Robo 410 Capstone memo

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| to: | Dr. Berry and Dr. Fisher |
| from: | Daniel Brindley |
| subject: | [robo410] Team D: Ethics Memo |
| date: | October 29, 2014 |
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This memo will examine ASME canon 7 which states:

*“Engineers shall issue public statements only in an objective and truthful manner and shall avoid any conduct which brings discredit upon the profession.”*

More specifically this memo will be looking at 7b as found in the Criteria for Interpretation of the Canons:

*“Engineers shall be completely objective and truthful in all professional reports, statements or testimony. They shall include all relevant and pertinent information in such reports, statements or testimony.”*

This code holds the engineer to accurately convey everything which has been created or designed throughout the extent of the project. Without this code forcing engineers to document their work, any team that makes modifications to the work must first spend an inordinate amount of time learning what was done. Unless directly involved in the design process it is nigh impossible to understand the reasoning behind decisions, regardless of previous experience and technical background. Without canon 7b, any progress is delayed when the introduction to a new project quickly becomes a detailed analysis.

Our Capstone project verifies the substantial effort required when inheriting an undocumented project. The previous team wrote thousands of lines of code between commits and the documentation is sparse at best. Occasionally a minimal description is provided in a word document and ended with “See comments in code for more details”. Unfortunately there weren’t any comments in the code worth mentioning. Even though the previous team did not hold to canon 7b, our team was determined to complete the project correctly. This left us with two options: to delve into their work, modifying and documenting it as we went or to start from scratch. While the first option should always be preferable when inheriting a project, we chose to start from scratch as it would be less effort than trying to comprehend 10,000 lines of undocumented code. Moving forward with the project, we intend to properly document each step we took and the reason behind it. Furthermore, we will be placing comments directly in our code so a third party can quickly understand the functionality and structure of the code. Holding to canon 7b in this manner allows future teams to avoid the dilemma we currently face when modifications are needed.

Unfortunately ours is not a unique situation, and undocumented projects are being inherited in the professional world all the time. While I worked at Pratt & Whitney my group, an additive manufacturing group, received nothing but inherited projects. We were tasked with taking a part previously made by other manufacturing processes and optimizing it for production using a new additive manufacturing processes. Normally we were given a part with enough of a background to determine what aspects we could change with no negative repercussions. Occasionally, though, we were given a part with no description of its function and no idea of the reasoning behind its design. When this happened we were forced to request more information from the customer before moving forward. Once we were told which sections of the part were there by design and which were simply for the manufacturing process we could proceed with our re-design. If our customers had instead given us a documented part as required by canon 7b we could have returned a solution to them in a more timely fashion.