



# SWITCH LONELINESS OFF **IBILIGHT**

---

Promoting Social Cohesion Amongst Older Adults

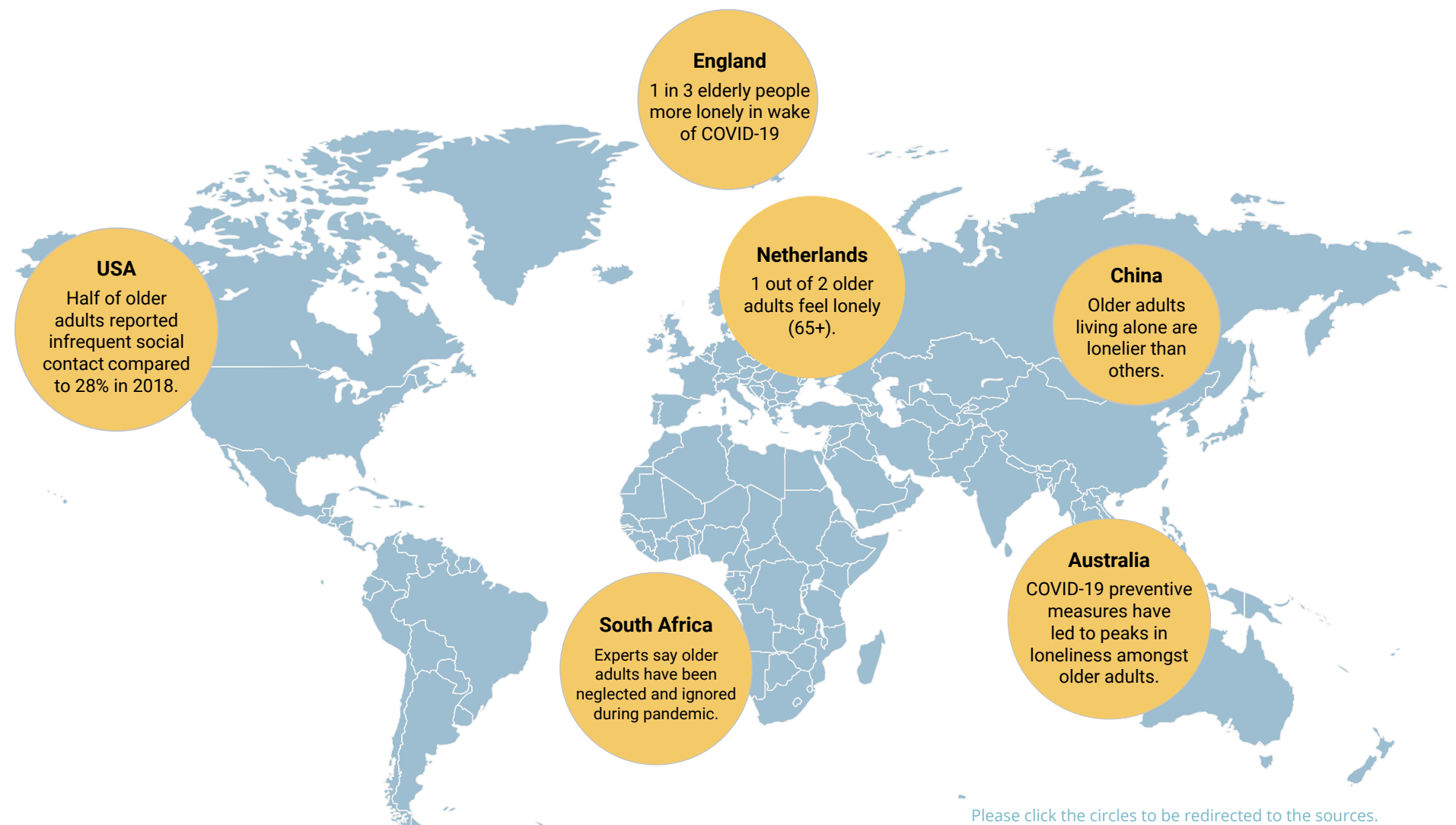
Sefora Tunc  
Contact: [sefora\\_tunc@live.de](mailto:sefora_tunc@live.de)

AGAINST  
LONELINESS IN A  
POST-CORONA  
WORLD

# VISION

“My goal is to **help older adults to feel connected to their loved ones.**”

With the *Ibilight*, we establish an **effortless connection between older adults and their loved ones**, significantly improving their relationship. Simultaneously, it impacts their general wellbeing positively, leading to increasingly social behavior.



