

Boeing Drone V2 Project Team Charter  
ME476C: Capstone I  
Signature Cover Page

Each team member will copy the following statement in their own handwriting  
(LEGIBLY) in one of the designated  
areas below:

I agree to do an equal amount of work in the team. I understand that my grade will  
reflect my effort in the team. (See end of document for handwriting)

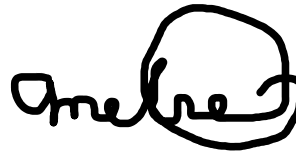
Print Name: Dylan Boeholt

Signature:



Print Name: Jose "Andre" Bonillas

Signature:



Print Name: Connor Davidson

Signature:



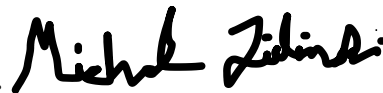
Print Name: Jeremy Malmo

Signature:




Print Name: Michael Zielinski

Signature:



## **Team Purpose & Overview**

The Boeing Drone V2 team is assembled to design a drone frame integrating commercially purchased flight parts with the capability of engaging and deploying selected payloads. The payloads will consist of an object of at least 30% of the drone's net weight, and a camera capable of surveying an area. The Boeing Company will be financing the project with an initial investment of \$3000, with expectations to complete the “Boeing Drone Recon Mission Demonstration”. 

The demonstration will consist of an unloaded flight to the location of the payload, with expectations of engaging with said payload and dropping it off at the designated area. Without landing, the drone must then attain the surveying camera and capture a photo of the test field. Finally, the drone must release the camera softly and land in the designated zone. All dropped payloads must be positioned to where they can be picked up again. The team is also tasked with registering the drone properly through the Federal Aviation Administration (FAA) and abiding by the B4UFLY service.

## **Team Goals**

1. Work closely with The Boeing Company to fully understand the project needs and requirements.
2. Test and salvage parts from Team Hi-jacks and determine usability.
3. Develop a working drone for under \$3000.
4. Complete the Boeing Drone Recon Mission Demonstration without failure.
5. Learn about career opportunities and make connections with The Boeing Company.
6. Design drone with autonomous capabilities.
7. Design a sturdy drone to support a minimum of 30 % of its weight in payload capacity.
8. Complete assignments ahead of schedule.
9. Earn an A in the class grade.
10. Develop an efficient and reliable payload delivery system

## **Team Position Descriptions**

1. Project Manager: Manages tasks, develops overall schedule, runs meetings, reviews individual contributions, provides safe and welcoming team environment, does NOT make all decisions (rather facilitates discussion of the team to arrive at team decisions). Ensures project compliance with any NDAs or federal regulations.

2. Finance & Admin: Oversees all purchases, main contact with Dean's office for budget management, monitors and records all purchases for budget tracking, updates Bill of Materials. Handles website development and manages the Microsoft Teams.
3. Logistics Chief: Manages internal and external communication (point of contact for client), documents meeting minutes, manages facility and resource usage. Ensures all team assignments are turned in on time and documents look nice and are formatted properly. Maintains to-do list for team.
4. Electronic Systems Engineer: Performs analysis and design of all electronic and power delivery systems. Determines what commercial parts are required for the successful operation of the drone/payload electrical system.
5. Fabrication Engineer: Coordinates fabrication of design (does NOT do all manufacturing themselves), reviews design at all steps, ensures design can be manufactured, finds outsourcing opportunities manufacturing can't be done in-house, develops schedule of manufacturing. Additionally coordinates and oversees CAD development throughout project, creates protocol for revision management, manages CAD files, ensures CAD model matches physical design.
6. Flight Engineer: Coordinates the aerodynamic design of the drone frame including thrust and lift calculations. Maintains proficiency in the operation of the drone system during flight, including in autopilot flight control programs (if enabled). Supervises other team members in safe and controlled flight.
7. Payload Engineer: Coordinates the design and functionality of the payload attachment system and calculates payload limitations based on aerodynamic properties. Works closely with Flight Engineer and Electronic Systems Engineer to integrate the payload system into the airframe and powerplant.

### **Team Positions**

1. Project Manager: Connor Davidson
2. Finance & Admin: Michael Zielinski
3. Logistics Chief: Jose "Andre" Bonillas
4. Electronic Systems Engineer: Michael Zielinski
5. Fabrication Engineer: Jeremy Malmo
6. Flight Engineer: Dylan Boeholt
7. Payload Engineer: Jose "Andre" Bonillas

### **Team Personalities – Based on the Myers-Briggs Type Indicator (MBTI)**

Dylan Boeholt – According to the MBTI, I am a logistician with letters ISTJ. I am more introverted than extroverted. I enjoy socializing and networking with new people but have a limit and will need time alone during each week. I prefer to get work done in a small group away from public activities. I am also observant. I look at the facts of the situation in front of me. I analyze those facts to find a solution when needed. I can often have high expectations for myself and will look at others for similar values. This can appear judgmental and rigid at times. I bring experience to this team and as flight engineer with history of flying drones. I also have background knowledge about the rules of airspaces from my past flight lessons.

Jose “Andre” Bonillas – According to MBTI, I am an advocate with the letters INFJ-T (Introverted, Feeling, Intuitive, Judging and Turbulent-Advocate), I am more introverted than extraverted; which means I tend to prefer smaller yet more meaningful social interactions. My mind is more intuitive than observant, which for me means I am incredibly open minded and curious. I am also more judging than prospecting, so I am decisive, thorough, and organized. Since I can be considered an advocate, I know that I can support my team with their opinions and ideas, which will help them do the best that they can for the project and to better themselves. Also, since one of my roles in the team is Logistics Chief, I can advocate for my whole team and even for my individual teammates when I communicate with the client, sponsors, or with another clientele. In the same vein, I also care about integrity, and I care about doing what is right, I will fully do right by my teammates and support them to the best of my capabilities, and I will try my hardest to make the right decisions based on the values and objectives of our team.

