WATERS: AN INTERACTIVE 3D-PRINTED CUSTOMIZED PLANTER DESIGN FOR THE ELDERLY

CHOR-KHENG LIM
Department of Art and Design, YuanZe University, Taiwan
kheng@saturn.yzu.edu.tw

1. Introduction
Taiwan is becoming an aging society. Aging is not only an issue that advanced countries are currently facing but also a subject that future technology will address. In fact, each elderly person hopes to be cared for and respected and to enjoy convenience in life, living happily and with dignity. These conditions are basic needs of the elderly. Therefore, studying the welfare of the elderly must include concern for their humanity. Research on emotion and cognition has demonstrated that attractive and beautiful things are more effective: Donald Norman demonstrates in his book: Emotional Design (Norman, 2003), emphasizes that the design of most objects is perceived in three dimensions: visceral, behavioral and reflective.

This study attempts to explore the concepts of product design for the elderly based on the theory of Emotional Design. Technology products are generally understood to be the results of mass production according to certain standards; however, technology for the elderly is based on "customization" because each elderly person has his/her distinct needs. Therefore, this study explores solutions for how to meet the needs of the elderly in a more humanitarian manner. We propose attractive and customized technology products for the elderly that are interactive and utilize 3D printing.

2. WATERS: an interactive 3D printed planter
Through interviews, this study has revealed that most of elderly people spend their time at home in gardening after they retire. The interactive device, WATERS, derives its name from the saying, "Water your family relationships as you water your flower-pots." WATERS is a customized interactive product for the elderly, manufactured with 3D printing technology. The
main design concept of WATERS is to use it as a platform for the interaction between the elderly and the planter to nourish the relationships between the elderly and their children. This relationship-connecting feature is based on the concept of Emotional design, to make the elderly feel happy and warm while using the product.

The shapes of these planters are inspired by the Chinese zodiac. The elderly can choose the Chinese symbol of his/her preference. The 3D printer then "prints" the "customized" planter. This specific feature of customized pattern selection and the process of self-3D printing can also meet the elderly’s emotional needs. The base of the planter employs the design of modulated manufacturing with Arduino as an interactive mechanism set.

3. Interactive scenario

This study completes the prototype of WATERS and the interactive scenario as follows (Figure 1): Every morning, the planter plays Chinese five-note music after it detects the humidity. The elderly will be guided to do various Chinese exercises according to the climate. While the music plays, the planter will also swing following the rhythm. Once the human movement sensor of the planter detects the movement of the elderly, it will activate the self-watering system. Later, the planter sends information to the small planters of the children by a wireless network. The small planter displays different lights or plays music such that the children know the weather conditions at their parents’ home and that their parents have awakened for morning exercise. The children can subsequently call their parents to deliver morning greetings.

Reference