



COLLEGE OF COMMUNICATION AND INFORMATION TECHNOLOGY

**AUTOMATIC EGG INCUBATOR WITH BACKUP BATTERY
(AEI)**

A Thesis
Presented to the Faculty of the
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In Partial Fulfillment of the Requirements of the Degree
Bachelor of Science in Computer Engineering

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CERTIFICATION

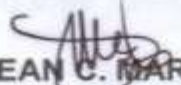
This thesis entitled "**Automatic Egg Incubator with Backup Battery**", prepared and submitted by **Blessed Joy O. Aramay, Mercedes A. Estaris, Princess Angelina B. Dullas** in partial fulfilment of the requirements for the degree **Bachelor of Science in Computer Engineering**, has been examined and recommended for Oral Examination.



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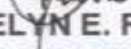
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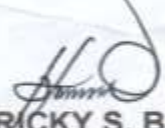
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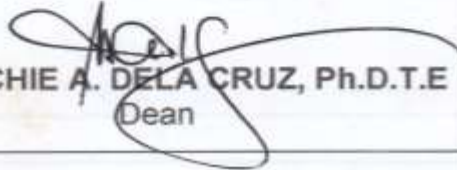

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ABSTRACT

This thesis presents a system that recreates the role of a broody hen plays in nature, the Automatic Egg Incubator with Backup Battery. It creates the perfect conditions for an egg to incubate and hatch successfully. This project aimed to regulate incubation temperature and humidity at perfect levels and maintain continuous power supply using battery that is connected to the UPS.

Unlike previous approaches to egg incubation, the researchers used Arduino Uno to make a timer that automatically commands the synchronous motor to turn the eggs every four hours for about four seconds. An LCD was added to the design to show the four hour requirement. The turning of eggs was required to avoid the sticking of an embryo to its egg shell. The system consists of an analogue thermostat which senses the temperature inside and maintain the temperature at 36°C to 39°C. A synchronous motor was used to turn the egg precisely at the same time. The incubator has a 16 eggs capacity. Heat source was provided by four 5 watts candelabra light bulbs connected in series to the thermostat. To maintain humidity, a water tray filled with lukewarm water was used. Four ventilation holes was designed for proper flow and distribution of air. The incubation period lasted twenty-one days for chicken and twenty-eight days for ducks.

The evaluation of the project design was Very Good in terms of the level of functional suitability, performance efficiency, compatibility, usability, reliability,



COLLEGE OF COMMUNICATION AND INFORMATION TECHNOLOGY

maintainability and portability. In the level of acceptability, the project design obtained a Very Good rating in terms of functionality, ease of use and cost.

The egg incubation resulted four (4) successfully hatched eggs: two chicken and two ducks. The researchers observed that temperature, humidity, ventilation, turning and fertility of the eggs were the important factors to be consider while incubating. Poor results may happen if the aforementioned factors were forgotten. Remember, optimum hatchability and chick quality can only be achieved when the eggs are held under optimum conditions.

THE PROBLEM AND ITS BACKGROUND

Introduction	1
Background of the Study	2
Theoretical Framework	2
Conceptual Framework	4