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# Modern Baby Incubator with security system using IOT

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Abstract - Our project Modern Baby Incubator with Ultra Security System using Node MCU is to design a very efficient system that can maintain the temperature, humidity and oxygen level of the incubator to provide a protective system to premature baby infants and newly born baby. For a premature baby there is need to maintain hygiene by keeping people away from incubator. So, to maintain it, the buzzer beeps when any person come near to the incubator (less than 5 meter). It also helps the baby to prevent from any unrecognized person. Along with the protection inside the incubator, it can also help to balance light, temperature and acts as a fire alarm. Our main purpose is to make a prototype which can be used as a "dual device" that is beneficial for lodging, home, hospitals, etc.

## INTRODUCTION

Now a days, Incubators are attracting towards medical field. These are made up of glass or fiber which is given to certain Humidity, Temperature and Oxygen level, through which sufficient air is entered to balance life. Through this time an infant is strong to bear Humidity, Room Temperature. Inside the baby incubator, Moisture, Room Temperature and Oxygen level should be proper. Hence, we have to maintain all these as per hour requirements. We have used Node MCU in our project, which is very advanced microcontroller for Humidity , Temperature and Oxygen level of the Baby Incubator. Along with maintaining the necessary parameters inside the incubator, we can capable to watch and maintain various parameter at our home. There are five sensors and one 2-channel relay module are generally used for this prototype. As a result, we can watch and balance some parameter in the home like as room temperature, moisture, quantity of leaking gas, quantity of water in the water tank, lodging security, and controlling of electrical devices. Along with it, our prototype is based on Internet of Thingtechnology. Hence, we can able to control and monitor all factors via the internet. Our project is depend upon IoT technology. Hence, we can provide all factors with the help of Internet. For this, The Blynk application has been used. It proves to be a low cost incubator for the hospital and security system for house. It is very efficient and attractive now a days. We can use from anywhere by staying at our home or from any other place via our mobile phone. IoT Technology is very helpful for designing this project. Various parameter are connected through internet and also controlled by internet.Our team design a Blynk app page for controlling all the parameters.

## THEORY

This prototype is helpful for hospital, home. Our system is used to warm babies. This is used to warm premature babies and weak babies. As the number of child stealing increases day by day, this device helps to protect the babies from child stealer in Hospitals by beeping the buzzer as soon as something happens in and around the babies. This project is used to maintain lots of lodging devices. Faster operation as well as efficient. We can control device from a long distance, thus it gives ease of access.

## Block Diagram

It can be explained by following block diagram:

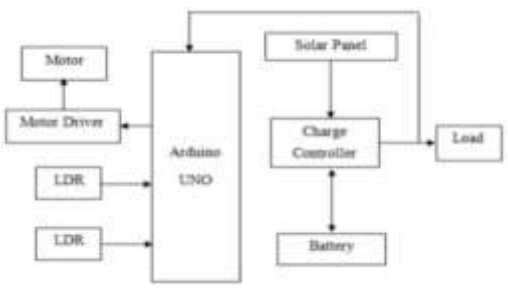


Fig: Block diagram of solar sun seeker

WORKING PRINCIPLE

The Principle of our project is dependent on IoT technology. Therefore, we can check all part via the internet. The Blynk app is very useful for designing it. It proves to be a low cost incubator for the hospitals and security system for home. Efficient and attracting. We can use remotely by sitting at our home or from any place via our mobile phone. Our project is a "Multi purpose device" which is beneficial for lodging, home, hospitals, etc. Node MCU Board is open - source, reciprocal, able to program, cheap cost, easy and Wireless Fidelity enable component. It has hardware which is like Arduino Input-Output, API network as Nodejs and cheapest cost connection. 4- Channel Relay modules or power 4-Channel relay modules are useful electronic components. They are an exceptionally useful component of any automatic project. To control motors or lighting circuits we require relay module for low voltage microcontroller. A low cost ultrasonic sensor is an part of our project that measures the range of an object with the help of ultrasonic sound waves. Transducer is used to transmit and receive ultrasonic pulses that information relay captured about an object's range. A beeper is an audio signal based device which may be mechanically, electrically and electromechanically or piezoelectrically active device. DHT11 is a generally used as Temperature and moisture sensor which is connected to a NTC which can able to measure temperature and an eight-bit microcontroller gives at the output the number of temperature and humidity. A PIR (Passive infrared sensor) is an simple electronic sensor which can able to measures infrared light coming from objects in view field. These are basically used for security purpose like as alarms and automatic lighting applications. MQ2 is Metal oxide semiconductor type gas sensor. Gas sensor is an electronic sensor used to sense the quantity of various gases in the air such as Liquid Petrolium Gas, O2, H2, Alcohol, Smoke and CO. It is also called as Chemi - Resistor. LCD (Liquid Crystal Display) is a part of panel display which is flat in shape and use liquid crystals to generate various characters via a group of instructions or code. The full form of I2C is Inter-Integrated Communication protocol. This is generally use for communication between single master and various slaves.

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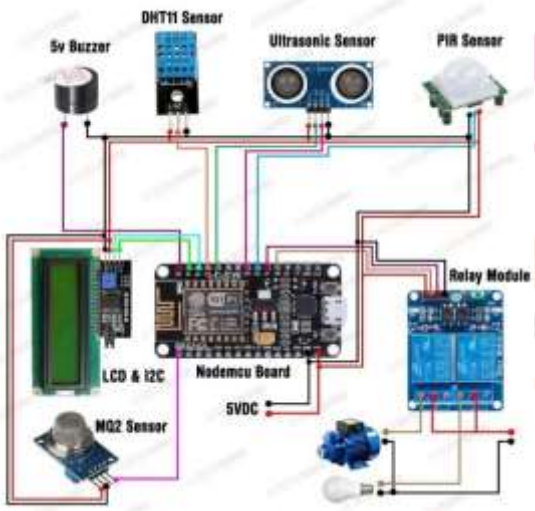


Conclusion

Main advantage of our project Modern Baby Incubator with ultra security system using IOT is that it is a low cost device, having dual work like security to home and hospital and protection to the babies also. No need to carry separate remote or any other controlling unit. It can help to maintain the temperature and humidity inside the incubator with the help of fan and bulb that we desire. The buzzer used in our project beeps when the distance between the incubator and any other person is less than 5 meter which can help to maintain the hygiene inside the incubator and security both outside and inside the incubator.For a premature baby there is need to maintain hygiene by keeping people away from incubator. So to maintain it, the buzzer beeps when any person come near to the incubator (less than 5 meter). It also helps the baby to prevent from any unrecognized person. Along with the protection inside the incubator, it can also helps to maintain light, temperature and acts as a fire alarm.

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