# Neural Nest

Smart Bird Feeder


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## Project Description

For our project we developed a smart bird feeder program that can recognize and log the birds that visit.

## Goals

We wanted to develop a program to recognize the birds that visit but also gave users a way to store and analyze the data their feeder collected. This is why we chose to include a database and user application.

## Challenges

- No previous Python/QML experience.
- Integrating several types of tools into one program, version compatibility.
- Managing the project during school.

Bird visits feeder, sensor is triggered

Picture taken


Picture is sent to model, bird is identified

Bird info is stored

Bird type, Time Visited, Location, etc.

Displayed in app

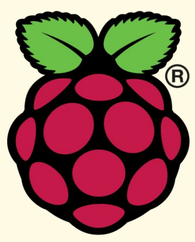
Information is shown in the app for the user

## Software used:

| QML/Python | OpenCV | Roboflow BirdV2 Model | SQL Database |
|---|---|---|---|
| Used to create the app's UI and connect all of the backend functionality | A Python Library used for image pre-processing (Clean up) | A trained deep-learning model that identifies the birds | Where all of the gathered data is stored, allows tracking over time and other analysis |
| Qt  |  |  |  |

## Future Plans:

- Design a physical feeder, integrate program into hardware. Most likely with a Raspberry Pi
- Train our own model using a custom dataset
- Setup and test multiple devices in separate locations, build a local bird tracking network.



Raspberry Pi