## CHALLENGE

COVID-19 has changed the way we interact with each other. Especially older adults, who are considered a risk group, suffer from the consequences. To illustrate the gravity: every second older adult reported feeling isolated from others during the pandemic, being double the amount of 2018. Covid-19 has led to a peak in lonely older adults.

Loneliness has been found to promote depression, impaired cognitive performance, dementia progression and is associated with poorer health

practices, such as lack of physical activity. This means that we need to support them to form meaningful relationships to maintain a healthy and positive lifestyle. However, many existing initiatives do not cater to their needs and wishes.

So, before older adults can take initiative to overcome loneliness through participation in social media and events, they must be mentally prepared. They need to feel confident and motivated. We intend to fill this gap using the *Ibilight*.







## DESIGN HIGHLIGHTS

The ibilight is **not another app**. It is strong in its design by addressing the needs of older adults and their loved ones in terms of human factors.



### SOCIAL PRESENCE

A lamp that can only be turned on by your loved one to show: "I am there for you".



### TANGIBLE INTERACTION

Intuitive interaction that does not require any training and is not restricted by a language.



### EFFORTLESS

It is not a chore to show that you care. A simple but effective method that raises awareness from both sides.



### MULTISENSORY

Addresses multiple senses (haptic, auditory, visual) to ensure that notifications are being recognised.

DESIGNED WITH AND  
FOR OLDER ADULTS

## WHY IT WORKS

The ibilight **invites a loved one into the home of the older adult** in a low-threshold manner. It does not intend to be a prominent piece of furniture but a subtle support-system. It is a stepping stone to naturally form a deeper bond with each other.

### SUPPORT SYSTEM



With the ibilight, the loved one is always present and only one touch away. Compared to now, older adults are more inclined to reach out in times of distress, because it does not feel like they are disturbing their family. The simplicity of sending a message through touch does not require a long thought-process in comparison to writing a message or making a call.

### ROUTINE

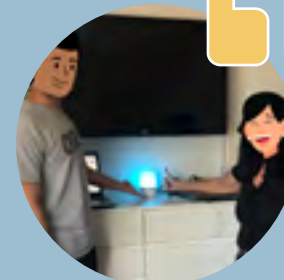


Loneliness is highly connected to experiencing major losses. These often lead to a loss of a healthy routine, promoting malnutrition, lack of physical activity, and lack of sufficient sleep. To restore healthy habits, the ibilight allows the older adult to become part of the routine of the loved one improving their living quality. They can signal when they go to sleep by turning the light off, or send signals when it is time to eat.

### CONFIDENCE BOOST



The ibilight does not replace social contact. It provides older adults with the confidence to take the initiative to overcome loneliness. They understand that they are cared for and loved. They understand that their calls are being appreciated. It boosts their confidence and they feel more comfortable initiating social interaction with their loved ones, but also outside of this circle.



"During the two weeks **he initiated most of our calls and we were in touch more often. He never forgot about me.**"

— Elke (67) about her son.  
*She tested the ibilight for two weeks.*



HOW IT WAS  
DEVELOPED

# RESEARCH METHOD

A scenario-based design approach with five iterations was employed to develop the ibilight. It is a human-centred design approach that focuses on phrasing the problem and solution space in form of scenarios. This approach was chosen as it facilitates effective collaboration and communication with older adults, since scenarios are easy to understand to discuss. A paper about the methodology has been submitted and is under review (Tunc et al., 2022).



## LITERATURE REVIEW

A literature review about loneliness amongst older adults was conducted to set a baseline.



## INTERVIEWS

Older adults were interviewed regarding their experiences with loneliness.



## FOCUS GROUP

A group interview was conducted to collect various impressions.



## CO-DESIGN

A co-design session with 9 older adults was set up to understand their needs and wishes.



## DESIGN FICTION

A collaboration with the local newspaper was set up to ask older adults for stories with their preferred solutions.



## PERSONAS

All insights were translated into personas with corresponding scenarios (Appendix A).

