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Fabrication of Incubator Powered by Free Energy

J. Jegan¹, E. Muneeswaran², A. Dhileepan Kumar³, M. Ajith Kumar⁴, M. Malaisamy⁵, M. Perumal⁶, E. Muthuselvam⁷

¹Lecturer, ^{2, 3, 4, 5, 6, 7}Final Year Students, Department of Mechanical Engineering, Government Polytechnic College, Kottur, Theni, Tamilnadu.

Abstract: *The aim was to produce a low cost incubator and increase the production of day old chicks for small and medium scale poultry farmers.*

The modern hatchery is an example of scientific solution used to solve a biological problem. An incubator is an apparatus, which simulates the broody bird by means of temperature, humidity and ventilation regulation, as well as turning of egg for embryo development into chick.

An electrically operated incubator with the capacity of 40 eggs was constructed and tested. It was constructed using locally available materials.

This system uses temperature and humidity sensors that can measure the condition of the incubator and automatically change to the suitable condition for the egg. A servo motor is attached to the egg turner kept inside the incubator and is rotated according to the specified delay in order to prevent the yolk from getting stick to the shell of the eggs and also to provide uniform temperature for the eggs.

The methods of power generation which is independent of any atmospheric conditions unlike wind, solar, biomass etc and does not even depend on any fuels or raw materials unlike thermal or diesel generators. Here we tried to attain perpetual motion using gravitational energy for power generation.

Keyword: *Perpetual motion, Humidity, Temperature, Turning, Incubator etc.*

I. INTRODUCTION

This project is developed for the specific reason to assist the small-scale farmers from the technological perspective, so that their productivity can be increased significantly. It was designed to automatically change the parameters to the suitable condition to fit the various types of eggs.

The entire elements were controlled by microcontroller devices to process the data from sensors and execute the control element of the machine. This machine also provides an accurate temperature and humidity condition in the incubator as well as less bacterial cross contamination.

In this work, 12V bulbs were used to give the suitable temperature to the eggs whereas water and controlling fan were used to ensure that humidity and ventilation were in good condition.

The need for artificial incubator is to generally increase hatchability of eggs which leads to the improvement and increase in the production of chicks and eggs for human consumption and the economic market.

Perpetual motion is the action of a propeller that never stops spinning without any motor or propulsion system that today's modern world is making it spin.

This was argued upon by various scientists that it would be against the Law of Thermodynamics that states that the, 'the total energy of an isolated system is constant; energy can be transformed from one form to another but cannot be created nor destroyed'. Yet many scientists since centuries are working on it. And some have succeeded in proving it wrong saying it has no objection with the Law of Thermodynamics dropping out again.

II. FLOW DIAGRAM

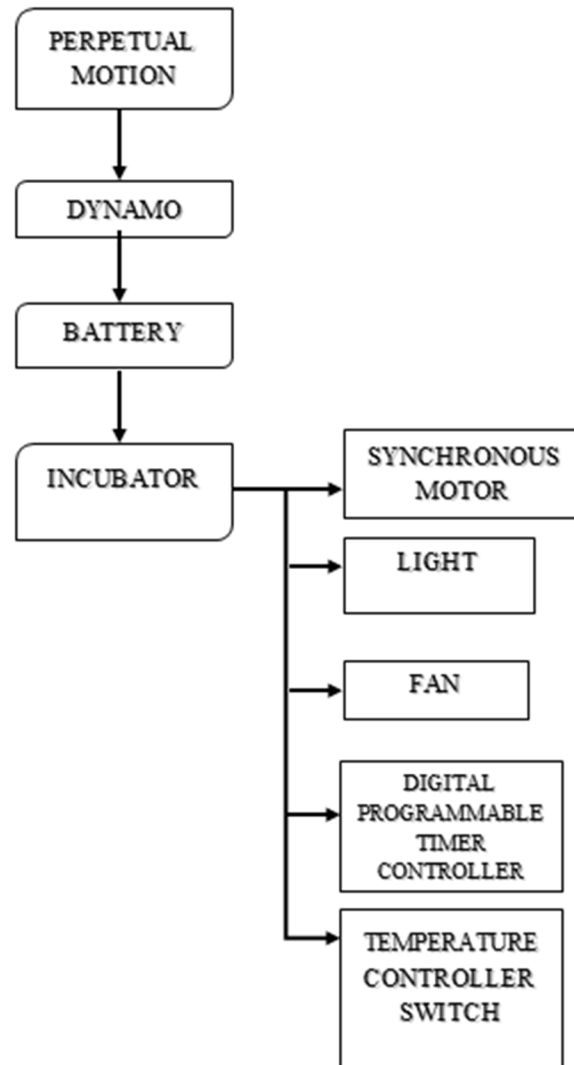


Fig 1: Flow Diagram

III. MATERIALS

A. Incubator Casing

The construction of the incubator began with the hard plastic using rectangle to construct the main body of incubator. The plastic was chosen due to its insulation properties, ease in construction, flexibility, durability and availability. Outer dimension Height - 290mm, Length-650mm, Width-450mm. Inner dimension height 285mm, length 610mm, width 410mm.



