A Visual Interface Diagram For Mapping Functions In Integrated Products

In product development there is a recognized tendency towards increased functionality for each new product generation. This leads to more integrated and complex products, with the risk of development delays and quality issues as a consequence of lacking overview and transparency.

The work described in this article has been conducted in collaboration with Novo Nordisk on the insulin injection device FlexTouch® as case product. The FlexTouch® reflects the characteristics of an integrated product with several functions shared between a relatively low number of parts.

In this article we present a novel way of visualizing relations between parts and functions in highly integrated mechanical products. The result is an interface diagram that supports design teams in communication, decision making and design management. The diagram gives the designer an overview of the couplings and dependencies within a product that can be used to estimate higher level consequences when making design changes. The diagram has further been used as a basis for evaluating the criticality of internal parts and functional organs.

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