

عنوان مقاله:

Layer production of orthosis in cloud manufacturing environment: focusing on Boston brace

محل انتشار:

شانزدهمین کنفرانس بین المللی مهندسی صنایع (سال: 1398)

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خلاصه مقاله:

The purpose of this project is to optimize the design and manufacture of medical orthoses. In this regard, the business model canvas was used and was able to define a general framework for the orthosis system in the cloud. In the cloud, as a service, provide patients with services such as personalized orthoses with lower cost and high speed of sending orthoses (while not having to go back to the lab), to service doctors such as information sourcing and full expectations of treatment plan and represent cost effectiveness for laboratory. These values were determined through the business model canvas in the value proposition section. Other important services and requirements in this system have been identified throughout the rest of the business model. Then, to illustrate the design and manufacturing process, a mannequin was scanned by a 3D Sense scanner, the anatomy of the mannequin was interpreted, the necessary changes were applied to the Solid Work, and a scanned waist orthosis was designed using an axiomatic design. Finally, the orthosis was produced using 3D printing at Sharif University. The DFDs of the line phase (1: treatment plan, 2: interpretation of geometry in patient's anatomy, 3: process planning, 4: making orthosis) of system were also drawn to represent data flow and processing. Finally, compared to the traditional method, the orthosis was produced without waste raw material and lower cost and time.

کلمات کلیدی:

Orthosis, Business Model CANVAS, 3D Printer, Axiomatic Design theory (AD), Boston brace

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