Senior Design Project Constraint Essay

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There are several constraints that our project faces when it comes to limitations for our implementation. The economic factor certainly plays a big role as our team is working with limited or even no budget. The project will be relying on mostly open-source tools, resources we can get from the university and free-tier cloud services if used. This means that we will be carefully evaluating software libraries, APIs and the hosting platforms to ensure affordability while also trying to get the best performance.

Professional constraints will also influence our approach as our team members are still developing advanced expertise in deep learning, backend integration, and user interface design. This means that achievable goals and stable implementations need to be prioritized.

Ethical and legal constraints would also come to play when it comes to the use of image data for training our image recognition model. As real world inventory images may contain proprietary or identifiable information, we would be restricted to use datasets that are publicly available or use synthetic dataset to ensure the compliance with data privacy as well as intellectual property standards.

We also face security constraints which could limit how we can test and host the system. As the project is not run on a secure enterprise server, we need to avoid using and storing actual user credentials or connecting to public networks without proper safeguards. These constraints collectively require us to balance innovation with responsibility and build a practical, ethical, and secure system within realistic academic and technical limits.