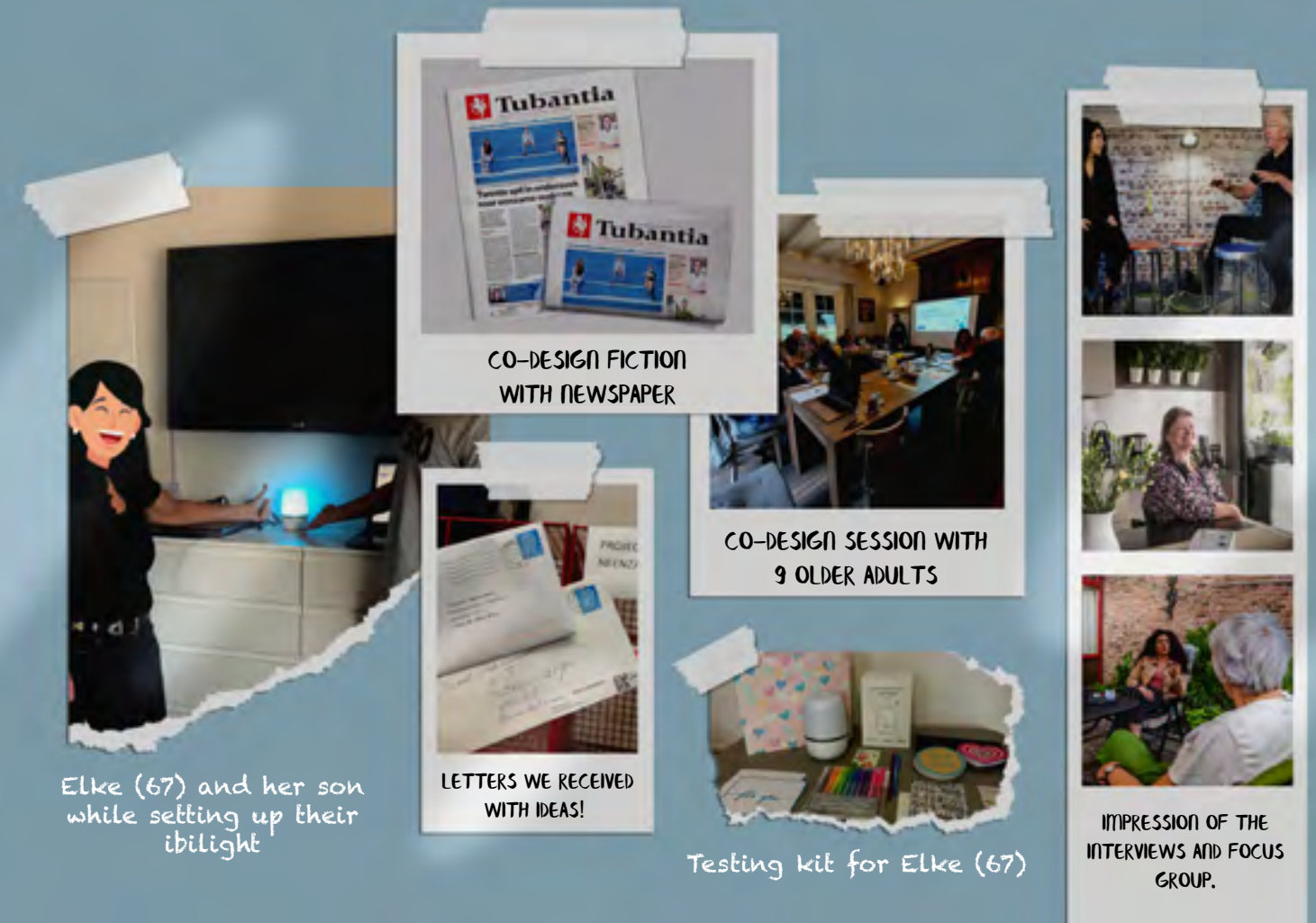


Figure 8: Impressions of the conducted research (Tunc et al., 2022).



