

2004 Undergraduate Student Project Description

Department of Bioresources Engineering

Project Title: Locating Chickens In a Chicken House
Faculty/Staff Sponsor: Eric Benson, Gary Van Wicklen and Nick Gedamu
Area of Study: Poultry/Machine Vision

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). Chickens are grown in houses that are approximately 50 feet wide by 500 feet long and hold approximately 25,000 birds. Until recently, all of the chickens were caught by hand. Chicken catching has been described as 'one of the worst jobs in America due to the high ammonia environment and other factors. Recently, mechanical harvesting equipment has been introduced to the industry, although adoption has not been wide spread.

Mechanical systems are being introduced to reduce labor and improve animal welfare. The harvesting systems, however, are ideal for automation. The first step in developing an autonomous harvester would be to reliably sense the location of the birds. Sensors have been developed and tested for human presence; bird location has largely been ignored.

Proposed Research: The student researcher will have to research and select an appropriate sensor technology based on similar applications. Several selected sensor technologies, including ultrasonic and IR sensors, are available within the Agricultural Controls and Automation lab in 304 WorriLOW. The student researcher would be responsible for initial laboratory testing and integration of the sensor into an automated data collection system. The student researcher would be responsible for testing and evaluation of the the sensor under both laboratory and field situations.

Students can work for credit in place of EGTE 443 (Instrumentation)

Student Qualifications: Completion of EGTE 111/115 and EGTE 244 (Electricity).