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Computing against the Grain

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We might believe that by making our lives more comfortable with certain forms of ubiquitous computing, we are making them better. While in real life, we are doing the complete opposite.

There is good appliance of technology versus bad, technology and computers that truly help us versus those that only appear to help us. In this paper I will give two design drafts within ubiquitous computing that reflect my own philosophy of computer technology and the role it should have in our lives. In the first project that I call 'Winternational Bench' I try to get people to reflect that we must work together for a better world and consider how our actions in one place have consequences somewhere else, both positive and negative. With my second project I will sketch out an interesting way to harness our own energy that we produce every day and recycle it for our own use; I call this project 'PowerPack'.

Leisure and Technological Evolution

I believe that an increased awareness level among us combined with the use of ubiquitous computing can create a better place to live in. The world that we live in today tells

us that we need to work faster, more efficiently, produce more and be more successful. The majority of technology that is produced today reflects this way of thinking. The only problem as I see it is that the time we win by using technology and computers is not necessarily spent on doing those things that most people consider make us happy: spending time with the kids, going fishing, reading books, enjoying the mountains, travel, experiencing other cultures and so on. The time we win by using technology has been spent on producing even more and working even harder. That's fine; it's what contributed to our living standard and comfort of today in the western world. But maybe some should be used for activities similar to those I mentioned above, and get us out of our homes to experience some contrasts in our daily lives.

Can technology help us experience these contrasts that in the end will make us enjoy our lives more? And if it can't, can it help us to deconstruct our 'cubicles of technology' so that we at least can see out the window from our desk at work as the main character does while gutting fish in the office comedy 'Office Space' by Mike Judge.

As we are liberated by ubiquitous computers at work and in our homes by not being forced to sit in front of a screen all day to interact with a computer, we are applying ubiquitous computing to many tasks where we never used computers before. By doing this we get a lot of help in a lot of areas where we before had to use logic and reasoning to perform a task properly. What are the long term effects of living in homes with ubiquitous computers where we become less and less in need of the daily use of our own logic and reasoning? A ubiquitous computing appliance example of this could be:

> *You don't need to watch the weather to find out what jacket to wear on your way to work. The rack selects the most appropriate one for you as you are on your way out.*

Another could be:

> *You don't need to reflect about how long your cup has been dirty and that it may need cleaning. The cup does it for you.*

I do understand how a calculator can be used to make work easier in complex daily tasks, and how a small computer like that can ease the stress on people's lives. But taking away the reasoning and mental challenge of sorting our laundry and deciding when to clean our dirty cups is not a way to enrich people's lives in a true sense. It may well be just another step in making us into zombies where we don't need to use our logic and reasoning anywhere else than at work and in our specific job duty. Maybe the small trivial dilemmas of daily life act as a nice balance to an increasing

workload and mental stress that we find in our highly specialized and often monotonous work environments. Bringing this classical western perspective of automating daily tasks in life so that we will live even more comfortable and therefore happier lives, is to me a strange and naive approach that takes us back 50 years, not in technology but in how we apply technology. It feels like an outdated way to view happiness and how we define the true meaning of a 'rich' life.

As we humans built ourselves in this castle of technology-comfort we seek more and more adventures in extreme sports and ecotourism and so on. TV is already jammed with reality shows like Survivor, of people getting back to basics. Movies like Fight Club to The Matrix show zombie careerists at boring grey jobs that on the verge of insanity start searching for truth. Most people are not far from this image as robots in an enormous corporate landscape. Many sit still all day performing monotonous tasks and come home to comfortable suburban lives that contain tons of comfort-creating electric appliances that are supposed to enrich their lives. Lives that are so much without contrasts, warm and cold, fear and enjoyment, physical pain and pleasure, that they have forgotten the last time they felt truly alive. I believe these primitive contrasts are essential for humans to feel truly happy. If you never feel cold you never appreciate the simple pleasure of coming home and lighting a fire in the fireplace. If you never have to lift a finger in your daily life, you never know and appreciate how wonderful it is to truly relax.

A life without contrast and challenges except those that we get at work may work for the small percentage that have a very exciting and multifaceted job, for the rest that don't share that luxury and have pretty monotonous jobs, household chores such as home improving, gardening, cooking and shopping for groceries are welcomed ways to spend leisure time. To draw the conclusion that technology performing these activities will give people more time to "free our minds of unnecessary work, and connect us to the fundamental challenge that humans have always had: to understand the patterns in the universe and ourselves within them"[1] sounds good to me, but will most people take this opportunity though?