## HOW IT WORKS

# INTERACTION SCENARIOS

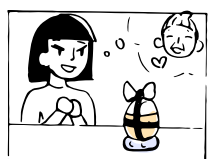
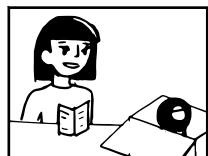


Figure 1: Configuration

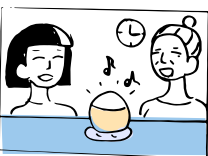
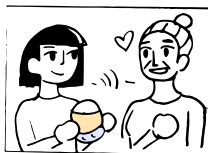


Figure 2: Configuration

### Configuration

Eva ordered ibilight for her mother. She opens the package and reads the instructions. She needs to download an application that allows her to remotely control the ibilight and receive notifications from her mother. It asks her to complete three steps: (1) indicate the conditions for turning on the light, (2) to record or use a pre-set sound that her mother hears when Eva interacts with the light, (3) how many times she wants to receive a notification to check in on her mother. Eva decides that the light should turn on when her phone is connected to her home WIFI every day after 18:00 o'clock. It should remind her in the morning and in the evening once. Eva is happy, now she just needs to give it to her mother!

### Installation

Eva visited her mother to give her the ibilight. She explains to her that it is a system to stay in touch easily. It looks stylish and cozy, so it will fit her apartment well. They chose to put it in the living room, since it is the place where Lisette spends most of her time. Now Eva must connect it to the WIFI through the application she downloaded on her phone. But this is none of Lisette's concern. When Eva finished the installation, they did a test run together to see if it worked.

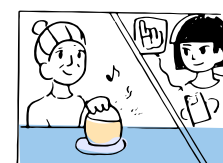


Figure 3: Call me

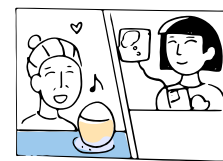


Figure 4: I am thinking about you

### Call me

Lisette came back from her painting class and was really happy about what she made. But she came home to an empty house, and she had no one to show it to. With a big sigh, she decided to go to the kitchen and cook. But then, the light was suddenly switched on with a familiar sound: "Mua, mua, mua, Mama". Eva sent her kisses. Lisette smiled and approached the light to touch it. It felt soft and warm, and vibrated slightly when she applied a bit of pressure, which made the LEDs in the bottom turn on. Eva received a notification that her mother touched the lamp. It was reassuring that she used it. When she opened the notification, the LEDs in the bottom of the light turned off again, indicating that Eva took note of it. She decided to call her. If her mother reacted so quickly, she must have been waiting for her.

### I am thinking about you

Today Lisette did not have much to do. She woke up and did her chores. She washed up and sat down in the living room. It was still bright outside, so the lamp was off. Still, she wanted to let her daughter know that she was thinking about her, so she squeezed the lamp. Eva smiled and clicked on the "Thinking about you too" button. The lamp made a familiar sound again: "Mua, mua, mua, Mama". But the lamp was still turned off since it is bright outside. It gave Lisette a positive feeling, knowing that Eva was thinking about her, too.

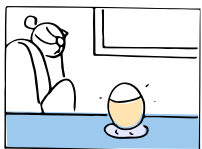
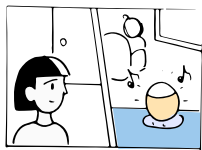


Figure 5: Good night

### Good Night

Eva came home, so the ibilight was turned on automatically, showing her mother that Eva was at home. Lisette was sitting in the living room in front of the TV and did not notice the sound of the lamp. Time was flying as she watched a new show. But the ibilight had a function to dim the light over time and turn off when Eva decided to go to sleep, which was around 12 o'clock. It was an automated process, which could also be done manually when she decided to go to sleep earlier or later. It helped Lisette to keep track of her sleeping schedule, which was difficult since she started living by herself. She touched it one last time before going to bed, indicating that she wished Eva a good night.

