

Chapter 37

Crutches Wheelchair

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Abstract

The crutches wheelchair is able to help the physically disabled people who need help on their daily routine especially on navigating in tight spaces. The development of this crutches wheelchair takes into consideration the requirements in using both a wheelchair and a crutch. This would help patients to maintain their daily routine independently as the wheelchair can be opened, separated and used as a crutch. In general, this light-weight crutches wheelchair is meant for patients at the hospital or physically disabled people that need either a wheelchair or a crutch for their mobility needs.

Introduction

The inconvenience of traditional wheelchairs for long-term use has a profound impact on the elderly population. Creating a wheelchair that is easy to operate and suitable for the different environment is of great importance for the elderly, people who suffered from the stroke attack, people who injured on their leg and different abilities (Teng-Ruey Chang, 2015). In this project, we have designed and produced a crutches wheelchair which is able to help the physically disabled people who need help on their daily routine especially on navigating in tight spaces. The development of this crutches wheelchair takes into consideration the requirements in using both a wheelchair and a crutch. This would help patients to maintain their daily routine independently as the wheelchair can be opened, separated and used as a crutch. In general, this light-weight crutches wheelchair is meant for patients at the hospital or physically disabled people that need either a wheelchair or a crutch for their mobility.

Scope of Work

The first step is to make some studies to gather resources or materials needed in producing this crutches wheelchair. Next, a general measurement and ideas were discussed and needed items were collected from various locations. After that, shape, weights and measurements were taken into consideration in designing this innovative product. The items that we bought for this project were old bicycle tyres, metals, PVC pipe, PVC pipe glue, hammer, handsaw, measurement tape, colour spray, metal paint, PVC fabric, sponge, scissor, needle, string, walking stick, pipe clamp, plywood and hinges. Then we sprayed the old bicycle tyres. Next, we measured the metal, and cut it and make an intersection just like we wanted by welding it to become wheelchair. Then we cut the PVC pipe according to a particular measurement and joint them to the shape that we wanted. Then we attached the PVC pipe with the walking stick and wheelchair by using the pipe clamp so that it can be functioned as crutches.

After that, we painted the wheelchair using the metal paint and let it dry. Then, we make the seat and the portable table. After that, we evaluate the crutches wheelchair and a video was recorded as a mean of product presentation. We also have created a new signage for the crutches wheelchair so that people will aware of the physically disabled people who are using our crutches wheelchair.



Figure 1: Crutches Wheelchair complementary items such as pocket bag and table



Figure 2: Crutches Wheelchair used as crutch to climb stairs



Figure 3: Crutches Wheelchair signage

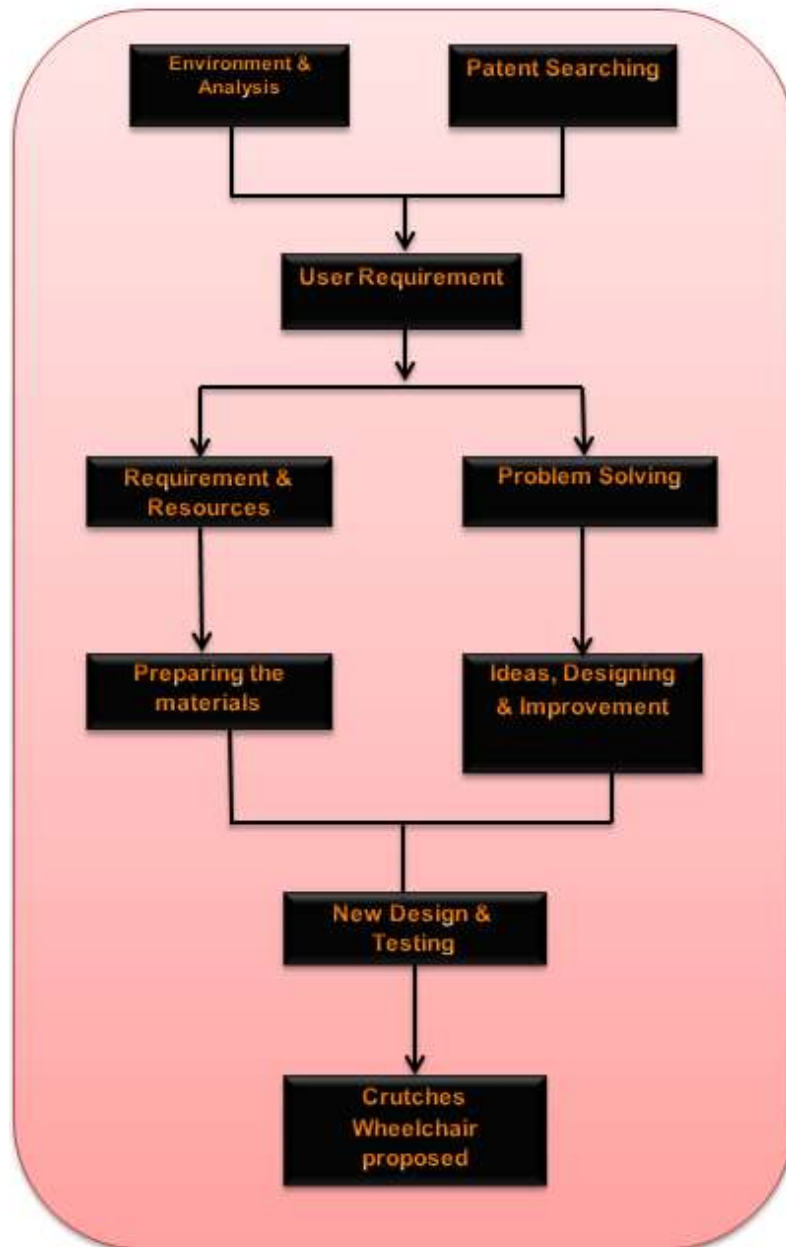


Figure 3: Stages in producing the Crutches Wheelchair

Conclusion

As a conclusion, this innovation can improve our skills for many aspects. It helps us improve our creative thinking, innovative skills, social skills, technical skills and how to work as a team. We also hope that, with this innovation, it can help physically disabled people to be independent and improve their mobility.

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