



# TASK TIMER: DAILY DEMENTIA ASSISTANT



By: TCU Engineering Senior Design 2026 — BT  
Faculty Advisor: Dr. Robert Bittle

Lead: **Andrea De Leon**      Sub-leads: **Levi Meis, Charlotte Cattaneo**  
Team: **Juan Moncada, Lance Lincoln, David Nguyen, Alessandra Senis, Campbell Pushkin**

## Abstract:

Task Timer is an automated task management system designed to help individuals with dementia maintain daily routines through clear visual guidance and minimal effort. Unlike traditional task boards that require manual resets, Task Timer displays tasks on a simple electronic interface, allows users to mark them as complete, and automatically refreshes tasks each day.

The system also includes a caregiver application that enables remote task scheduling, monitoring, and customization of routines to fit individual needs. By combining ease of use with remote support, Task Timer promotes independence for users while reducing the need for constant caregiver supervision.

## Background:

Maintaining daily routines is critical for individuals who rely on structured schedules to live independently. However, traditional task management tools like paper calendars, sticky notes, or dry-erase boards are static; they cannot provide active alerts, nor can they be updated remotely by family members or medical staff. This often creates a heavy reliance on constant caregiver supervision, requiring frequent phone calls or in-person visits, which increases the complexity of the support network while limiting the autonomy of the user. There is a clear need for a dynamic, interactive scheduling solution that does not rely on the user navigating a complex, multi-purpose smartphone or tablet.

The Task Timer was engineered to solve this problem by transforming daily scheduling into a dedicated, distraction-free appliance. Built on a Raspberry Pi foundation, it pairs a highly accessible dashboard for the user with a real-time, cloud-synced web portal for the caregiver. By delivering active visual cues, resilient offline tracking, and remote management, the TaskTimer bridges the gap between digital convenience with physical reliability. The system is designed for user independence through an intuitive interface while providing caregivers with remote access and peace of mind.

## Customer Request:

Individuals living with dementia and their caregivers need a simple, reliable way to manage daily tasks without constant supervision or manual resets. They want an easy-to-use system that provides clear task guidance, automatic updates, and remote caregiver support to maintain consistent routines and independence.



## Future Directions:

Future work will focus on improving both the physical design and overall usability of the system. We plan to enhance the outer shell by selecting more durable and user-friendly materials to better suit daily use. In addition, the device will be provided to an individual living with dementia for extended, real-world testing. This will allow us to gather first-hand feedback on usability, effectiveness, and overall user experience, helping us identify areas for further improvement.

As we approach the final version of the software, we are also making incremental refinements to the interface and functionality to ensure the system is as intuitive, reliable, and supportive as possible.