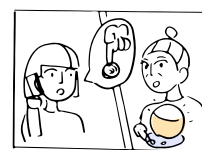
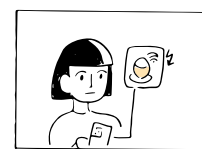
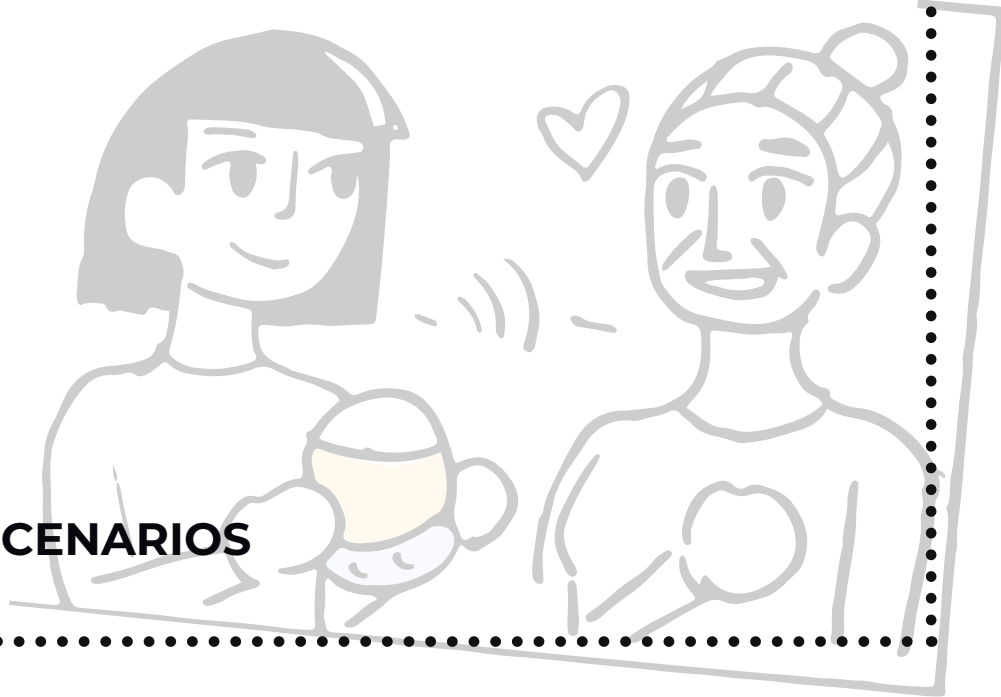


Figure 6: Light does not turn on

### Light does not turn on

Lisette and Eva used the ibilight regularly. The interaction was easy and did not require much effort. Nonetheless, it created a stronger bond between the two. However, Lisette's WIFI stopped working one day, which meant that the ibilight disconnected and that Eva could not control it anymore. Lisette did not notice, and just wanted to send Eva a message like always. However, it seemed not to work. Luckily, Eva got a notification from her phone that the ibilight was disconnected, so she decided to call her mother and instructed her to click the reset button, so it would reconnect automatically.

