

Team Number: Group 32

Project Title: Multiple Drones Coordination System

Report Date: 03/31/2025

Part one:

All team members have detailed tasks listed on Team's Planner: YES or NO; if NO, explain.

Yes.

Please answer the following questions:

1. Have you met as a team this past week? If yes, give date/time, and the members attended the meeting. If no, explain.

Yes, we met to put together DEMO2 and to discuss how to progress after DEMO2.

2. Have you met with the sponsor as a team? If yes, give date/time, and the member attended the meeting. If no, explain.

No, we did not meet with the sponsor this week. However, we had the 2nd DEMO presentation

3. Describe verbally the tasks completed the past week and the challenges faced.

Tutku Gizem Guder (Target Detection Subsystem)

- Upon optimizing the algorithm in the simulation platform for performance and accuracy under different real-life conditions, I tried to (once again) use the Unreal Engine, but it did not work. Integration part is a big challenge due to the Windows-Mac mismatch.

4. Describe the tasks to be completed the coming week.

Tutku Gizem G. (Target Detection Subsystem)

- Integrating the algorithm to the drone.

Matthew Wyatt (Data Management and Communications Subsystems)

- Continue to sync data with AirSim, the user interface, and our MySQL database as well as work to bring communications between other AirSim-specific subsystems.
- Test and debug integrations between the other subsystems and AirSim.

Matthew P.(User Interface)

- **Integration:** Debugging UI and integration of live metrics with arisim.
- **Testing and Feedback:** Conducted user testing and gathered feedback for improvements.

Student Name	# Tasks completed past week	# Tasks not completed	# Tasks for next week
Brenden Martins	0	1	1
Matthew Paternoster	N/A	1	1
Matthew Wyatt	2	0	2
Tarek Kayali	2	1	N/A

Tutku Gizem	1	1	1
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Name of the Member: Tutku Gizem Guder

Report Date: 3/31/2025

Although still not able to get Unreal Engine to respond in my Macbook, I was able to complete all the necessary optimizations and testing to ensure the algorithm is running as it's supposed to. It detects targeted objects, can stop following an object to track another one (upon pressing space). These are tested to be applicable in the complexity of real-life situations.

Coming Up Tasks

- Integrating the algorithm to the rest of the project.

Name of the Member: Matthew Wyatt

Report Date: 3/31/2025

List the following:

- All tasks completed the week before the past week (completion date in parenthesis). This is copied from the last report, and if this report is the first one, skip.

(3/30/2025) AirSim Integration (Drone Control, Target Detection, Simulation Environment)

Description: Began integrating the AirSim simulation environment with the project subsystems, including Drone Control, Target Detection, and Simulation Management. Initial integration steps were completed, but bugs were discovered during integration testing, which delayed full completion.

Outcome: Integration is partially complete. Bugs identified during testing are being addressed to ensure seamless functionality between the AirSim environment and the project subsystems.

(3/30/2025) **Integration Testing**

Description: Perform integration testing for the AirSim environment, Drone Control, and Target Detection subsystems. Ensure all components work seamlessly together and meet project requirements.

Outcome: Identified issues for resolution to be fixed next week to fully integrate the various subsystems into one singular working prototype.

2. All tasks completed the past week (completion date in parenthesis)

a. (4/6/2025) **Subsystem Data Integration (User Interface Subsystem with Database Subsystem)**

Description: Integrate the User Interface Subsystem with the database and other project subsystems (already integrated with simulation environment). Ensure that the UI can display real-time data from the Drone Control and Target Detection subsystems during simulation.

Outcome: Displayed a fully integrated User Interface Subsystem that provides accurate and real-time data visualization for the simulation environment.

b. (4/6/2025) **Project Testing and Debugging**

Description: Conduct comprehensive testing and debugging of the integrated system, including all subsystems and the AirSim environment. Identify and resolve any remaining issues to ensure the system meets project requirements.

Outcome: A stable and fully functional system that is ready for further development and deployment.

3. All tasks you are currently working on or planned for this coming week (completion date in parenthesis)

a. (4/12/2025) **Final Presentation Setups**

Description: Prepare the final presentation setup, including debugging the integration of subsystems, organizing the demonstration environment, and ensuring all required materials are ready for the presentation.

Desired outcome: A polished and professional presentation setup that effectively communicates the project's goals, progress, and outcomes.

b. (4/12/2025) **Presentation Testing and Debugging**

Description: Conduct testing and debugging of the final presentation, including rehearsing the demonstration, verifying the functionality of all subsystems (includes simulation environment, control system, target detection, user interface, data management, and communications), and addressing any issues that arise during the presentation rehearsal.

Desired outcome: A seamless and error-free presentation that demonstrates the project's success and functionality to the sponsor.

Name of the Member: Matthew Paternoster

Report Date: 03/24/2025

Implementation (2/26):

- **Testing and Feedback:** Continue to debug and refine the UI and live metrics integrated with airsims. Python server

connects successfully with AirSim, however the drone feed does not work still.

- **Testing Integrated System:** Drone feed still not displaying correctly, still trying to debug.

Next Steps:

Still having difficulties trying to debug the live feed not displaying, trying to research if others have had similar issues with using this older version of UE and Python.

Name of the Member: Brenden Martins

Report Date: 3/24/2025

List the following:

1. All tasks completed the past week (in this example template, tasks between 1/20 and 1/26) (completion date in parenthesis) Highlight these tasks headers in green.

None (03/31/25)

2. Tasks you attempted but did not get to complete due to time constraints or other factors in the week (in this example template, tasks between 1/20 and 1/26).

Complete Integration of Subsystems (03/31/25)

Due to multiple factors, such as complications with differing OS and converting things from Unity to Unreal, we are having a couple issues that we are

currently working on between the other subsystems. This should be completely dealt with the end of the next week.