

**Title:** Innovative in 3D Printing: Design And Development of A User-Friendly Wheelchair

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**Abstract:**

This paper is presented a new design of innovative wheelchair which contributed to health care by using SolidWorks software and 3D printing. The combination function of wheelchair can help the user as a walking aid or the user can control the wheelchair through the wheels in both side of wheelchair. The number of wheelchair design distributed around the world is grown at an expedite rate, but there is a lack of flexibility performance of wheelchair design in different topography. Whether follow the advice by medical personnel, but the wheelchair provided is often not well fitted to the user and not suitable for the user to use in their living environment. The limited function of current design wheelchair cause restricts use of upper limbs and limited to activities of daily living such as positioning, personnel hygiene which can affect their quality of life. The purpose of this research is to improve the user experience by identify the contribution of innovative wheelchair for health care, design the wheelchair prototype by using SolidWorks application, and evaluate the user expectation toward the needs of health care equipment. Based on the observation and feedback collected from the user, can understand that the expectation of user toward the design and innovative of a wheelchair. As for the result, the final prototype of wheelchair had been fabricated by using Fused Deposition Modelling (FDM) machine successfully with the dimension 17cm x 14 cm. The innovative in wheelchair development can better meet the needs and requirements of users. The result of this research is contributing to the user by giving the comparison of existing and an innovative design of wheelchair.