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CS5001 CS Senior Design I

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<div align="center">Assignment #7 – Constraint Essay</div>

In this essay, I will be talking about some of the potential constraints that may exist on my senior design project, STIMS. The constraints that I have identified and have chosen to talk about are of the following topics: economic, legal, and security.

Economically, I have identified one concern for the project. As a database administrator who is tasked with taking care of the inventory system, one thing that comes to mind is the physical hardware needed for implementing tagging. For example, if an administrator wants to add a physical tool to the database, they will need to choose a tagging system that is supported by the program. If the administrator chooses something like NFC tags for the item, they will need both blank tags to write to as well as a device/scanner capable of scanning NFC. To address this issue, I plan on having tagging options that would cost no money to an administrator but may be less efficient. One such option could be physically marking the item with a unique serial code and using normal keyboard entry to "scan" (search) for that item in the database.

Legally, when it comes to the storage of some items, I would like to display an image if possible. Say the system is being used at a local library—the administrator would be able to add books and magazines to the database. I'd like for the database to rely on external sources to match the name of the item to an image, such as the cover of a book. However, image licensing may become an issue when approaching non-standard items such as tagging woodshop tools—

the program cannot just Google Image search the tool and pick the first option, as image rights would have to be acquired for this purpose. My intended solution to this problem is to allow database administrators to upload their own images in order to give a visual representation of the item that they are adding to the system. This will ensure that the image rights are valid, as the database administrator will be the one who took the photo.

The final potential constraint that I have identified is security. Hosting a local database of items without the proper consideration for who can modify, read, and delete portions of data is a large security issue. My planned implementation of STIMS includes a user identification system that will have roles for accessing the database. The database administrator role will typically be the user who sets up the system for their use, and they will have full read and write access to the fields of the database pertaining items. The regular user account role will be able to read the database but not modify or delete data, with an exception for changing the status of an item being checked out/used if the administrator of the system enables this in the configuration.

Overall, I have identified a few constraints that might affect the STIMS project and its design. However, with my suggested solutions, I believe that many, if not all, of these constraints can be solved without impacting the viability and user experience of the final software.