For those who won't take this opportunity, and just spend more time in front of the TV, technology might have an important role in helping them to discover "the patterns in the universe and themselves within it". Could a certain application of technology and computers play a role like that? I say it could. Ubiquitous computing could do this by first liberating us from the 'desktop hell' that a lot of us experience at our jobs and our homes, but it doesn't end there. I believe that the proper application of ubiquitous computing could help us by shining light on things that are worth reflection, and help us value things that enrich the experience of

being human. Technology and ubiquitous computing could be used to help us enjoy the whole spectrum of physical and mental sensations in life to a greater extent. Ubiquitous computing could make us aware of who we are and the impact we have on the environment and other lives, cultures and countries. It could help us re-enter into balance with our environment, animals, which in the long run will be what truly 'helps' us, while coffee cups who'll let us know when they are dirty won't.

Following are two simple ubiquitous computing design drafts that I believe not only could make our lives more comfortable, they could also make them better.

Draft 1: Winternational Bench

Benches in our parks and all over town during winter aren't used unless it's a sunny day and a clear blue sky; even then they aren't used for very long. The Winternational Bench will heat the bench to a comfortable temperature for people to enjoy the outdoors more during winter. The bench will bring people of all ages out of their homes even on not so sunny days during winter. The trick with these benches is that you need teamwork to really enjoy them. With teamwork I don't mean that you need a friend or relative to help you heat the bench for you. You need teamwork by a stranger from perhaps another part of the word. The bench works as follows: for one part of the bench to be heat-activated; the same part, but on another bench in another cold part of the world must be sat upon. So basically, two humans at separate locations in the world must help each other to keep warm. They heat activate each others seats. The benches are heated by warm water pipes running through them, while sensors connected to software on a server connect the two benches through the internet for interaction.

Scenario

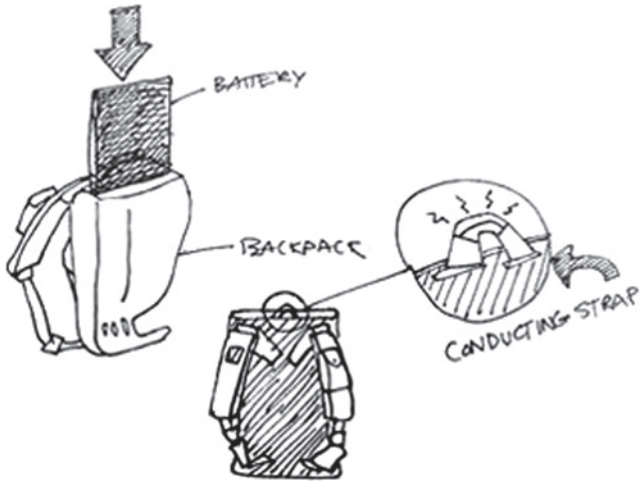
It's February. Jack Young is a former restaurant owner who lives alone in his old brick house on the upper east side of Manhattan, he's 60 years old and loves going down to Union Square on Sundays for the farmers market. As he arrives to get some vegetables for the dinner with friends he's hosting every Sunday evening, he has learned that at 2 o'clock every Sunday, the leftmost part of the bench closest to the subway entrance will be heated and very comfortable to sit on watching the wonderful Sunday crowd. Jack has suddenly found himself in symbiosis with 80 year old Dimitri in another part of the world. Dimitri sits watching the evening crowd at a small square in Moscow. At the same spots, at the same time every Sunday, they help each other to keep warm for about an hour. Sometimes Jack gets disappointed when his Russian friend leaves early for a chess game. On his way home Jack reflects

about the bench and the person in Moscow, wondering why his friend leaves 10 minutes early every other Sunday. He might get as curious as to visit this other bench one day only to see who his 'benchbuddy' is, but for now he needs to get some cooking done before the guests arrive and is very satisfied with his transatlantic friendship as it is.

Draft 2: PowerPack

The power pack is an idea that sprung out of a fun reflection at the gym. All these people spend hours in the gym at spinning classes, at rowing machines and at the weight machines producing vast amounts of energy that is not used for any good. We transform energy at the gym, on bicycles, as we walk, from muscles into friction and movement that with the PowerPack could be harnessed and used at home to generate electricity for laptops, TV's, lamps and other utilities. When we go to the gym, the backpack is automatically connected to the gym's energy supply by a conducting strap that you use to hang the backpack in your locker. The energy that is charging your PowerPack is generated by the people using the machines in the gym. Every machine at the gym has a generator that transforms the kinetic energy into electricity.

