Spring 2025 ECE 445 Team Contract

Instructions: The content of this document should be specific to your goals and needs. Ideas for the content of each section are provided as suggestions.

Project No. and Name	**1, Ant-weight Battlebot - Scooper**
Member Name, netID	Yuxuan nan,yuxuann2
Member Name, netID	Zilong Jiang, zjian4@illinois.edu
Member Name, netID	Justin Leong, jyleong2@illinois.edu

ECE 445 is a project-based course. The course includes both team and individual grades. Project teammates generally all get the same grade for team assignments based on the expectation that all team members do their fair share of the work involved. The purpose of this contract is to lay out the tasks needed for the successful completion of the project and distribute them in a fair and efficient way to the team members. It will also discuss how the teammates will work together during the project and address any issues that come up. A contract that promotes good teamwork that leads to a successful project should:

- Acknowledge that each team member has commitments and responsibilities outside of ECE 445
- Encourage open communication about challenges that team members are facing, both in and out of ECE 445
- Give team members the benefit of the doubt and the opportunity to explain themselves when something goes wrong and resist jumping to judgement

Project Description:

We are developing a 3D Printed Bluetooth-controlled Battlebot powered by an STM32 microcontroller. The Battlebot is designed for an Ant-weight combat robotics competition and will feature a high-torque drivetrain, a pneumatic weapon system, and a structurally reinforced chassis. The goal is to create a durable and competitive battle-ready robot capable of outlasting and defeating opponents in the competition.

Project Goals:

- Precise movement and speed control using two high-torque DC motors with an H-bridge circuit.
- A functioning Skid Bucket weapon system capable of destabilizing opponents.
- A durable 3D-printed PLA+ chassis with optimized weight distribution for stability.
- Efficient power management, ensuring the 3S 11.1V LiPo battery can sustain operation throughout a full battle match.

Expectations (ground rules) for each member: *Try to list six or more minimum expectations. Consider aspects such as preparation, participation, feedback, responsiveness, etc. Try to explicitly list anything that could potentially turn into a problem. Find ways to encourage everyone to communicate (this may also fall under "tasks").*

1. Active Participation: Each member must contribute equally to discussions, design, and implementation.
2. Timely Communication: Respond to messages and emails within 24 hours.
3. Task Ownership: Complete assigned tasks on time and update the team on progress.
4. Constructive Feedback: Provide feedback in a respectful and helpful manner.
5. Regular Meetings: Attend scheduled team meetings and lab sessions.
6. Documentation: Properly document design choices, test results, and any issues encountered.

Roles: Do you see this team performing well because everyone works together and contributes equally? Are there certain aspects of the project that some teammates excel at? Can tasks be spread among individuals to optimize progress toward the final product?

Yuxuan Nan & Justin Leong: Responsible for **software development**, including STM32 microcontroller programming, wireless communication, and motor control.

Zilong Jiang: Responsible for **hardware design**, including power systems, motor drivers, battery management, and circuit protection.

Collaboration: While primary responsibilities are assigned, all team members will assist each other as needed to ensure smooth integration of hardware and software components.

Project Meeting Time(s): *The team will meet at the scheduled team meeting with TA each week. Can you also preset an ideal time for team meetings in the lab (your team may need to sign*

up for lab bench access)? Is your team interested in meeting to work on other aspects of the course together such as project research?

Weekly TA Meeting: Monday 6 PM.- 6:30 PM

Lab Work Meetings: Tuesdays and Thursdays, 4:00 PM - 6:00 PM

Additional Team Meetings: Friday, 2:00 PM

Agenda: *Who will set the agenda? Beyond the weekly meetings with the TA, what will the team do to ensure that it stays on track during the semester? When a decision needs to be made, will it be approved by consensus or majority vote? Will a team member be appointed to keep records?*

Zilong will create and distribute meeting agendas before each meeting.Team decisions will be made by consensus, with voting if necessary.Notes and action items will be recorded and shared via a shared document

Process and penalties for dealing with team issues: What happens when ground rules are broken? Who intervenes? What happens if the situation escalates? Always remember not to jump to judgement. Give group members the benefit of the doubt and the opportunity to explain themselves when something first goes wrong. TAs and instructors are available to help resolve issues.

When ground rules are broken, we will all collectively talk to them to see what is happening and their current situation. There can be multiple causes as to why someone may be breaking rules and we shouldn't make assumptions right away; we should let each group mate explain their circumstances. Intervention will usually be carried out by people who didn't cause the issue. If the situation escalates, we will see if a TA or if required, a Professor, can help talk to them and set them on the correct track if there are team issues whether it be personal matters or just a bad situation.

End-of-term agreement on using final peer assessment for grade adjustment: Do you believe that this contract should hold your team accountable to its contents or that it may hold little value? There will be two formal peer assessments this semester. The first is used only to

provide honest, constructive feedback to each team member. The second peer assessment affects a teammate's grade. Without accountability, many promises go by the wayside.

We believe that this contract will hold our team accountable and make sure that everyone is participating properly or contributing their fair share. Even without the contract, we all believe that we will all contribute our fair share of work to make our project successful.

Signatures: Iterate on this document until everyone is comfortable with its contents and signs (it is okay to type your printed name as your digital signature).

I affirm that I participated in generating this team charter and that I will abide by its contents to the best of my ability. Furthermore, I understand that failure to meet the expectations expressed here can lead to the stated consequences.

netID: _yuxuann2_____(digital) Signature: __Yuxuan Nan_____

Date: 2025/2/13

netID: _jyleong2_____ (digital) Signature: __Justin Leong_____ Date: Feb 13, 2025

netID: ____zjian4___ (digital) Signature: _____Zilong Jiang___ Date: 02/13/2025