



PRODUCT DEVELOPMENT OF ERGONOMIC WALKING CANE

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Abstract

The purpose of this project is to develop an ergonomic, fall-proof and customizable walking cane for elderly. 9 million fall injuries occur every year and elderly are most affected. The key reason is, Current walking cane does not satisfy all the needs of old and fragile people and does not cover a wide demographic. The product is aimed at removing dependence of elderly on others for performing their daily needs, while ensuring their safety.

Materials

- Rubber
- 1060Al alloy
- PVC
- Stainless steel
- LED light
- ABS Plastic



Idea generation and selection

Based on the needs, functions were determined and ideas for each function was brainstormed. A morphological chart consisting the function, idea and alternatives were made and the ideas were scored and screened. The selected ideas were combined to develop three concepts based on their feasibility. The three concepts were then scored and screened again and a final conceptual design was created. Materials were determined and 3D CAD model was designed.

Customers

The customer base comprises the elderly, the handicapped and other vulnerable members of society who struggle with mobility. This walking cane can also furnish people with chronic diseases, like rheumatoid arthritis, with a multitude of benefits.

Conclusion

The walking cane has been designed after employing a structured and comprehensive approach that takes into account the needs of the elderly.

List of needs

Based on benchmarking existing products and Information sources, the following needs were listed out:

- 1.Height Adjustment
- 2.Handle grip, ergonomics, and adjustment
- 3.Sit and stand assistance.
- 4.Surface stability
- 5.Foldability
- 6.Grabbing objects
- 7.Path assistance
- 8.Ease of movement

Features

The following are the features of walking cane:

- Rest for walking cane
- Angle adjustment holder
- LED light- path assistance
- Lead screw mechanism
- Light reflector
- Ball socket joint
- Suction cup-grabbing
- P-shaped Ergonomic grip