Connor Davidson – According to the MBTI, I am a commander with the letters ENTJ-A. I am more extraverted than introverted. I think very logically and do not let my emotions take over. I am a go with the flow type of person as well, so I like to take on problems as they come and can adapt to any situation. I thrive in team situations and helping my team reach the highest level that can be accomplished. As the project manager, I bring to the team a level-headed and logical approach to leadership. I believe in leadership not management and plan to implement this into the project. This means I plan to lead by example rather than boss everyone around. I am also an open-minded person that is always ready for new ideas and ways to do tasks. I plan to implement this by listening to all my team members and running a team first group.

Jeremy Malmo – According to the MBTI, my personality is ENTJ-A. I favor being an extrovert and am more intuitive than observant. When it comes to decision making I prefer to side with logic over emotions and am more assertive. I work well under pressure and enjoy developing innovative solutions. I have a strong background in general fabrication, 3D manufacturing, and Computer Aided Design (CAD). Beyond this, I have experience in leadership and strive to lead through example. I will be serving as the team's fabrication engineer and am excited to create innovative solutions and coordinate the development of parts.

Michael Zielinski – According to the MBTI, I am an ISTP (Introverted, Observant, Thinking, and Prospecting) which is a “Virtuoso”. According to 16Personalities, Virtuosos “thrive on diversity and unpredictability”. It also notes that Virtuosos are prone to not dealing with projects that cannot be completed in real time. Some of my strengths include being handy and resourceful, able to go with the flow, independent, and grounded. Some of my weaknesses include being insensitive, easily bored, private and reserved, and overly skeptical. This assessment is accurate of my personality. As the Finance/Admin, I bring to the table my experience in the Dean’s office of handling Capstone finances as well as a decent amount of experience doing web design and formatting. As the Electronic Systems Engineer, I bring my experience from my undergraduate research building a drone. Beyond this practical experience, I bring over 15 years of leadership and conflict resolution training in organizations like Civil Air Patrol and Boy Scouts.

## **Ground Rules**

### **Meeting Rules**

The team will meet every Tuesday at 4 o’clock in person (if available to) in Engineering Rm 323. During the meetings, the project manager will start the meeting off with an overview of what will be discussed in the meeting. After this, every member will explain what they have been working on the past week and what plans they have for the next week. Once everyone has talked, the floor will then be open for discussion and work on the project that was scheduled. ▼

### **Accountability Rules**

Every team member is expected to complete their assigned tasks within the allotted time. If any team member is found not hitting these expectations or not abiding by the rules and norms of this charter, the project manager will have a sit-down conversation with the team member to define what the problem is and create solutions to make sure that it does not happen again. If the problem continues or the project manager is the person having one, then there will be a team meeting to have everyone weigh in on it. If the problem continues after this, then the issue will be taken to Professor Willy.

### **Rules of Engagement**

In any situation where a team member is communicating via text, email, team, in person, etc. with any other team member, faculty member, client, or stakeholder, the conversation will be conducted in a professional and respectful manner. In team meetings, everyone must be allowed to speak their mind without harmful criticism. Decisions can be proposed by any member of the team and must be agreed upon by everyone in the team before implementation. If there is a disagreement within the team, it

is expected that the disagreement will be debated, not argued, within the team. After this if there is no agreement, the decision will fall to a vote where the majority wins. Participation in team meetings is required and every team member is expected to have a high level of commitment to this project.

### **Potential Barriers and Coping Strategies**

Dylan Boeholt is in AFROTC which can be time consuming, and he will be out of town occasionally. To avoid conflicts, he will give early notice of ROTC events, and the team will plan accordingly with Dr. Willy and the client when needed.

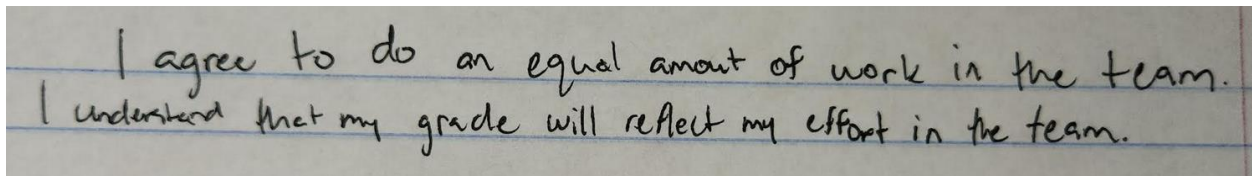
Another potential barrier that our team will face is time management and time alignment with other commitments. To cope with this, we will be using applications such as TimeTree to communicate our schedules effectively.

One last potential barrier that our team could face would be the limited resources. During the project, the team understands that multiple iterations of the design will be needed, and resources and funding might be a potential barrier. This can be solved by overshooting the goal of \$300 in fundraising to make sure this never becomes a barrier.

Reference Ground Rules for Difficult Group Discussions for specific discussion on conflict resolution.

### **Equal Work Acknowledgement Statements**

Dylan Boeholt



I agree to do an equal amount of work in the team.  
I understand that my grade will reflect my effort in the team.

Jose Andre Bonillas

I agree to do an equal amount  
of work in the team.

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reflect my effort in the team.

Connor Davidson

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Jeremy Malmo

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