

EE/CprE/SE 491 WEEKLY REPORT 4

-2/24/26-2/31/26

Group number: sddec26-04

Project title: Squirrely Bird Feeders - Using AI to outsmart the Squirrels

Client &/Advisor: Randall Geiger

Team Members:

- Wyatt Sinclair
 - Jack Morrison
 - Miles Nichols
 - Kenny Tran
 - Benjamin Bartels
 - Nolan Hoenert
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- **Weekly Summary:** We worked on the design documents, reviewing engineering stands, and creating project requirements. Create a block diagram for our advisor, meet with him, and reschedule the meeting dates to better suit team members.

 - **Past week's accomplishments**
 - Jack Morrison: Finalized and rendered our block diagram to show to our client/advisor. Also looked into how to structure/host our remote services.
 - Wyatt Sinclair: Shifted focus from building my own AI system to a project that was already built for detecting birds and classifications. [ccrenfroe/BirdCam: Bird detector and classifier implemented using a Raspberry Pi and Tensorflow Lite](#). Looked into how this birdcam uses a Raspberry Pi with TensorFlow Lite. Did some parts for the design documents requirements.
 - Nolan Hoenert: Worked on looking into parts for the feeder and weighing the pros and cons of each. Also wrote down a summary of the weekly meeting.
 - Benjamin Bartels: Made 3D models for the initial gate design, bird feeder base, and incorporated the manufacturer's 3D models for the sliders into an assembly for the early design of the bird feeder model. Also came up with a bill of materials to order.
 - Kenny Tran: Brainstorming with Jack and Ben on gate design to mitigate the feed clogging issue.
 - Miles Nichols: Worked on the second part of the design document: requirements

○ **Pending issues:**

Wyatt Sinclair: N/A

Jack Morrison: N/A

Nolan Hoenert: N/A

Miles Nichols: N/A

Kenny Tran: N/A

Benjamin Bartels: N/A

○ **Individual contributions:**

<u>NAME</u>	<u>Individual Contributions</u> <i>(Quick list of contributions. This should be short.)</i>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Jack Morrison	Rendered block diagram to a professional model. Also worked on the remote service structure.	6	24
Miles Nichols	Worked on the requirements for the project to contribute to part 3 of the design document.	6	24
Wyatt Sinclair	Evaluated BirdCam as a baseline AI framework, researched how its Raspberry Pi + TensorFlow Lite image classification pipeline could support our project, and identified ways to extend the model toward squirrel vs bird detection	5	23
Nolan Hoenert	Researched different bird feeder styles	6	24
Kenny Tran	Exam prep, less work than normal. Started work on figuring out specs for ordering parts	4	22
Ben Bartels	3D model of the bird feeder gate and the bird feeder, came up with a bill of materials for us to order.	6	24

- **Comments and extended discussion**

[Squirrely Bird Feeder Design Sets - Google Docs](#)

- **Plans for the upcoming week** *(Please describe duties for the upcoming week for each member. What is(are) the task(s)? Who will contribute to it? Be as concise as possible.)*

- Jack Morrison: Begin planning what software stacks to use for our remote services and what premade (open source) solutions to use for certain components.

- Miles Nichols: Start on the 3rd part of the design document, making sure it aligns with the project scope.

- Kenny Tran: Figure out the requirements for our pi so we know which to order. Spring break

- Benjamin Bartels: Compile and submit as much of the bill of materials as we have ready and send it to get approved and ordered. Redesign the 3d model for the gate and the bird feeder.

Wyatt Sinclair - Continue looking into BirdCam and how I could implement it to better fit our project. This includes how to modify it to classify both birds and squirrels. Need to consider how ot could support the automated gate response time.

- Nolan Hoenert: continue building out the block diagram, and work on narrowing down parts to purchase.

- **Summary of weekly advisor meeting:**

We first proposed to move the meetings to Monday at 1 pm, and our advisor agreed, so the meetings are now on Monday at 1 pm. Our advisor let us know he was going on vacation and would not be able to attend the next 2 meetings. We then discussed the reliability and efficacy of third-party algorithms for detecting bird species. We also showed our advisor our block diagram and described it to him, and he liked it. We then introduced our model of the first gate design and discussed what worked and also some potential problems with it. We discussed getting guidance from someone with more experience in gate design, or from someone who has knowledge about birds and bird feeders.