlimited resources. Its multifunctional capabilities, including temperature and humidity monitoring, voice detection, and weight tracking, contribute to comprehensive infant care. Integration with mobile and cloud technology facilitates remote access to vital medical data, empowering healthcare providers to monitor and manage newborn health effectively. Overall, this project presents a promising tool to combat neonatal mortality and improve healthcare accessibility for underserved populations.



CONCLUSION

In conclusion, the controller-based baby incubator presents a promising solution to address the alarming rates of neonatal mortality worldwide. By providing affordable and accessible technology, this project aims to bridge the gap in healthcare infrastructure, particularly in economically disadvantaged regions where access to advanced medical equipment is limited. Beyond temperature regulation, the smart incubator offers comprehensive monitoring capabilities, including humidity, weight, and even thebaby's voice, empowering healthcare professionals to remotely assess and manage newborn health. Through cloud-based data storage and mobile accessibility, medical personnel can efficiently track and intervene in real-time, potentially saving countless lives by preventing complications associated withpreterm birth and low birth weight. This initiative represents a crucial step towards reducing neonatal mortality rates and ensuringbetter healthcare outcomes for newborns globally.

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