## HOW IT WORKS INTERACTION SCENARIOS



# TECHNICAL DRAWING

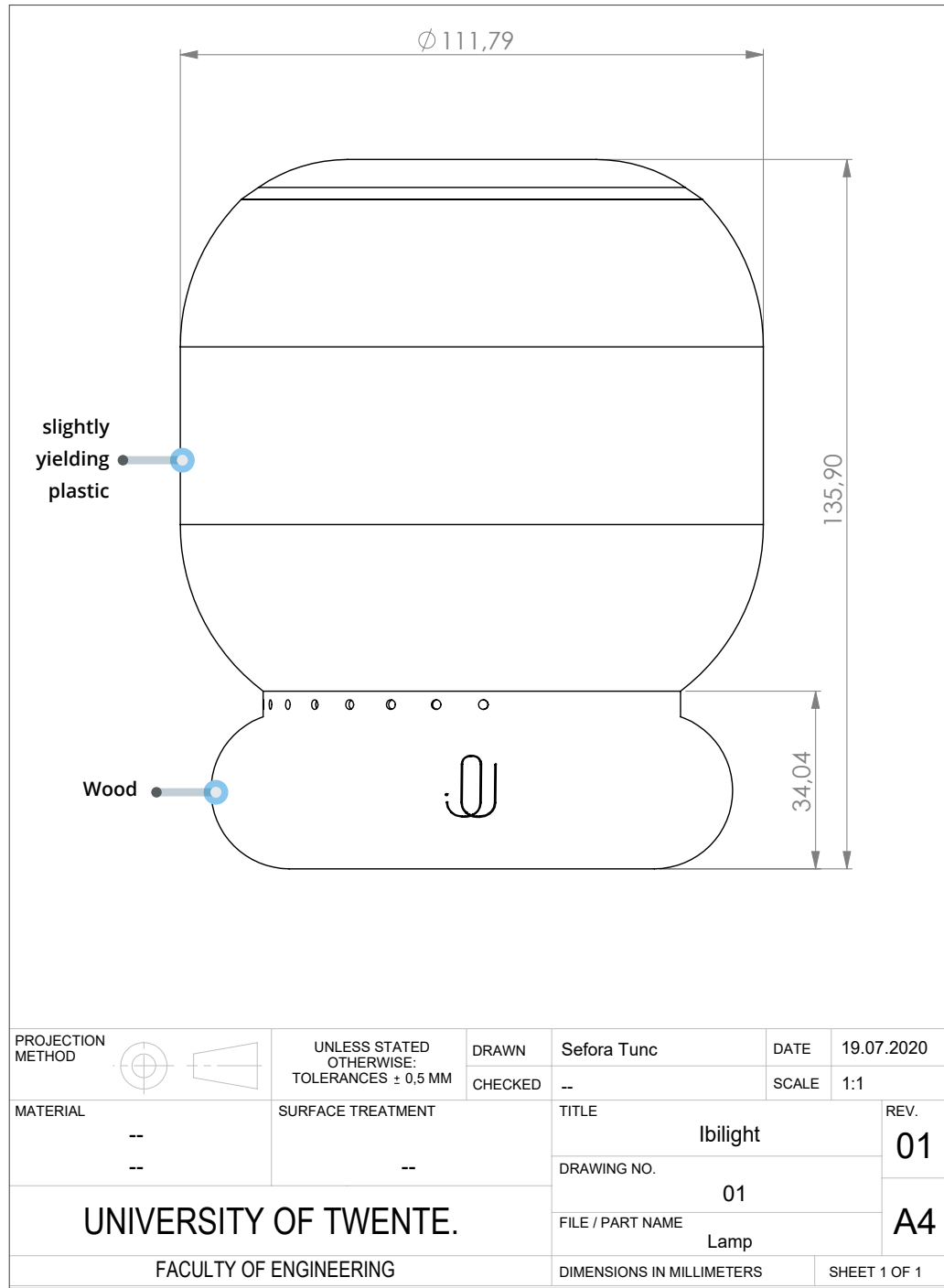


Figure 7: Size and materials used for the ibilight. It is small and uses simple shapes and textures to fit in a wide range of rooms.



# PERSONAS **APPENDIX**



Persona 1: Lisette



**LISETTE**  
68, housewife

**Competencies**

Use PT

**Health Status**

Lisette is a great cook, who pays attention to her health. She eats well due to her various activities and social gatherings. However, walking becomes harder and her eyesight is bad. She can barely see something and has to wear very thick glasses. These do not allow her to drive the car or bike anymore, it is too dangerous.

Seeing	■	■	■	■	■
Hearing	■	■	■	■	■
Walking	■	■	■	■	■
Nutrition	■	■	■	■	■

**Character**

Extrovert	Introvert
Confident	Reserved
Think	Feel
Humble	Prideful
Creative	Prosaic
Flexible	Traditional

**Personal Details**

**Marital Status:** widowed for 6 months  
**Children:** 1 daughter. Married, lives in West of Netherlands.  
**Residential Status:** lives in an apartment complex for older adults in the East of the Netherlands.

**General**

Lisette is a housewife, active in different communities and loved by everyone. But despite knowing a lot of people, she still suffers from feeling lonely. Losing her husband was very difficult for her. She always has been a housewife, taking care of him and their children. Now she is alone and has no one to share such a strong bond with.

**Motivations**

My husband got sick two years ago and we knew he would pass away, which did not make it easier. I tried to give my all in the short time he had left. I took care of him, but he also always took care of me: "Lisette, you need to look after yourself. Do not be afraid to ask for help", he insisted. He would not want me to be sad. He wanted me to be happy and to be taken care of, so he encouraged me to follow my passions and find like-minded people. So, I go to church, I sing in a choir, I follow arts classes, every week I invite friends over and cook for them. I participate in trips with the PlusBus.

**Pain Points**

Despite being surrounded by many people, also many nice people, I do still feel lonely since my husband left this world. No matter how much fun I have in the day, when I come home and have to cook for myself, when I sit at the table and have no one to tell about my day, it breaks my heart. I feel alone and have no one to turn to. I mean, I have many friends, but I would not tell any of them about this. Instead, I would love to call my daughter everyday but I do not want to bother her either. I do not want to be a burden to other people. I am also not looking for another partner, just someone to share my worries with and who can share their worries with me.

