Design a Modular Mechatronic Systems: Design a Packaging Machine

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Concept of modularity is practicing in many fields over decades, such as software engineering, computer science, civil engineering, and electrical engineering. It has been proven that modular architecture has much more advantage than traditional integrated architecture in certain fields. This paper proposes modular design architecture for a mechatronics system in more practical manner. Here we mainly focused on the increasing simplicity of the system, ability to upgrade according to rapidly changing market needs, and reduce the cost in manufacturing and maintaining using modular architecture. The proposed process is a combination of traditional methods such as top down approach, Bottom up approach, sequential approach and mechatronic design quotient. To demonstrate the method, it is applied to design a vertical dispenser packaging machine called the "VD packaging machine" – a multidisciplinary machine use to pack cubic products in a vertical display. There are several types of packaging machines available in modern world, but none of them are useful in this VD-package filling process. So in this paper we are going to examine the VD-package filling process and give a step vise guide about how to design a modular mechatronics system to automate the process. The use of modular concepts in mechatronics system allows simple as well as efficient and therefore low-cost sustainable product, easy to maintain and changeover.

Keywords: Modularity, Design, Automate, Low cost