Ethics Assignment

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CS-499

The “Killer Robot” is a case where a programmer, Randy Samuels, was indicted on charges of manslaughter for the death of Bart Matthews, an operator. The machine in question was the Robbie CX30 assembly robot. After reviewing the investigation into this case, this tragedy appeared be a calamity of errors, mired by poor management and competing egos. However, by far the most egregious among the issues was the user interface. The user interface was the only means through which the operator could control this machine, therefore any programming nuance used to control the robot would lost to user error.

The investigation into the user interface was done on the principle of Shneiderman’s “Eight Golden Rules”. In brief the eight golden rules consist of the follow, strive for consistency, enable frequent power users to use shortcuts, offer informative feedback, design dialogues should yield closure, simple error handling should be offered, easy reversal of actions should be permitted, internal focus of controls should be supported, and lastly short-term user memory should be minimized.

These tenants not only failed in a catastrophic way, it seems that there was not even a consistent design for the user interface, Bart Matthews final moments appeared to spent in frustration and desperation. First, the error messages were not consistent. For example, the menus would appear in different positions on the operator’s consoles, and only played confirmation sounds sporadically depending on the nature of the error. The last error in particular received by Matthews being “Dynamics Integrity Error 45”. This error in particular was a time sensitive and required the operator to act, however there was no notification sound played upon its appearance. Fortunately, he was able to catch it. Next, instead of some kind of in system help menu, errors had to be looked up manually in the operator’s guide. The operators guide was four volumes long, so locating the text would take even more time, in this time sensitive context. Also, because there wasn’t a mouse driven system of user controls, interface had to be navigated by keyboard. The investigator noticed that NUM LOCK had been activated, and was preventing him from entering the proper escape sequence, which involved six separate menu choices. In a state of panic, which this clearly was, an operator cannot reliably remember the information used to shut the system down. It appears that the operator was battling just to assert control over the system.

The reason the UI got so little attention is because of project management. The software development philosophy deployed by project manager Sam Reynolds, was not conducive to the type of project. A waterfall method was used in lieu of a prototyping method. The waterfall method stresses an ordered execution in design tasks, with the user interface being an afterthought. Prototyping should have been done to address the issues of the operator use.

In conclusion culpability should rest with those responsible for assembling the team and managing its progress, not an individual programmer.