Git and Github Reference Material

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# What is Git / GitHub?

Definition for Git from Wikipedia:

“Git is a distributed version-control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows.”

Essentially, Git is a program that tracks code changes and allows people to work on different parts of a code base. It can also be used to identify and discuss bugs or code changes before they enter production. For Team ASTRAS, this accomplishes a couple things:

* Our code is safe. We can revert changes and have a clear revision history.
* Multiple people can work on the same code base without conflicting issues.
* If needed, we have a center for coordinating tasks and fixes.

GitHub is a website that hosts remote Git repositories. This is essentially the ‘cloud’ in which our files are stored. When we want to do some work, we pull this remote repository to our local computer, make our changes, then push our updates back to the remote repository.

*Why do I need to learn all of this? Wouldn’t it be easier to just do on Teams?*

We certainly could do all of this on Teams – however, there are a couple reasons to use Git instead:

* Version control – to keep records of versions on Teams, we would either start adding folders or files with those names. Before long, we will have a ton of content that is very obscure in how it has changed. With Git, you add a comment line on every ‘commit’, or update, that keeps track of changes.
* Anybody can pull the latest repository from GitHub. This includes the raspberry Pi. Otherwise, we would need to constantly move files from our computers to the Pi or develop directly on the Pi. Both of these options, in my experience, aren’t great.
* It is an industry standard. It is something you can add to your resume and will look great. Programming is something that is becoming more prominent in every industry, and Git/GitHub is one of the largest hosts for collaborating with programmers.

Expect to take a few hours out of your day to learn how Git works – I’ve tried to make this document as straight forward as possible, and teach you just enough to work with it.

# Common Terminology and Structure

GitHub is where our code is stored on the cloud – this is our **Remote Repository.** This is where we pull the current code from and push our changes to. There are two ways to get our data

# Git Setup

# Git Commands

# Git Workflows