**Version Control Software Report**

**Shaakir Cassiem**

Introduction  
When multiple developers collaborate on a project (e.g the development of a game, app, software etc) multiple logistical problems arise such as:

⦁ developers being up-to-date with the latest changes proposed by other dev's  
⦁ constant changes to code (or general documents)  
⦁ keeping working versions of the project separate from versions that are still under development  
⦁ changes being implemented without the approval (or knowledge) of other dev's.

These issues are quickly and easily resolved with the implementation of version control software. These softwares operate by having a 'master' folder containing all working elements of a project. Should a change or addition need to be implemented, a developer can create a full, working copy of the entire project, make necessary adjustments, changes or additions and then upload the revised project for approval from the other dev's. Should everything be in order, this revised project can then be merged with the master folder and the other dev's can 'pull' those changes into their working copies of the master folder that they were busy developing. This eases workflow and ensures that all revisions are kept straight regarding the development of the project.

**Git and Github**

Git is a version control software (operated through command-line terminal) optimized for collaborative, non-linear workflow. It was created by the creator of Linux, Linus Torvalds. It's online counterpart, Github, outlines similar functionality with easy-to-use GUI for those who are not inclined in command-line use, and makes large project collaborations easy whether you're dealing with software development or multiple-author report compilation.

Git is used for projects that require the management of source-code such as software development. The management of the entire project and the relations between source-code files is done by Github, an online hosting service for Git repositories.

**VCS's and Their Use In Engineering**

Engineers often write reports outlining their research or projects they are working on and many times they work in teams which, again, gives rise to the logistical issues as outlined earlier. Version control software's clean up this process making collaboration seamless and allows for modular workload division. Some specific disciplines (Electrical & Electronic) could use Git and Github for its intended purpose i.e software development. The fact that Git and Github are so flexible with compatible formats makes it easy for virtually any work field or discipline to utilize it for various different projects, be it programming oriented or not.

**Personal Applications of Git and Github**

1. I have already opened a Github account with the intention of using it to develop a game I am making with some friends. Before learning about Git and Github, we were going to handle version control via USB sharing everytime someone made a change to the project. Now that I know there is such a thing as a version control software I can clearly see how inefficient USB sharing would have been, and how easily Github handles collaborative projects such as this one.
2. Another side project I am currently pursuing, with the same game-development team, is an animated cartoon. Github will allow us to share scripts, storyboards and artwork in a coherent fashion and allow revisions to all of the above in a professional, easy-to-follow way. Currently all our documentation regarding scripts and storyboards are hardcopy and revisions are usually done on separate paper which often leads us to confusion regarding the story direction we've settled on. I see Github clearing up all of these issues for us and speeding up production.
3. Any collaborative reports in line with my engineering career will benefit greatly from utilizing Github as explained earlier. Also, seen as I am majoring in robotics, collaborative projects where we would need to utilize code scripts for interface or control can be managed easily using Git and Github.
4. Another personal hobby of mine is music, be it just playing or writing. I am also in a band so, although I might not use this, Github could be used for myself and my other band members to collaborate on writing songs just as one would collaborate on a multiple author report.

**VCS Functionality**