Smart Home -project

Finland

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1 Introduction

The task was to write a small analysis of the situation of smart homes in our home country, Finland. The task had to be made before intensive program. We started collecting information separate, each one specifying their search in a different point of view. We focused mostly in elderly people’s living and in smart home technology that supports it.

Smart home is a house in which your life is helped by technology, automation and it’s designed ergonomically and nature friendly. There are many smart homes in Finland, which are made for students’ studies and test environment for smart home technology products. For example JAMK University of Applied Sciences has a smart home in which the concentration is in unchallenged surroundings and safety in living. Another example is in Sastamala where is concentrated more in robot technology.
2 Results

2.1 Common solutions

Smart home technology is easy to change if your life situation changes. Many companies, which sell smart home solutions, modify the services for the customers’ needs. To the older people companies can sell solutions that help their daily lives. Smart home services can help people who are handicapped, so they can also live by themselves. For example if older people get some kind of illness, with smart home technology one can call for help. Families with children can also use smart home technology because parents can control how much children use technology equipment or if the children lose their keys parents can open the home door just by text message. (Älykodin hyödyt, 2014)

The most popular smart home solutions are burglar alarm, fire, lighting and heating system. With those solutions living could be more comfortable, easier and safer. Those smart home solutions could be controlled by cell phones or tablets with their internet connection far away from home. (Lindewall, 2013)

Most of the technology is based on house automation. Everything is made to be easily accessed and easily used. For example lighting is made to adjust itself by the light coming from outside and go off when movement hasn’t been detected in over 20 minutes. (Von Weissenberg, n.d)

2.2 Smart home costs

In Finland there is a rule concerning building new apartments. All new apartments have to be qualified. There has to be enough room to use wheelchair and also opportunity to get in to the house with wheelchair. If there is many floors in the building there has to be elevator. That is why building costs are raising and of course rents too. Building qualified houses is cheaper than renovate old ones after all. (Rakentamisen normitalkoot – esteettömyydestä turhia kustannuksia, n.d)

Of course the latest technology has a high cost especially when you have to order it from abroad, but still you don't have to be really rich to have some smart home technology in your home. If you are living in your own house in Finland you most definitely have what it requires
installing some basic inventions, like a switch to cut all unnecessary electricity, in your home. There’s also starting to be some competition on the market so the costs of advanced smart home technology are much more tolerable. Even so it is still mostly the rich people which benefit from the most advanced technology and it’s because rest of the Finnish people are not brave enough, at least for the time being, to invest moderate amounts of money on it. (Niva, 2006)

Seriously handicapped people can get help from municipality to renovate an apartment. Renovate allow that handicapped can live alone and survive everyday life. Municipalities have to pay also compulsory assistive device and equipment for handicapped person. (Asunnon muutostyöt, 2012)

2.3 Independent life at home for people with restrictions

For elderly, disabled or handicapped people to be able to live on their own in their homes it is really important that if something happens (e.g. they fall on the ground or start feeling bad) they can call for help or an automatic alarm goes off. Some other important devices would also be required. For example a heat sensor that turns off the stove if it isn't being used and an alarm that reminds one to take his/her medicine if necessary.

But although smart home technology would make living alone much more easier, some if not most of the elderly Finnish people are a bit stubborn and refuse to use modern devices or to be under constant surveillance. Still the amount of people who are willing to try new technology is steadily increasing and most of them need devices that are really simple to use. However at some point living alone will get really difficult in Finland because the distances between one’s home and help can get really big and moving outdoors during winter time can be really difficult especially if one is living in the countryside. (Enojärvi, Makkula, Melkas & Pekkola, 2008)
2.4 Where and how elderly people live in Finland

Elderly people are able to live in their homes longer if they are supported with their family, personal helper, physiotherapist, helpful aids and smart home technology. In Finland elderly people usually live alone or together with other elderly in sheltered home with helper. Small part of the elderly people live with their family or together with other elderly people in commune. Usually the member of the senior citizens family visits the elderly person giving company and help. (Pursiainen & Seppälä, 2013)

There is a challenge to assure the service that is needed with elderly people who live in small houses in the countryside. The basic services and help aren’t near unlike for the elderly who live in a flat in town. More than a quarter of people over the age of 74 live in small house. Most of those are located in the countryside where the population is typically sparse. Also over 16 000 of people over the age of 74 live in old houses that are defectively equipped. It’s important to have good and ergonomic rooms if person wants to live home as long as possible. (Monet syrjäseutujen vanhukset asuvat vielä puutteellisesti, 2013)

For elderly people the technical inventions that could help their everyday chores may sound difficult or scary. Nowadays technical devices are everywhere and coming more and more in houses to help everybody. For elderly people it’s hard to remember the directions and physically it gets harder to handle fiddly things. That’s why technical support for elderly has to be well designed. Elderly people accept technical solutions if they are easy to use, have clear instructions and they can trust it. It’s also good to have designers plan a room so you can fit in normal decorations and furnitures without them being in the way.

2.5 Safety risks

Because of the automation and connection to Internet, some smart home technologies are easy way for burglars make their living, because companies don’t use so much money to their products’ protection and some customers may think that smart home technology is so rare and unique that there’s no need to protect it. Customers should always be aware that there’s a risk in Internet-connected smart home solutions. In Black Hat –conference in the USA year 2013 was shown many ways to access to the smart home technology and ways to prevent it. (Kotilainen, 2013)
2.6 Examples of smart home products

Mobile care and safety

Mobile care and safety is a Finnish company and it’s from Jyväskylä. They have products which work with mobile and these are specially made for elderly people, who live alone and they need some kind of security for safety. The old person has a Swing button-app and for example when he falls and hurts himself, he only pushes one button in his phone and then he will be located and the help will come. (Mobilecands, n.d)

TamErgo Oy – Armi activation chair

Armi activation chair is made to help an elderly person or a person lacking strength to get up. The only engine in chair is the sitter itself. Active use of the chair improves muscle strength and balance. It can also be used for independent practice. The chair is invented in Tampere and inventors have also co-operated with Technical University of Tampere.
Beddit Oy

Finnish company that products beds which measures different body functions. For example how much you have slept, how relaxed your sleep was and what is your stress level. Beddit automatically tracks your sleeping patterns, heart rate, breathing, snoring, movements and environment, wireless! It’s the second largest growing company in Finland.

IMAGE 2. Elsa sleeping

IMAGE 3. Beddit measures Elsa’s sleep
Finnproto oy

Finnproto oy is from Finland as well and they make products for handicapped and elderly people to help living in their own homes. Finnproto makes many different models of supports and rails. They have a few models of supports that can (stick on) the bed and it helps to get up from bed easily and ergonomic way. (Finnproto, n.d)

![Image 4. Finnproto support 2](image)

3 Discussion

With a good planning, we managed to finish the project in time. We also visited JAMK’s smart home and asked for more information from smart home’s representative, Toni Pekkola. Team worked perfectly, because we had a common language and we started the project pretty early, which is why we didn’t need to rush with things. Everyone was participating and did their tasks well. Internet sources were quite limited and the information about smart home technology and its development were quite similar in every source. Luckily we had the chance to visit JAMK’s smart home.

After all, we have the technology and knowledge but we need ideas to develop smart homes. Only sky is the limit. For the elderly people, the newest smart home technology may not be needed and it’s more important to have safe and clear environment without many obstacles.
4 Bibliography


