EE/CPRE/SE 492

Weekly Report 13

Goose Chaperone

SDDEC19 - 17
10/18/2019 - 10/25/2019

Client/Advisor:
Randall Geiger

Team Members:
Weston Berg
Zhihao Cao
Alec Morris
Johnson Phan
Woodrow Scott

Past Weeks Summary

The team is fully involved in the prototyping phase. Component testing is underway. Continued work on the image processing model. Model is now able to successfully identify geese and several other objects with high accuracy. Work on how everything is getting mounted to the final prototype chassis has begun.

Past Weeks Accomplishments

- Small prototype hookup - Weston
- Battery, motor, wheel research and ordering - Weston
  - Single bearing mounting of motor to wheel is desired mount option
  - Bearing for stepper for swivel mount can just be some washers
- Tensorflow training, debugging, and refinement. - Woodrow
  - Made to work with OpenCV and capture multiple simultaneous objects in real time
  - Began working on overall software solution to combine system components
  - Improved utility programs

- - Upgraded to a faster ssd_mobilenet base model while keeping accuracy high
- Tensorflow catch up - Johnson
  - Partly catching up to Tensorflow activities
- Distance Sensor Calibration - Zhihao
  - Distance sensor calibration down.
- GPS Interface created and tested. - Alec
- Soldered gps module - Alec

Pending Issues

- Mounting motor to chassis, motor to wheel
- Powering components
- New light model needs refinement, extract tensor information in OpenCV.
- Account for blurry camera footage, not expected to be a significant problem once mounted.

Individual Contributions

Team Member	Hours (Report Duration)	Cumulative Hours
Weston Berg	12	94
Zhihao Cao	6	43
Alec Morris	8	54
Johnson Phan	9	60
Woodrow Scott	25	81

Plans For Upcoming Weeks

- Weston Berg
  - Continue developing the small prototype and testing out components.
  - Flesh out how all the components will be getting power.
  - Finish final ordering of parts
  - Help in the development of robot's main logic loop
- Woodrow Scott
  - Improve trained model
  - Help integrate component logic
  - Create more detailed plan for robot logic
  - Work on improving GPS reliability

- Johnson Phan
    - Continue to learn Tensorflow
    - Look for proper screws for PVC model
- Zhihao Cao
    - Distance sensor test down now connect sensor with Beaglbone and develop Python code and test functions.
- Alec Morris
    - Continue GPS development. Add increased focus.

Weekly Advisor Meeting Summary
N/A