**Interests**



Reading



Sewing



Painting



Cooking

**Thoughts about the PlusBus**

- "They have such a big offer. I always find something I like to do! It also helps that they pick me up at home. I cannot drive anymore."
- "I miss connecting to the people after I have left the bus. That would be nice."
- "It is nice that the volunteers help me when my legs hurt. They take away my fear of falling."

Lisette: "I want to come home to someone"

"Next week we will work on your own interpretation of the starry night by van Gogh", explains the art teacher to the students and concludes the session. Lisette is happy, she loves van Gogh. It is an arts class for older adults, where they recreate famous paintings. She used to paint a lot in her younger days, so her work stood out from the rest. Her husband pushed her to visit the class when he learned that he suffered from cancer. He wanted Lisette to do what she loves and not lose the joy in her life.

Half a year ago, she lost him. The house was too big for her, so she decided to put it on the market and move into an apartment complex for older adults, where she has made herself quite some friends already. Together with two of her neighbors, she takes the bus to go home and discusses with them where to drink some tea tomorrow. "Come to my place", she insists. They are laughing, having fun. When they arrive at the bus stop in front of their building, her friend pushes the button. "We are there already", she says. "Oh really? I did not notice", Lisette laughs. Her eyesight is not very good, but with the help of the others it works out.

She saw her friends off at the elevator and went into her apartment, but the apartment was empty. She had so much fun today, but suddenly a feeling of sadness overcomes her. It is hard to live alone, especially after sharing your whole life with the person you loved and still love. She misses eating together, talking about your day, and watching their favorite show in the evening before they went to bed together. But she cannot change it. After putting her painting to the side, she looks at the clock. It was five already, so Lisette goes into the kitchen to cook. She decided to make a pumpkin soup. It was his favorite. She looks at an image of her late husband and sighs. It does not matter how many friends you have, if at the end of the day, you are alone.

**Opportunities:** Sharing grief with others instead of only fun, being oneself (also sad)  
**Threats:** Depression, sleep deprivation  
**Driving forces:** Being open, taking care of oneself

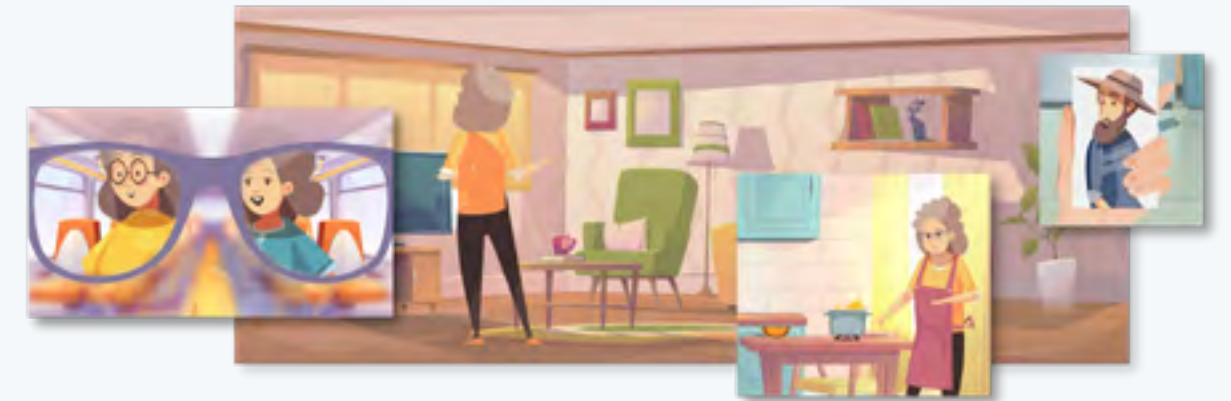



Figure 9: Illustration of Lisette's scenario, showing her with her friends and cooking.

Persona 2: Willem



I do not want to participate in the PlusBus trips. What will it change? I rather stay at home and watch TV.

