# **Spring 2023 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.

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| **Project No. and Name** | **#1, GreenCan** |
| Member Name, netID | Matt Wildenradt, miw3 |
| Member Name, netID | Ifesi Onubogu, onubogu2 |
| Member Name, netID | Michael Obunike, obunike2 |

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: *Short description of project*

Our project crushes cans while implementing several safety features (make sure it only crushes empty cans, make sure it crushes nothing except the can, make sure it isn’t drawing too much current to crush said can), and counting the total number of cans crushed and making sure it has room in its storage vessel to crush more cans.

Project Goals: *If the team is successful in its purpose, what hardware and software achievements will attest to this?*

We have three main subsystems. They are the can-crushing system, the control system, and the can collection system. Hardware wise, if our team is successful, we will have a load cell capable of weighing a can, a motor capable of crushing a can, a button that is pressed if the safety door is closed, a potentiometer that can detect the position of said motor, and an IR sensor capable of detecting when a can falls. These will also all be connected to a PCB we will make, which will be able to use an Arduino display to show the number of cans crushed and will run software that uses all the hardware previously mentioned to carry out the high-level requirements of the projects listed in the description. In short, if the machine only crushes empty cans and counts how many cans are crushed and doesn’t crush when the door is open and doesn’t crush when we’ve crushed too many cans and won’t crush a seemingly valid can if it draws too much current, and only crushes cans after the crush button is pressed, our software is good. The fact that it has the basic capability to do those things through software from our chip will indicate that the hardware is good.

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. Maintain communication (if you do something for the project or find info, never go more than a day without updating the team on what’s new)

2. Remain informed (always be aware of upcoming deadlines and issues, along with where everyone else is in their respective parts of the project)

3. Take responsibility for their work (once work has been assigned, it should be expected that the work will be finished by that teammate)

4. Use time efficiently (be able to recognize when too much time is being sunk into a task and a new approach needs to be taken)

5. Be respectful to one another (consider your teammates to be your equals and listen to their ideas appropriately)

6. Don’t hesitate to ask for help (while responsibility should be taken for work, always ask for help if you think you need it)

7. Be curious (look for new ways to make our project better, try to learn about parts of the project you aren’t responsible for)

8. Be vigilant (try to think of all possible roadblocks to our project, new ones could arise at any moment and must be avoided)

9. Stay ahead of schedule (try to complete everything, at a minimum, a week before it’s due, ideally two weeks)

10. Be hard working (we all have other work to do, just make sure you put as much time as you can into our project)

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?*

We see this team performing well because everyone works together and contributes equally. Everyone we have observed so far supports this. Ifesi will oversee the can crushing sub-system, as she picked out the motor and most other parts for that sub-system and understands its documentation well. Michael will oversee the can collection sub-system because he was responsible for coordinating with the machine shop to turn our parts into the final hardware, and best understands the physical dimensions of the project. Matt will be responsible for design of the PCB, because he showed the most aptitude for the PCB assignment and works the closest with hardware in his actual job out of the three teammates. This should distribute the work in a relatively fair way (assuming everyone puts equal effort into documentation) and lead to greater efficiency in the long run for the project.

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?*

Ideally, our team will hold meetings every week on Wednesday at 3:30pm, about an hour before our meeting with our TA, to discuss plans for the overall direction of the project. In addition, we will try to meet on Friday mornings at 8am in the lab, to consult TA using the considerable number of office hours that day if anything has come up, and to remind ourselves of what we need to do so that it’s fresh in our minds as we approach the weekend.

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?*

Ifesi will set the agenda. She is by far the best at efficiently planning out projects and has the most experience out of the three of us doing that. The agenda will be approved by Matt and Michael, who will bring up any possible oversights in Ifesi’s planning. Approvals must be unanimous, but if a party is not present (and can’t be contacted) their vote will be assumed to be in favor. To stay on track, we have all carefully noted the deadlines for this project and will make a conscious effort to stay significantly ahead of them. If we at any point find that we are working too close to the deadlines, we will draft a more detailed schedule for ourselves to show how we plan to meet deadlines on time, but we don’t expect that to happen, as we are currently ahead of schedule overall (this is being written more than a week prior to its due date).

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, the member who believes they were broken should speak up. If both other parties agree that they were broken, the group will work together to fix the problem. If at least one member does not believe the ground rules were broken, and the alternating side insists they were, the issues will be brought to the group’s TA or an instructor.

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, Ifesi, Michael, and Matt, all agree that this contract should hold our team accountable to its contents.

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: miw3 (digital) Signature: Matthew Wildenradt Date: 2/15/23

netID: onubogu2 (digital) Signature: Ifesi Onubogu Date: 2/15/23

netID: obunike2 (digital) Signature: Michael Obunike Date: 2/15/23