TU/e
iNNOVATION SPACE

Challenge name	Warm Technology for People with Dementia
Challenge owner	Expertise Centre Dementia & Technology
	◻ Company X Research ◻ Student team
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Email challenge owner	
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Preferred way to contact	X email ◻ Phone call ◻ SMS / what's app ◻ Other; …
Brief summary	People with dementia are often given tools that are supposed to enhance their lives, but those are often pretty 'cold' and static. The Warm Technology Challenge invites students to contribute innovative and ground-breaking examples of warm technology that can have a meaningful impact on the lives of people with dementia and their loved ones.

About the challenge owner

The way we (as a society) deal with dementia is changing. Someone with dementia is much more than just their pathology 'dementia'. Therefore, in developing and implementing technology, you must also keep an eye on the factors that are important for the well-being of every person: dignity, the freedom to make your own choices, feeling comfortable and safe. We do this by putting the wishes, needs, and input of people with dementia and their relatives first in the development of technology and services. Too often designers think for them, instead of with them. By doing so, we at the Expertise Centre Dementia & Technology (ECDT) develop technology that is user-friendly and non-stigmatizing. We call this Warm Technology, and it builds on the emancipation slogan: 'Nothing about us, without us', a source of inspiration.

Challenge description

Incidences of age-related diseases such as dementia are increasing. The societal views on dementia have drastically changed from addressing people with dementia by their symptoms to people with unique life experiences. Attention is shifting to living well with dementia, and how non-pharmacological interventions such as technology can play an important role to support this. However, there are still many challenges ahead. Technology is often devised without full consideration of the target user group, or a thorough understanding of the context in which it is to operate. Furthermore, technology is often perceived as impersonal, complicated, and cold.

The warm technology approach to technology design is inclusive, person-centered, and focused on the abilities and aspirations of people living with dementia and their caretakers, rather than merely compensating for the loss of motor function or cognitive ability. Warm technology builds on this perspective by contributing to the well-being of every person through reinforcing dignity, supporting agency, and providing feelings of comfort and safety. As such, Warm technology should take into account the trade-off and struggle between warm care and safe care: providing safety and health versus social interactions, freedom and empowerment.

Technology is still too often developed for elderly, instead of with elderly. And too often the technology, such as interactive screens and sensors, are the focus instead of the needs, wishes and possibilities of the target group. That should be improved! With the use of Warm Technology we improve the quality of life and well-being of people with dementia. In this concept, technology is a mean and not a goal. Using warm technology can help people with dementia to continue embracing life, stay attached to the familiar environment and stay in touch with the people they love.

We challenge students to conceptualize and develop innovative and ground-breaking manifestations of Warm Technology that improve the quality of life and care of people with dementia and their loved ones.

Input and involvement of challenge owner

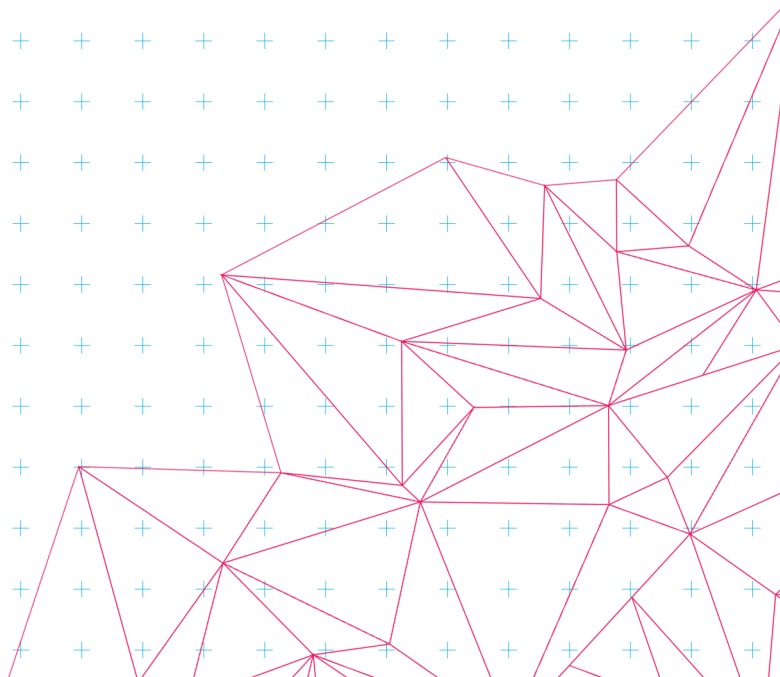
Coaching/feedback session with the students once every two weeks on the development of their project.
Expertise on design methods and principles, e.g., workshops to provide concrete methods and tips on involving users with dementia and their stakeholders in design processes.
Offering expertise and information about the disease Dementia and its impact on quality of life.
We can provide relevant connections with stakeholders and end-users like:

- people with dementia living at home or in care homes
- informal caregivers and family members of people with dementia
- care professionals
- policy makers (e.g., Alzheimer Nederland),
- care practice
- industry (e.g., Oradio, Tover, Qwiek etc.)

Resources

We can offer a dedicated workspace for students to collaborate, work and participate in coaching sessions, prototyping facilities and materials, such as electronics (e.g., Arduino, Raspberry Pi,) fabrication (3Dprinting, laser cutting, CNC milling)

☒ Expertise (coaching, workshops on codesign and dementia, expertise in design method and tools for dementia, impact of the illness);
☒ Connection to people with dementia living at home or in care homes, caregivers, family members, policy makers, care managers, and relevant companies.



Roles of different disciplines (only for ISBEP)

Automotive Technology	
Biomedical Engineering	When creating a technology that has effect on the body of a person (their skin for example), knowledge about how materials, temperatures, and motion impact the body is needed.
Architecture, Urbanism and Building Sciences	Investigating how Warm Technology can be seamlessly embedded in the everyday surroundings of people with dementia.
Computer Science and Engineering	When creating a system of warm technologies that communicate with each other (to be used by multiple people), a framework for this (online) communication needs to be designed and created.
Data Science	Applying data and AI principles to improve the user-experience of Warm Technology, adapting to the wide and diverse abilities, personalities and socio-cultural contexts of people with dementia.
Electrical Engineering	Developing the electrical parts of the hardware and coding of high-fidelity prototypes of Warm Technology.
Industrial Design	Setting up inclusive co-design approaches to involve end-users and stakeholders actively in the design process.
Medical Sciences and Technology	Investigating and improving the beneficial health outcomes of Warm Technology for people with dementia.
Psychology and Technology	Investigating and improving the beneficial health outcomes of Warm Technology for people with dementia.
Chemical Engineering and Chemistry	
Sustainable Innovation	Exploring the sustainable use and development of Warm Technology facilitated in care practice over time.
Industrial Engineering	Investigating the marketability and business opportunities for technology in care.
Applied Physics	Applying knowledge from physics (depending on the type of technology this can take many approaches) when creating interactive technology to be used by elderly with dementia.
Applied Mathematics	
Mechanical Engineering	Developing hardware and coding of high-fidelity prototypes of Warm Technology.