



Colorado Science and Engineering Fair

2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: The Snack Snatcher Stopper: An Automatic Locking Dog Bowl

Finalist's Name: Chloe Whiton

School and City: Centaurus High School, Lafayette

Sponsor's Name: Nicholas Cady

Category: Animal Sciences

Division: Senior (grades 9 - 12)

Abstract (250 words or less):

The goal of this project was to design a feeding system that allows one dog to feed when multiple dogs live together. Meals are curated for the dog eating it and include medications and supplements; if the wrong dog eats the meal it can lead to health issues, food aggression, and potential weight gain from overeating or weight loss from yielding to another dog. Owners are busy and do not always have time to watch their dogs eat and ensure that all dogs get their meal. The bowl was designed using CAD modeling to create the lid and base. The CAD files were 3D printed with PLA plastic. The circuit board was made with SparkFun equipment and coded on Arduino with ChatGPT's help to enhance the project's quality. The circuit board triggers when an RFID tag attached to the dog's collar is read, the motor (attached to the lid) spins 180 degrees closing the bowl. The bowl was assembled using hot glue and super glue. The bowl was tested by asking users for feedback on performance, safety, and user needs. The project was also tested for the previous categories with quantitative tests, including degrees opened and reliability of opening. The results were ranked, and all categories averaged a score of 8.2/10. The bowl has room for improvement in sizing, depth, and materials, but the basic function was achieved.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**