

2004 Undergraduate Student Project Description

Department of Bioresources Engineering

Project Title: Software Tools for Poultry Management

Faculty/Staff Sponsor: Eric Benson, Gary Van Wicklen and Nick Gedamu

Area of Study: Poultry/Computer Programming

Project Description:

Background: Poultry is an important component of the state and regional economy, representing a \$1.6 billion industry that employs approximately 14,000 employees across the Delmarva Peninsula (DPI, 2002). Poultry house ventilation controllers are becoming increasingly common on the Delmarva Peninsula, with several integrators requiring controllers be included for new housing or suggesting integration into existing houses. The controllers control the fans, air inlets and cooling pads for ventilation control and activate the lighting and feeding systems.

The controllers continually monitor and adjust parameters in the house. As the controllers adjust the environmental conditions in the house, they record the current conditions and changes. Over the course of a flock grow out, an imposing quantity of data is generated. A single house can generate more data than a single person can effectively interpret. Tools are necessary for the growers and integrators.

Proposed Research: Controller data has been collected from an poultry research facility in Georgetown, DE. Each controller saves the data in a slightly different form. The current data is from a research only system (SCADA), however, for maximum benefit, software tools would be developed for the key commercially available controllers. The student would develop tools to help the end user analyze the data. In addition to analysis of existing data, the developed tools would develop predictions for:

- Energy balance
- Ammonia production
- Total air movement

Students can work for credit.

Student Qualifications: Completion of EGTE 115 (Visual Basic programming), EGTE 311 (Thermodynamics for the energy balance), and CHEM 103/4 (Ammonia production)