

## TEDI-LONDON SUMMER SCHOOL 2020

# CASE STUDY: CREATIVE

### PROJECT SENSO

### DELIVERED BY THE SENSO TEAM

An international, multidisciplinary team studying at universities in Australia, Hong Kong, Italy and the United Kingdom, the Senso team's areas of expertise included architecture, biomedical engineering, business management, chemistry, design and psychology.

## BRIEF



Design and prototype an innovative solution for use indoors to enhance the wellbeing and independence of people with dementia, then pitch the idea to an industry panel.

## PROJECT OVERVIEW



### CONTEXT

The Senso team's research revealed that people with late-stage dementia often find it difficult to engage in typical recreational activities due to reduced cognitive and motor skills, limited problem-solving capabilities and concentration difficulties. Without appropriate activities to fill their day, they can suffer from the debilitating effects of sensory deprivation, which include disorientation, agitation and an accelerated decline in social and cognitive functioning.

Sensory stimulation is therefore essential, as it enhances mood, increases alertness, strengthens cognitive abilities and can encourage verbal and non-verbal communication by evoking positive memories and emotions. These all enhance the quality of life of the person living with dementia.

Beginning with a commitment to sustainable, inclusive and accessible design, and informed by personal experience of the debilitating effects of dementia, the Senso team resolved to develop a tactile, interactive, ergonomic and intuitive therapeutic tool for use in communal indoor spaces.

## THE BIG IDEA

### Senso

Senso is a large, visually engaging, interactive board designed to enhance wellbeing via sensory stimulation. Users arrange magnetic tiles decorated with different patterns and textures according to activity prompts on the adjacent screen. With low cognitive and physical barriers for interaction, Senso



is targeted towards people with late-stage dementia, though its homely, classic design ensures it is suited to all demographics.

Senso is constructed from sustainable plywood with a magnetic backing layer and wall-mounted brackets. Painted or CNC-machined textured tiles, with magnetic backings, fit easily into pre-cut slots on the board to provide visual and tactile stimulation. It features an LCD screen that displays activity prompts, and can also be customised to display personal messages. Speakers are built in on each side of the board for an enhanced sensory experience.

## APPROACH

The Senso team divided the project into six phases:

### 1 RESEARCH AND BACKGROUND

Undertaking market research and competitor analysis, identifying the target audience, developing a customer profile and clarifying needs and outputs.

### 2 IDEATION

Concept sketching and materials research.

### 3 BUSINESS PLAN DEVELOPMENT

Developing the value proposition, business model, and marketing plan, then creating the final business plan.

### 4 PROTOTYPING

Finalising the design specifications before undertaking digital modelling and construction of the final prototype.

### 5 USER TESTING

Soliciting feedback on the prototype and implementing design changes.

### 6 FINAL PRESENTATION

Creating the pitch deck, followed by rehearsal and delivery of the panel presentation.

Working in disparate locations and different time zones created obvious hurdles, but the Senso team adapted quickly and the Sydney-based group members were even able to meet in person, which allowed for some important decisions to be implemented more smoothly than expected.

The team noted that their solution passed through several iterations on its journey to fruition. The initial concept incorporated all five senses, but this proved too overwhelming and presented affordability and hygiene challenges, so only visual, tactile and auditory prompts were included.

Expert input from a dementia design consultant yielded positive results, as the classic yet accessible design of the Senso tiles was identified as a strong market differentiator and gave the team the confidence to switch from a 3D-printing strategy to a more conventional laser-cutter approach. This did not diminish the quality of the final product and contributed to the prototype coming in under budget.

User testing with older and younger community members confirmed that the design of the board was also appealing for those without dementia. This revealed opportunities for wider social and multigenerational interaction within care home settings, and the possibility of expansion into more general public spaces.

Being receptive to feedback and having the flexibility to iterate on the design during the project delivered further benefits when the group's academic mentor highlighted that the design could be easily cleaned and customised for future business expansion.

A consultative approach and a willingness to flex in response to emerging information and opportunities enabled the team to turn a strong idea into a product with remarkable potential. Not only does Senso reflect TEDI-London's distinctive approach to hands-on, project-based learning, it also exemplifies creativity and social responsibility – qualities that underpin the best examples of modern design.

## DID IT WORK?

In their self-evaluation, the Senso team reported that the transition from research to development of the prototype went smoothly. Key insights were translated into design decisions – ranging from dimensions and choice of materials to tactility and aesthetics – that resulted in a dementia-friendly product capable of generating positive emotional experiences and improving wellbeing.

Other positive outputs identified by the Senso team included:

- A strong team dynamic and collective decision-making process ensured that a clear initial vision could be adapted to reflect feedback without loss of focus or momentum.
- Excellent communication within the group, regular meetings between sub-teams and the circulation of weekly agendas enabled the team to regularly beat submission deadlines.
- Beginning their final pitch with a story from one of the team about their experiences with their grandmother, who had recently died, enabled them to engage the audience emotionally and establish the relevance of the concept.

**“Exploring the issues of sensory deprivation and reminiscence therapy made a big impression on us and gave us the enthusiasm and flexibility to create a dementia-friendly product that is simple, robust and impactful.”**

THE SENSO TEAM

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## KEY LEARNINGS

The Senso team's self-evaluation revealed that the TEDI-London Summer School experience offered several useful pointers for the future:

- There's always room for improvement. Ideally, Senso v2.0 will engage all five senses, requiring the integration of sensor technology into the interactive board. There's also potential to improve the sustainability of the design and reduce the overall cost of the product.
- Communication is key and it's essential to create clear messages and instructions for team members working in other time zones. Maintain honest and open communication within your team, making sure that everyone knows what's going on with the project at all times.
- Working entirely online presents unique challenges. Fortunately, several members of the group were able to get together to work in person on the prototype, but this may not always be possible, so don't underestimate the importance of learning to work remotely without compromising effectiveness.

**“This team's design showed great understanding of the needs of their target audiences, resulting in part from their own experiences of loved ones living with dementia. Their love and consideration came through in the sensitivity of the design, and I can imagine seeing this product in care homes around the country.”**

*DR SARAH CAMPBELL – TEDI-LONDON SUMMER SCHOOL DIRECTOR, 2020*

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