

CprE / SE / EE – sddec26-11

CyFlyBot: Collaborative CyBot and UAV System for Faster Missions

Week 6 Report

October 1st 2026 – October 7th 2026

Client: Dr. Rover and Dr. Jones

Faculty Advisor: Dr. Rover and Dr. Jones

Team Members:

Daniel Bieber

John Brittain

Jake Nickel

Caleb Sanchez

Tu Reh

Ping Wu

Mitchell Fowler

Weekly Summary

There was good progress all around this week. While trying to fix the UGV team members decided that it might be a good idea to spend our budget on a new UGV. Members added a start mapping button to the frontend of the UI that will instruct the UGV to begin mapping. ROS2 Hardware/Software node integration had progressed in the movement and got a good start on the LiDAR. Hardware made progress with putting the drone together, as well as software moving forward with testing the drone on simulation.

Past Week Accomplishments

- Hardware
 - UGV
 - Further reconstructed UGV
 - Backup UGV purchased
 - Lidar Node further developed
 - Raspberry Pi board fully functional
 - UAV
 - Sourced sensing boards for imaging deck
 - Prototype board further developed
 - Custom frame for prototype board and UAV designed
- Software
 - UGV
 - Continued testing the start trigger issue
 - Started looking into software and hardware merge for cybot
 - UAV
 - Made progress on Drone localization based on ArUco markers
 - Frontend
 - Worked on fetching UAV camera feed and mapping from simulation
 - Implemented full screen feature for camera feed and manual control feature of UAV
 - Implemented start trigger for mapping and attempted/design flight commands
 - Received camera feeds in the frontend from the UAV

Individual Contributions:

NAME	Contributions	Weekly Hours	Total Hours	Attended General Meeting
John Brittain	Sourced / Ordered two XIAO ESP32-S3 sensing boards for UAV imaging deck + Dualband Travel Router to host local network. CrazyFlie Prototype board connects both XIAO's to the UAV for power. Designed a 3D printable frame	5.5	25.5	yes

	to mount the two cameras onto the UAV.			
Daniel Bieber	Developed implementation for the Lidar Node for Ros2. Set up Raspberry Pi board	5	29.5	yes
Jake Nickel	Continued testing the start trigger issue Started looking into software and hardware merge for cybot	5	30	yes
Caleb Sanchez	Worked on Drone Localization based on aruco markers in warehouse	5	36	yes
Tu Reh	Worked on fetching UAV camera feed and mapping from simulation. Implemented full screen feature for camera feed and manual control feature of UAV.	6	27	yes
Ping Wu	Implemented start trigger for mapping and attempted/design flight commands from the UI. Received camera feeds in the frontend from the UAV	6	24	yes
Mitchell Fowler	UGV Reconstruction and sourcing Document Creation (Robot Handling and Role Change)	5.5	33	yes

General Meeting Review

The general meeting was used for the teams to understand where each member was and where we needed to go forward. Initially, Hardware discussed the issues with UGV as well as the node integration, while software proceeded to talk about the issues affecting Frontend Simulation. Solutions were discussed with the results to be discussed next week. Deliverables for the week were also discussed, including updated website and diagrams.

Summary of Weekly Advisor Meeting

During this week's advisor meeting, the team discussed the current issues with the UGV and how we planned to resolve them. We were suggested to reevaluate our plan to ensure all our hardware was similar for the motors that were likely to be replaced. The suggestions were replacing all 6pin motors with 4pin motors or determining if it was possible to leave off the encoder pins from the 6pin motors to handle the new board. The advisors gave more suggestions for improving our system diagram, including creating a simulation diagram.

We were also requested to make a document about how our project management has evolved and how our roles on the team have changed.

Extended Discussion

This week was another "brick in the wall" type of week. There was nothing outstanding, but there is steady progress being made on all fronts. The UGV has been worrying, as time is of the essence, but an entire replacement has been ordered and is being tested. By the end of next week, we would like to be testing the actual nodes on it, along with the UAV. Frontend simulation is also being worked on.

Pending Issues

- Hardware
 - UGV reconstruction
 - The ROS2 LiDAR node and CyBot nodes need further implementation and testing
- Software
 - UAV will disconnect as soon as we try to input a flight command from the UI

Plans for Coming Week

- Hardware
 - UGV raspberry pi integration
 - Continue developing and testing the ROS2 LiDAR node on the Raspberry Pi
 - set up the travel router for local network communication.
- Software
 - localization with the drone using ArUco markers
 - Fix UAV disconnecting from frontend after control input
 - refine the frontend's visual design and overall user experience