**Github and Github Desktop Reference**

This document contains information on using Github to share and collaborate on software.

**General Workflow**

The steps you’ll want to take on most days are:

1. Pull. This makes sure the code on your computer is the most up-to-date version. To do this:
   1. Click the button along the top bar that says “fetch origin”. This checks to see if there are any new changes.
   2. If there are new changes, it will change to “pull origin”. Click that. This will download the changes. (This may create a conflict that needs to be resolved.)
2. Work on your code using RobotC. You can create new files, make edits, etc. as normal, just make sure all the files you want to share get saved in the project folder. Save often.
3. Whenever you want to create a backup point, commit. You should definitely do this whenever you change from working on one area of the code to a different area, and shortly after creating any new file. To do this:
   1. Go to Github Desktop.
   2. At the lower-left corner there is a box that says “summary”, a box that says “description”, and a button that says “commit to master”. The summary is mandatory, and should be a few words describing the changes you are committing. If you want a longer description, put it in “description”.
   3. Once you have entered a summary and (if you want one) a description, click “commit to master”.
4. At the end of the day, push. This will save your changes to the shared project stored online. To do this:
   1. Click the button that says “push origin” at the top of the page.
   2. This may tell you that there have been updates, and that you need to pull first. If so:
      1. Go to Repository 🡪 Pull. This will do the same thing as pulling at the beginning of the day.
      2. Resolve any conflicts that arise. (If they would take more time than you have, just save the work locally on your computer and stop here.)
      3. Click “push origin” again.

**When there are conflicts**

Sometimes when pulling from origin or reverting a commit, Github Desktop will give you an error message, saying that there was a conflict. If this happens, do the following:

1. Open the affected file in RobotC. If it is already open, *you may need to* *open it again* by going to File 🡪 Open and Compile.
2. Find the conflict area. At the start of the area is  
   <<<<<<< HEAD  
   in the middle somewhere is  
   =======  
   and at the end is  
   >>>>>>> [some stuff that may or may not make sense]
3. The two sections divided by the “=======” are the two possibilities that Github Desktop thinks are most likely, but you are not required to pick one or the other. You need to change the whole thing to be whatever is correct, and delete the lines with the “=======”, ”<<<<<<<<”, and “>>>>>>>”. After you do this, the file should look exactly the way you want to save it.
4. Save the file in RobotC.
5. In Github Desktop, there should already be a commit summary automatically created. Commit your changes. The conflict is now resolved.

If this happens when you don’t have time to resolve the conflicts, you can just save it as-is, and come back to it later.

**Creating a New Project**

When you want to create a new project, you will go through the following steps. (Note: you don’t need to do this to add new files, so you probably only need to do this when we switch partners.)

First, one partner will do the following:

1. Create a local repository
   1. Go to File 🡪 New Repository.
   2. Name the repository, and change the place it will be saved on your computer if you want. *Make sure you know where it is saved*. You will add files to the project by saving them in that folder.
   3. Click “create repository”.
2. Publish the repository.
   1. Click the big button near the top that says “publish repository”.
   2. If necessary, log in to your github account and repeat this step.
   3. Uncheck the “keep this code private” box (using this feature requires a paid account).
   4. Click “publish repository”. This will give you absolutely no feedback, but it is working. After a moment the window will close. If you click it twice, it will tell you that it failed…it worked once, and then failed the second time.
3. Share the repository.
   1. Go to github.com and log in to your account.
   2. Click on the project name. If you can’t find it, go to “Your profile” in the menu at the top right corner, then the “Repositories” tab.
   3. Go to the “Settings” tab on the repository page.
   4. Click “Collaborators” on the left-hand side.
   5. Enter the username of the person you want to share the repository with, and click “add collaborator”.

After that, and e-mail will be sent to the second partner, and then they can do the following:

1. Check out e-mail for a message from github saying you’ve been invited to collaborate.
2. Click the link in that e-mail, log in if necessary, and accept the invitation.
3. Clone the repository. This puts a copy on your computer, and lets Github Desktop work with it. To do this:
   1. Go to github.com and log in.
   2. Click on the project name. If you can’t find it, go to “Your profile” in the menu at the top right corner, then the “Repositories” tab.
   3. Copy the URL of the project page.
   4. In Github Desktop go to File 🡪 Clone Repository.
   5. Paste the URL of the project page. (If you are unhappy with the local path, change that too.)
   6. Press “Clone”.