### WILLEM

73, retired highschool teacher

#### Competencies

Smartphone

Tablet

Computer

e-Mail

Ride Bike

Drive Car

#### Health Status

Willem still can walk relatively well as he likes to work in his garden. His noticed that his hearing is becoming worse. Since the death of his wife he eats much less, as he is not used to cooking and eating alone. Recently, he also started to suffer from incontineene, making it uncomfortable for him to participate in social gatherings. He rather keeps it to himself.

Seeing

Hearing

Walking

Nutrition

#### Character

Extrovert

Introvert

Confident

Reserved

Think

Feel

Humble

Prideful

Creative

Prosaic

Flexible

Traditional

#### Personal Details

**Marital Status:** widowed for 5 years

**Children:** 1 sons, 1 daughter. Both married, only son still lives in hometown.

**Residential Status:** lives in his family house with a big garden. Grew up and raised his children in this house.

#### General

Willem is a retired highschool teacher. He has met a lot of people throughout his career and always was very active until his wife passed away. About 37 years ago he met her at the school they were both teaching at. But instead of enjoying their retirement together, he now is alone. And the situation is very difficult to deal with for him.

#### Motivations

What keeps me going are my children. They make me very proud. I miss my wife very much, but when I look at my daughter, she reminds me so much of her mother. Very caring, and teaches now at a renown University in England. My youngest son still lives here. He recently became father again. It is wonderful. My highlight of the month is when they come visit me and I can play with the children. Or the mails of my daughter with a newsletter of her research group.

#### Pain Points

My children earn well. They always push me to go enjoy my life, offer pay membership fees for communities for older adults.. Everytime they see an activity, they send it to my by mail. I can take care of myself. And I do not want to follow a course about how to cook either. I also do not want to meet new people. My wife and I had many friends, but without her, it is different. It will never be how it was, so why bother? I prefer to stay at home. Here I am safe. I can be myself. I do not have to worry whether I will like it, or if they like me. I am happy working in my garden and playing games on my tablet. The children could just come visit me more often.

#### Interests

Recycling

Composting

Landscape Gardening

Camping

#### Thoughts about the PlusBus

- "I heard only women use it, that is nothing for me"
- "I do not like the idea that I have to spend several hours with people that I don't know without the opportunity to leave when I want to."

Willem: “It will never be like it used to be”

It is Sunday, family day. His son was supposed to visit but the children are sick, which means that they cannot come today. Willem sighs as he eats his breakfast in front of the TV. Some white bread with a slice of cheese. Normally, Willem would have bought some fresh rolls and croissants from the bakery downstairs and have breakfast with his son and the kids. “But why bother? I am all by myself”, he mumbles as he gets up to put the plate in the sink. He cleaned the whole house for the visit but as no one is coming, the dishes will pile up until next time again.

With the TV still on in the room next door, he sits down in the kitchen to check his mails. He leaves the TV on to break the silence in the house. It feels lonely in such a big place when there is no one walking around, talking, or playing. When checking his e-mails, he sees that some old friends invited him to their birthday party. Willem looks at it and hesitates: “It will be weird to go there without Emma. We only were friends because she and Annette got along so well”. Willem and his wife shared a lot when she was still alive. They were teachers at the same school, where they also met each other. All of their hobbies, their work, their friends, everything was shared. It was fantastic. But now Willem does not feel comfortable around these people anymore. Being with them is as if he is missing a piece; it is like reliving a sad memory. “It is not like it used to be”.

Willem changed. He is not as cheerful anymore. He is not as witty or confident like he used to be. He has become more serious, more secluded from others. He used to be a handsome young man, liked by many. But now he suffers from the consequences of losing his wife, losing structure, becoming older. His mentality and body are not the same anymore. Suddenly, Willem gets up and quickly goes to the toilet. Since a few months, he developed a variant of incontinence that occurs unexpectedly and leads to an intense urge to urinate, which cannot be controlled. It is a theme he does not like to talk about. He feels ashamed and rather keeps it to himself. “I cannot show up there like this anyways”, he says, “I prefer to just stay at home and feel safe”.

- Opportunities: Help express problems and fears, develop new friendships, learn to love your body
- Threats: Pride about being strong and independent, Shame for illness, risk of malnutrition
- Driving forces: Family, security



Figure 10: Illustration of Willem’s scenario, showing his struggle with food and incontinence.



Sefora Tunc

Contact: [sefora\\_tunc@live.de](mailto:sefora_tunc@live.de)