As you get home from the gym, you simply connect the PowerPack to your electrical system by hanging your backpack on a designated PowerPack hook. The backpack also has a visual indicator of how charged the battery is, in the shape of inflatable pockets on the outside of the backpack. The more inflated those pockets are, the more charged the battery is. This way a user can get a visual indication of how much energy he/she for example generated at the gym, or how much energy is left in the backpack while hanging on the wall at home. The user can also touch and squeeze the backpack to feel how much air is left in the pockets, thus physically feeling how much energy is left. This is to concretize energy and electricity for us so that we in a larger sense can reflect upon how much energy our bodies generate and how much we consume. It also re-enacts the ancient traditions of collecting freshwater out in the 'wild' to be consumed at home.



In the future, battery life will be even longer to maximize the usefulness of the PowerPack as a product in our every day lives. We might not even know that we have batteries in our backpacks that harness all the energy we spend on bikes, in the gym, as we walk. We'll just know that our PowerPacks take care of our energy consumption at home and that there are no more electricity bills waiting for us in the mail.

When humans burned coal and split atoms to generate energy for all the junk we surrounded us with in our 'smart homes' will be a part of history and part of a era of very primitive and highly short sighted ways to generate energy. The feeling of autonomy will spread among people and the guilt of consuming too much energy in the western world will be diminished.

Scenario

Jenny Lindström is a 24 year old student at the Chalmers University of Technology in Gothenburg, Sweden. She is a semi-active person who attends the gym every other day. Jenny and her friends all use the PowerPack backpack to complement their regular electricity in their small studios at the student housing across town.

She wakes up, it's Monday, time for classes again, but not until 2 p.m. Perfect, Jenny decides to go to the gym for a spinning class and to lift some weights. She has breakfast in her pajamas, jumps in the shower to head to the gym. Her gym clothes are in her PowerPack which air pockets are completely deflated which tells her that she spent a lot of electricity last night while watching all those meaningless reality shows, using her laptop and keeping too many lights on in her apartment. She straps the PowerPack onto her bicycle that has a small generator which generates electricity to recharge her PowerPack. After 15 minutes of biking she arrives at the gym. As she gets ready for the spinning class, she hangs the

PowerPack on the PowerPack hook in the locker and locks it with the rest of her stuff.

Phew! What a spinning set, Jenny is exhausted. Now she'll just lift some weights before it's time to head for class. When Jenny is done at the gym, she leaves her bicycle behind because she is too tired to bike anymore. She takes the bus to school and back to bring her bike home. As she's home she hangs her PowerPack on the wall, next to the coats in the hallway. The PowerPack is connected to the main electricity supply for her apartment, the air pockets are fully inflated, which she can feel and see. This means that she can enjoy her laptop and TV all evening with a clear conscience, as she never liked those coal and uranium power plants anyway.

Conclusion

What I've said so far might incline that I don't like human progress and technology, but couldn't be more wrong. The issue that I want to stress is that there's good appliance of technology and there's bad, I think it's good to look out the window to decide what jacket to wear and to understand why we need to clean dirty cups. It keeps us in touch with being human entities that consume things on the planet. If we get too far from who and what we are by 'comfort technology' doing everything for us, there is no chance to make a conscious decision or standpoint in everyday things.

As the 'less evolved' Indian of the 18th century North America much better understood how his consumption impacted on his surrounding, we now 'more evolved' stand clueless. If he was in the need of meat, he had had to kill a buffalo. Today when we get a car, the global economy has taken us far from the real impact and consequences of our decision. The gasoline, the plastics, the rubber, the fabrics that go into making and maintaining a car is not derived from our backyards where we can see the direct consequences of our decision. They are derived from some place else, often poorer nations with little chance to raise their voice or organize themselves politically. It's often their backyard and therefore problem. Billions of people on this planet consume junk with no apparent clue on how it affects someone else's surroundings.

If Volvo would take all the raw materials that go into the making and maintaining of the red Volvo c40 that I just ordered from my car dealership from my very own backyard, I would most definitely reconsider my priorities a bit and reflect about my impact as a consumer on my surroundings.

Note

1. M. Weiser, Open House I: Review, the magazine of the Interactive Telecommunications program of New York University, ITP Review 2.0, March 1996.