**SMART EGG INCUBATOR**

The aim of this project is to design a smart egg incubator using Arduino. To build the egg incubator, our required components are,

* Arduino UNO
* 16x2 LCD
* Temperature sensor
* Water level sensor
* Servo motor
* Incandescent light
* DC fan

**Introduction:**

Incubation is the process by which certain oviparous animals hatch their eggs. It also refers to the development of the embryo within the egg under favourable environmental condition. Multiple and various factors are vital to the incubation of various species of animal. Fertile eggs can be hatched by using an egg incubator. An incubator is an enclosed structure with a fan and heater to keep eggs warm during the 21-day incubation period. When determining which incubator to use, the highly recommended is an incubator with smart automatic features.

In this incubator, we are expecting chicks will typically hatch at day 21. If the fertilized eggs were cooled prior to incubation, the process might take a little longer. If we are at day 21 with no hatch, we need to give the eggs a few more days. When the big day comes, we have to let the chick hatch on its own. Do not attempt to help. Blood vessels that haven’t dried up yet may still attach the shell to the chick, and prematurely pulling of the shell can cause excessive, potentially fatal, bleeding. A chick can take up to 24 hours to completely hatch, although 5-7 hours is more common.

**Working:**

In this project, an incandescent bulb will provide sufficient heat and a DC fan will circulate the heat all around the eggs inside the incubator. The temperature inside the incubator has to be a constant value, so a temperature sensor will be placed inside the incubator for monitoring the temperature inside the incubator. If the temperature is high, the bulb will be turned off until it reaches the required value. To maintain the humidity inside the incubator, a jar of water will be places inside the incubator and a water level sensor will check the amount of water inside the jar. If the amount of water is insufficient, the jar will get refilled. Also, an LCD will display the temperature level inside the incubator