



# DESIGN AND FABRICATION OF AN EGG INCUBATOR

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## ABSTRACT

This is an apparatus used to regulate the conditions of environment like temperature, humidity and the changes occur once eggs are placed in incubator. Incubator helps keeping warm without the mother inside the enclosure. Number of days spent is 21 days to come out birds. **INTRODUCTION**

An incubator is a device simulator avian incubation by keeping eggs warm at a particular temperature range (37.5 °C for chicken eggs) and in the correct humidity with a turning mechanism to hatch them. It takes 21 days to hatch a chicken egg. A thermostat (a circuit with a relay which is controlled by an integrated circuit) is widely used for this purpose. Incubators are commonly made by using thermocol. Commonly a filament bulb or any types of heat source raise the temperature to the permissible limit. Incubators can also be used for hatching the eggs of duck, quail.

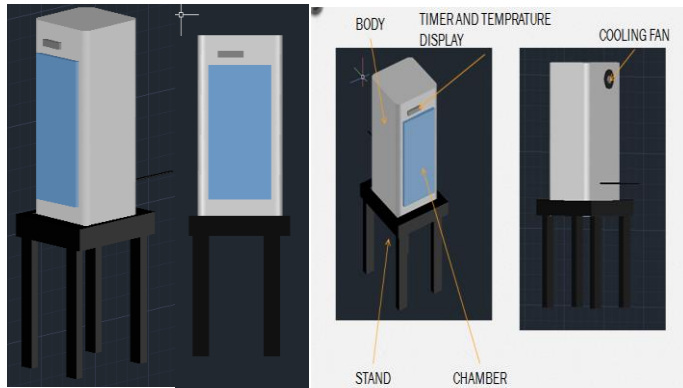
It is a machine which can hatch eggs without a hen by giving them a habitat surrounding artificially by maintaining temperature inside the chamber. It is based on the principle of Thermodynamics. The First American Egg Incubator was invented in 1844.

## THEORY AND PRINCIPLE OF ITS WORKING

1. It works on the Principle of Thermodynamics. Heat gets trapped inside the chamber making it thermally isolated or in other words suitable for an egg to hatch. It performs its task by capturing heat inside
2. Accordingly to the suitable temperature needed by the egg to give birth to a chicken. As temperature of biological processes of ectothermic animals and is linked to climate change.

3. As egg production declines at high temperatures, egg development responds to the temperature, with minimal differences between mid (35-60 degrees) and low (<35 degree). under the hen, the egg gets the all suitable habitat it needs for hatching, but without a hen we have to make artificially that habitat , by creating simulative surroundings.

### DESIGNING AND FABRICATION

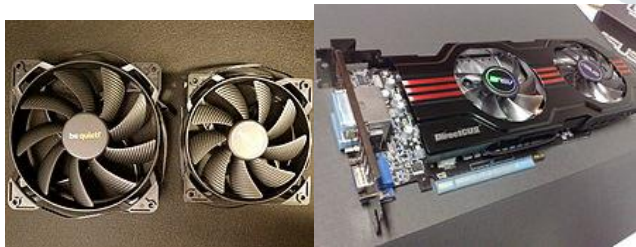


### MATERIALS REQUIRED

#### 12 V DC FAN



**MICRO CONTROLLER**



#### CASE FAN, TWO FANS FOR COOLING



SMALL BLOWER FAN



THREE PIN CONNECTORS

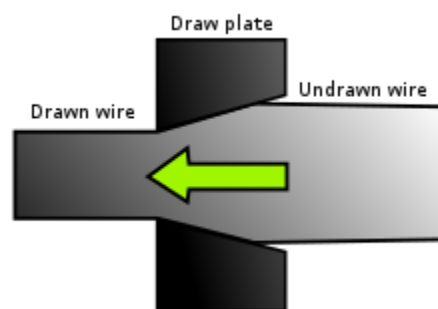


12 V AC TO DC ADAPTER

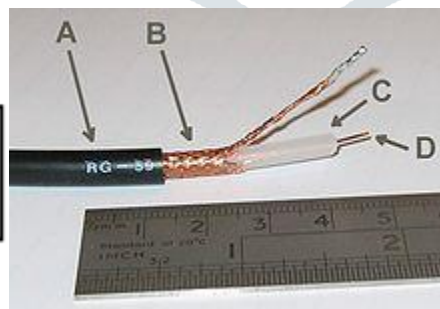
## Problems

A survey of consumers showed widespread dissatisfaction with the cost, inconvenience, and wastefulness of the profusion of power adapters used by electronic devices.<sup>[3]</sup> Science fiction author and satirist Douglas Adams wrote an essay bemoaning the profusion and confusion of power adapters, and calling for more standardization.<sup>[4]</sup>

Millions of still-usable AC power adapters are thrown out annually, because of poor or unknown compatibility with new equipment.



WIRE DRAWING CONCEPT



## 1 PROCEDURE

- Eggs are placed in incubator chamber.
- The electric bulb is then turned on, and heating of the chamber is started. The W1209 circuit will decide and give instruction to our bulb, that for how much time it has to glow.
- The timer and temperature screen will show the temperature inside the chamber.
- The bulb will be turned off when there is enough heat inside the chamber.
- If in some case the temperature of the chamber increases the required temperature for hatching of egg, then our fan will be turned on by the w1209 circuit to maintain the temperature inside the chamber.



Cost comparison to current market

## CONCLUSION

The incubator is an apparatus that is used to regulate environmental conditions such as temperature, humidity and turning for successful hatching of the fertile eggs.

## REFERENCES:-

- 1-Research paper on design and construction of automated egg incubators in IJTRS.
- 2-How to build a simple homemade automatic egg incubator by Teb Mogobsi, kindler edition.
- 3-Research paper design and fabrication analysis, journal of institute of engineering.
- 4-Egg incubator by Charles deeming, university of Manchester, Marks W.J.Ferguson