

3_Various Requirements of a General Nature

https://www.brainkart.com/article/The-Embedded-System-Design-Process_7784/

1. Performance: The speed of the system is often a major consideration both for the usability of the system and for its ultimate cost. Performance may be a combination of soft performance metrics such as approximate time to perform a user-level

function and **hard deadlines** by which a particular operation must be completed.

2. Cost: The target cost or purchase price for the system is **almost always** a consideration. Cost typically has two major components:

- *Manufacturing cost* includes the cost of components and assembly;
- *NonRecurring engineering (NRE)* costs include the personnel and other costs of designing the system.

3. Physical size and weight: The physical aspects of the final system can vary greatly depending upon the application. e.g) An industrial control system for an assembly line may be designed to fit into a standard-size rack with no strict limitations on weight. But a handheld device typically has tight requirements on both size and weight that can ripple through the entire system design.

Power consumption: Power, of course, is important in battery-powered systems and is often important in other applications as well. Power can be specified in the requirements stage in terms of battery life.

General Costs: We have discussed patents and certifications. These costs can be very great for a product. Of course, there are costs for marketing and sales. It has been estimated that the price of a product should be at least 7X the cost of the

hardware. However, knock-off iPhones have been built at a cost of \$13.00. They may sell at much more than 7X \$13. Real iPhones sell for hundreds of dollars.

The POINT here is that a successful designer considers ALL of the aspects of the design, and manufacturing of a product. Good designers also consider the longer-term aspects such as not only marketing and sales, but also maintenance and upgrades.

Remember my heater, I included many “hooks” for a repairer to attach hand-held computer devices to determine the state of the system if an error occurs.