EE/CprE/SE 491 WEEKLY REPORT 5

2/24/26-2/31/26

Group number: sddec26-03

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

- **Weekly Summary:** Prototyped the machine learning algorithm to accurately predict squirrels and birds. Used when2meet to try and find a better time for all of us to meet, since right now the meeting overlaps with class for one of the team members.

- **Past week's accomplishments**
  - Jack Morrison: Worked on starting to build some layouts for potential user interfaces, using figma. Also researched hosting options for our remote compute.
  - Wyatt Sinclair: Changed the birdcam model to incorporate a squirrel model from Keras. This can accurately train and predict whether a photo shows a squirrel, a bird, or an empty space.
  - Nolan Hoenert: Reviewed existing bird feeder designs and explored how different layouts could affect camera positioning, sensor coverage, and gate functionality.
  - Benjamin Bartels: Finished making the parts list and submitted the BoM to the SD Parts Order Request website. Also reached out to Prof. Geiger to let him know we have submitted the request, and if he would review it and approve it, so we can get our requested parts ordered.
  - Kenny Tran: Worked on prototyping UI in figma for user application.
  - Miles Nichols: Researched image to dataset conversion so the machine algorithm can extract features and make accurate predictions.

- **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

Everyone: Waiting for parts to get ordered and arrive

- **Individual contributions:**

NAME	Individual Contributions *(Quick list of contributions. This should be short.)*	Hours this week	HOURS cumulative
Jack Morrison	Worked on some UI layouts, and remote hosting research.	4	28
Miles Nichols	Looked into part 3 of the design document and did research on extracting features from images for the machine learning algorithm.	6	30
Wyatt Sinclair	Changed the birdcam model to incorporate a squirrel model from Keras. This is able to accurately train and predict squirrel, bird, or empty from a photo.	8	31
Nolan Hoenert	Started block diagram iterations	6	24
Kenny Tran	Prototyped UI design in PowerPoint	6	28
Ben Bartels	Finalized the Bill of Materials and submitted it to the Senior Design Parts Order Request website. Reached out to advisor to ask him to review and approve the order.	5	29

- **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: Look more into ready-made services to fill in our existing diagram structure and get a poll started for our hosting options as well.

  • Miles Nichols: Start on the 3rd part of the design document, making sure it aligns with the project scope. Help connect Wyatt's AI detection algorithm to my feature extraction process.

  • Kenny Tran: Finish linking the UI pages to make it functionally fake, possibly start implementing in Android Studio.

  • Benjamin Bartels: Work on the 3D model for the birdfeeder and update the design for the new door design.
  Wyatt Sinclair - Make a detailed list of how the software runs and its functionalities, along with how it connects to other parts of the project.

  • Nolan Hoenert: Iterate on the block diagrams, and make detailed listings of different parts for the project.

- **Summary of weekly advisor meeting***:*

Short meeting this week. Posted a when2meet link to reschedule around a better time that everyone is available (in-person preferred) https://www.when2meet.com/?35725998-fcwsA
Geiger will be meeting us online next week because of travel