



Design Brief

Joe & Sons, Inc.

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Problem Statement and Objective

Dementia, ADHD, and various other cognitive impairments often cause forgetfulness in the elderly population, especially in short-term memory function. The goal of this project is to develop a device that can help our client locate misplaced items within their household.

Design Requirements

The proposed project will satisfy the following criteria:

1. The device shall identify the locations of items within an area with at least 90% accuracy.
2. The device shall respond to client requests for misplaced items quickly.
3. The device shall sustain movement and data collection for at least one hour.
4. The client shall reduce the frequency of searching for lost items by at least 50%.

The proposed project will satisfy the following constraints:

1. The device shall not be greater than a total of \$300.00 in cost.
2. The device shall not cause damage to any property on the household.
3. The device shall not cause injury to the client(s).
4. The device shall not capture unauthorized media of any private property without explicit permission by the client.

Design Statement

This design aims to create several prototype models of an assistive device using various hardware and software technologies to assist clients in recovering their frequently lost items. This device will be tested in real-time with clients and will be iterated based on feedback provided.

Criteria / Constraint Prioritization

Level 1: The device shall identify the locations of items within an area with at least 90% accuracy; the device shall not cause damage to any property on the household; the device shall not cause injury to the client(s).

Level 2: The device shall respond to client requests for misplaced items quickly; the client shall reduce the frequency of searching for lost items by at least 50%; the device shall not be greater than a total of \$300.00 in cost.

Level 3: The device shall sustain movement and data collection for at least one hour.

Level 4: The device shall not capture unauthorized media of any private property without explicit permission by the client.

Questions Formulation for Client/Caretaker

1. What should be considered especially in designing a product?
2. How do you (caretaker) find the ability for client's to verbalize their needs?
3. How often would dementia patients lose an everyday item? Does the same hold true for patients with ADHD?
4. What are some triggers for dementia?
5. With whom can we work with to develop a product?
6. Do you (caretaker) see patients using TILE or AirTag products to recover lost items?
7. Are there certain objects that are found to be more misplaced compared to others? What is the frequency?
8. What are some ways to prevent dementia-related symptoms?
9. Will this proposed device help provide independence to patients?
10. What features would be most beneficial to clients or caretakers in constructing a device as described by us?