

Project Assignment 3

Steve Mazza

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1 High priority software suitability characteristics

1.1 Correttness

It is fundamentally important in almost every system that the developed software implement and support the system requirements correctly. The importance is elevated in a system such as ACIDS that supports mission critical activities like IED clearing.

1.2 Reliability

Having established *correctness*, the software must also be reliable. That is to say, it must perform the *correct* action consistently, predictably, and without fail.

1.3 Usability

In an effort to reduce potentially catastrophic human errors, the software must be usable. This also has the desired side-effects of reducing training time and increasing overall system adoption.

2 Requirements Statement

2.1 Correctness

Each system requirement shall be supported directly by one or more calls, methods, procedures, components, classes, or libraries of the METAL-V operational software which shall map directly to and support system requirements.

2.2 Reliability

The METAL-V operational software shall perform consistently as written under normal operating conditions with a reliability greater than 0.98.

2.3 Usability

The METAL-V operational software shall present an interface that closely resembles the physical operation of the system.

I considered this at some length and I believe that it is important to illustrate a couple related aspects to *usability*. There is overall system usability that may be measured in reduced training time and overall adoption of the system. But there are lower level usability considerations that, in aggregate, may be just as important and are possibly more easily tested.¹

The METAL-V operational software shall prevent over rotation of the number six servo.²

So while this requirement does not fall into the traditional lane of *Usability* it does address and illustrate the principle that software should make the user's job easier wherever possible by reducing complexity³ and mitigating against user-induced fault.

3 Test and evaluation activities

3.1 Correctness

The principle aim is to ensure complete coverage of all of the system requirements by the METAL-V operational software. By providing tracability back to the requirements of the software components we can assure that coverage is complete. Often the biggest difficulties arise either when requirements change or when new requirements are added. Maintaining a complete mapping requires diligence and commitment on the part of the software development team as well as management.

3.2 Reliability

3.3 Usability

4 Software component suitability

5 Executive summary

¹Requirements that are not testable are not good requirements.

²This is a fictitious element of the hardware that we are supposing could cause severe problems if over rotated.

³Complexity in this case refers to the amount and nature of extraneous details that the user must attend to.