Fig 2: Incubator Casing

B. EGG Turning Trays

The egg turning tray is very important in order to change the position of eggs. The egg turning tray were made of flexible wire net of 6mm thickness and aluminium frame for frame work. Total egg holding capacity of 30 eggs.



Fig 3: Incubator Egg Tray

C. Temperature Controller Switch

This temperature controller used to control the temperature in the box. This temperature controller was fixed in front of box.



Figure 5: Temperature Sensor

D. Digital Programmable Timer Controller

This timer used to run the synchronous motor to turn the tray and it makes the rotation of hatching eggs in the incubator. The timer switch will on and off the tray for continuous 4 hours per day for first day to 18th day.

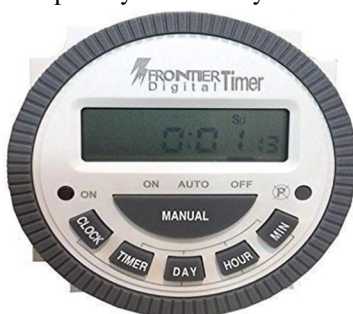


Figure 7: Timer Controller

E. Incandescent Bulb

The bulb which produces light with a wire filament heated to a high temperature by an electric current passing through it, until it glows. The hot filament is protected from oxidation with a glass or quartz bulb that is filled with inert gas or evacuated.



Figure 8: Incandescent Bulb

F. FAN

A fan is a device used to create flow typically a gas such as air. The fan was placed inside the incubator casing box to spread the heat from bulb throughout the box. The dimension of the fan is 80x80mm and the rated power is 12v.



Figure 9: Fan

G. Battery

A battery is a device consisting of one or more electrochemical cells with external connections provided to power electrical devices. its positive terminal is the cathode and its negative terminal is the anode and the capacity of battery is 12v ,45A.



Figure 10: Battery

H. Synchronous Motor

This motor is connected to the timer to top right side of the tray corner. The motor is used to turn eggs in the tray which makes moving and rolling of eggs within the tray.

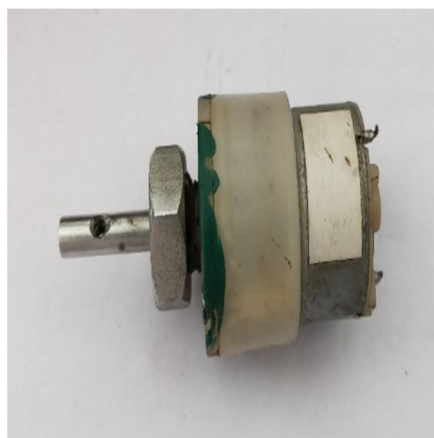


Figure 11: Synchronous Motor

I. DYNAMO

The dynamo is connected to the rim or wheel, which moves over the movement of the rim. Thus the mechanical energy of the rim will be converted into electrical energy and the energy is stored in the battery.

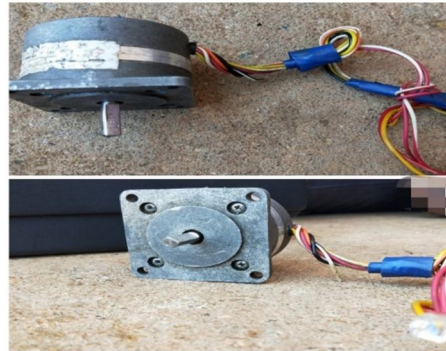


Figure 12: Dynamo

IV. FREE ENERGY

The concept is perpetual motion which means the motion that continues indefinitely without any external source of energy. we tried to attain perpetual motion using gravitational energy.

A. Perpetual Motion

The 14-inch cycle tyre rim with 4 water bottle each 500ml. Bottles are filled with water and different type of shafts are hanged with the rim to increase the rotation of the rim to provide dynamo the power generation. This rim rotates clockwise. Perpetual motion rotation speed is 17 to 18 rpm Power produce to 6 to 7 voltage.



