

## Conceptual Design of Vest for Individuals with Alzheimer's

Natalie Zainea & Su Kyoung An

Central Michigan University

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As of November 2019, over 5.8 million people are living with Alzheimer's (Alzheimer's Association, 2019). Alzheimer's is a type of brain disease, just as coronary artery disease is a type of heart disease. The disease was thought to begin 20 years or more before symptoms arise, with small changes in the brain that are unnoticeable to the person affected (Alzheimer's Association, 2019). Individuals typically live with Alzheimer's symptoms for years and over time, symptoms start to increase and start interfering with individuals ability to perform everyday activities (Alzheimer's Association, 2019). Individuals diagnosed with Alzheimer's tend to enjoy activities that stimulate their sensory nerves, such as buttons or textured fabrics. There are not many commercial clothing items available that are adaptable to individuals with Alzheimer's. Current items found on the market do not provide sensory stimulation and are not realistically affordable for all Alzheimer's consumers. Following the design model proposed by Lamb and Kallal (1992): FEA Consumer Needs Model; Functional, Expressive and Aesthetic was used to develop vest for individuals with Alzheimer's that can help them for typical life in this study.

**Functional:** A newly designed garment for individuals with Alzheimer's must be functional for everyday use. Functionality also includes thermal protection as such prototypes were be designed for fall/winter use. Ease of placement on the body is extremely important as well, closures should be easy to open and close. A wide variety of sensory stimuli objects were explored and placed on prototypes. Objects will need to be functional with the garment as well as meet the needs of the individual. Discrete tracking information that can be accessible by the caregiver, family, etc. is also considered a functional priority.

**Expressive:** Although expressive needs are not a top priority for the design of this garment, they are still taken into consideration. Several individuals with Alzheimer's are part of an older generation, thus fun colors, textures, shapes, and designs were taken into consideration. Customizable color options and details are a necessity. Alzheimer's affects a wide variety of individuals, not just the elderly, so individual color choices will need to be available. Customizable buttons and Velcro straps provided individuality such as personal names or pet names, for example.

**Aesthetic:** Aesthetic considerations are among the most important when designing the prototypes. Although the intended use is for sensory stimulation, it is also important to maintain the individuals identity and not signify them as someone with Alzheimer's. Thus, a top priority for the design of prototypes is to make the garment not identifiable by the public.

**Prototypes:** This proceeding only includes phase 1, phase 2 will be completed in the foreseeable future. Three prototypes were hand sketched and further designed in Adobe Illustrator.



**Design 1:** This unique design has a focus on Velcro, specifically Velcro that is infused with spandex as it is stretchy. Buttons pictured on the outside are magnetic and a set is included on the inside of the pocket. Velcro seen on the upper pockets allows for a change in length of the pockets. Each strip of Velcro is customizable with embroidery in various colors. Velcro strips seen at the bottom allow for the length of the vest itself to be shortened or lengthened. Decorative rushing is expected and demonstrated in the final design. Textures seen differentiate the various textured thermal fabrics that will be used on the vest, allowing for constant sensory stimulation throughout wear. A tracking device is sewn in to the back tag of the vest, and can be connected via smartphone to whomever (caregiver, etc.).

**Design 2:** This design is specifically geared towards magnetic buttons and offers a variety of stimuli. This vest option is available in any color. Alzheimer's affects a variety of ages, some age groups prefer vibrant colors and others will prefer more subtle options and this vest allows customization. Large, customizable magnetic buttons are used for the closure, with magnetic buttons on the other side which are removable. Short strands of clear beads are sewn on to the outside pockets, which are a subtle way to provide sensory stimulation. Different layers are used for each set of pockets, as well as the entire vest. Additionally, a tracking device is included in the tag of this design.

**Design 3:** This design offers plenty of sensory stimulation as well as detachable sleeves. The sleeves are detached and reattached with Velcro hidden on the inside of the sleeve and vest. Zipper closure with a customizable star is used. Velcro attaching the pockets and allowing for adjustable length are used allowing for embroidered customization. The lower pockets have several small zippers. All elements of this vest seen in yellow are available in different colors. Allowing a more subtle color changing effect. A tracking device is included in the tag of this design for tracking the individual's movement.

There are limited products that can help Alzheimer's individuals in the current market. In this study, three prototypes of vests for Alzheimer's individuals were designed for their everyday life. Design 1 has a focus on length customization as well as a variety of textures for sensory stimulation. Design 2 comes with magnetic button customization as well as different thermal fabrics. Design 3 offers the optional detachable sleeve as well as colorful options for unique customization. All designs meet a variety of needs for an individual with Alzheimer's. In this paper, only phase 1 was presented. The phase 2 will be presented in a future study. In phase 2, the researchers will develop the actual prototypes and evaluate these designs to select the most effective vest design for Alzheimer's individuals.

**References:**

Alzheimer's Association. (2019). Retrieved from <https://www.alz.org/>.

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