



Lyubov Kolos

How to design a telemonitoring system for epileptic patients? Lyubov Kolos doesn't take technological issues as a starting point. She wants to know how patients live, to see how technology fits into their daily routines. Technology has to do its job in the background, to begin with.

Unobtrusive technology in health care

'Only if you know what sort of life someone is living, you will be able to design new technology that truly has added value. A telemonitoring system, for example, can be technically perfect but at the same time designed in a way that makes it very prominent, putting the being-sick in the spotlights. And that's one of the things patients mention in the first place, speaking about new devices: they have to be unobtrusive. That's one of the first things where technology push often goes wrong. What I'd like to know is, in what way a technical solution fits into daily routines of patients. To find that out, I interview them, I let them write a diary and they visit workshops. It's not only the patients I talk to; the value of a new solution also comes out when you're talking to doctors and health insurance companies. There's always an economic side to it as well. So, my research is not about networks and protocols but about feasibility issues, in a user-centered way.'

'Epileptic patients, in the case I am studying, could be helped by some kind of telemonitoring system keeping track of parameters like their heartbeat and muscle tension. Although not everyone will be willing to experiment with cutting edge technology, I found out that almost all patients are positive about some kind of technical support. Up to now, they're not always sure if their body warns them for a seizure or that it is a false alarm. Sometimes this leads to an unnecessary stay in hospital, and, more in general, to a feeling of uncertainty. A telemonitoring system can help them by recognizing critical patterns early and warn a doctor fast, if necessary. This could be a PDA-type device, a mobile phone or even a system that is present in an invisible way in the surroundings. I don't want to be limited by this beforehand. What I want to know from the patients is what are their daily goals. This starts with the activities they have during the day. If they take a bicycle ride or a walk in the park, the system has to be prepared for that as well: will they encounter situations that can have an impact on their health? What I also want to know is what they now do in an emergency: who do they contact and how do they feel about this?'

'Within a 'smart home' or 'smart surroundings', you can also imagine sensors that help to prevent the patient entering a risky situation. All too often, technical solutions do not solve the real

problem, or cause new and unforeseen problems. A system that warns the nurse whenever an elderly diabetic doesn't take his or her medicine in time, is mainly meant to prevent bad blood flow caused by this late medication. This bad blood flow is a serious problem. But instead, people start to 'forget' their medicine on purpose, to get some company. The intentions are OK, but technology doesn't force a solution in the right direction.'

'That's why, in the end, I want to come up with a methodology for requirements engineering, providing designers with a set of recommendations. Of course, the case of epileptic patients is very specific, and within epilepsy there's a large variation as well. With the approach and outcomes of the first case, I want to study another case as well, to get to know if the approach can be made more generic. This is close to marketing, which interests me a lot.'

'It's very interesting to see how patients imagine their ideal system. Some people would like a system that welcomes you in the morning: 'Hi Anna, how are you today?'. Others prefer a system that automatically changes colour to the colour of the clothes they wear that day. As a sort of game during the interview, I let them make a drawing: you then see technology through the eyes of the user.'