Fig 13: Perpetual Motion (Model)

V. INCUBATION

Incubation is the process by which birds hatch their eggs and development of an embryo within the egg. The most vital factor in incubation is the constant temperature which is required for its development over a specific period. The act of sitting on the eggs to incubate them is called brooding. In most species, body heat from the brooding parent provides the constant temperature. Additionally, humidity is important to provide sufficient moisture during the incubation process to avoid dry atmosphere that can make hatching becomes more difficult. As incubation proceeds, an egg will normally become lighter, and the air space within the egg will become larger, owing to the evaporation from the egg.

A. EGG Incubator

Incubators with natural air circulation and CO₂ atmosphere. The principle of operation is based on a fine gravity convection of operating gas in an electrically heated chamber at a high relative humidity. The temperature of incubator is maintained between the ranges of 37-38°C. The thermometer used to measure the temperature at a level or slightly above where the centre of the egg. If the temperature remains beyond either extreme for several days, hatchability may be severely reduced Humidity; the moisture level in the incubator should be about 50 to 55 percent with an increase to about 65 percent for the last 3 days of incubation.

VI. COST ESTIMATION

Table 1: Cost Estimation

SI NO	EQUIPMENT'S	QUANTITY	PRICE (RS)
1	Box , Box closer	1	600
2	Aluminium frame(12ft) & Aluminium net	2	500
3	Time controller	1	650
4	Synchronous motor	1	200
5	Temperature controller	1	220
6	Bottles	4	120
7	Bicycle rim , dynamo	1	450
8	Rivet, strap, bulb, holder, Fan	46	590
9	Square size rode(14ft)	1	500
10	Wire (10m) 3 point plug	1	380
11	Battery (12v 30amps)	1	2000
12	Screw & nut and bold Bearing's	26	350
14	Painting	2	500
	Total cost		8060

The total cost for completion of this work is of about Eight thousand and Sixty Rupees

VII. RESULTS

A. Temperature And Humidity

Table 2: Temperature and Humidity

SI.no	Days	Time	Temp	Humidity
1	1 to 17	Every 24 hours	37.5±3°C	60 to 65
2	18 to 21	Every 24 hours	37.5±3°C	80 o 85

B. Schedule Of Egg Tray

Table 2: Schedule Of Egg Tray

SLNO	STAGE	DAYS	TURN EGGS 180°
1	Earlier	1 to 18	Every 6 hours
2	Final	18 to 21 or 22	No rotation

C. Testing Of Perpetual Motion

Table 3: Output of Perpetual Motion

SI.NO	SPEED (RPM)	OUTPUT POWER (Watts)	OUTPUT VOLTAGE
1	55	5.64	9.3
2	45	4.31	8.23
3	30	3.21	7.23
4	15	1.89	5.79
5	5	0.45	2.45

VIII. PHOTOGRAPHY



Figure 14: Working model of Incubator

IX. CONCLUSIONS

The component designed is easy to maintain, affordable and portable. The prototype microcontroller base incubator is a forced-air incubator which has a built in fan to circulate the air that maintains humidity and temperature at constant level. Turning of the eggs could be done without opening the incubator. . With the working of incandescent lamp, fans and turning mechanism a well-organized design of a hatchery is executed. The concept of free energy is can be made using perpetual motion energy. Here we supplied the power obtained from perpetual motion to fewer parts of incubator using conventional sources of energy.

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Mr. J. JEGAN was Completed B.E and PGDMM in Annamalai University and M.E in SNS College of Engineering and currently working as lecturer in Government Polytechnic College, Kottur,Theni,Tamilnadu.



Mr. E.MUNEESSWARAN., Final Year Student, Mechanical Engineering Department, Government Polytechnic College Kottur,Theni(dt)-625534,Tamilnadu.



Mr. A.DHILEEBANKUMAR., Final Year Student, Mechanical Engineering Department, Government Polytechnic College Kottur, Theni(dt)-625534,Tamilnadu.



Mr. M.AJITHKUMAR., Final Year Student, Mechanical Engineering Department, Government Polytechnic College Kottur,Theni(dt)-625534,Tamilnadu .



Mr. M.MALAISAMY., Final Year Student, Mechanical Engineering Department, Government Polytechnic College Kottur, Theni(dt)-625534,Tamilnadu.



Mr. E.MUTHUSELVAM. , Final Year Student, Mechanical Engineering Department, Government Polytechnic College Kottur,Theni(dt)-625534,Tamilnadu.



Mr. M.PERUMAL. , Final Year Student, Mechanical Engineering Department, Government Polytechnic College Kottur,Theni(dt)-625534,Tamilnadu.



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