



**Mobile Life
VINN Excellence Centre**

.....the beginning





This work may be cited if a reference to the project is included.

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Second generation of mobile services: right here, right now

Today, mobile technologies provide us with access to distant colleagues, friends and activities. In the future, they will also give us better means to engage in the situation and location we are in at any particular moment.

The mobility of persons and goods is essential in modern society. People move to conduct work, for leisure or to sustain community life. We make long journeys to work or visit friends. We constantly move around on a much smaller scale for such mundane needs as to stroll around in the woods or walk up to a coffee machine.

The first generation of mobile technology has provided means to people who were deprived of the desktop computer and office phone to better organise and experience their activities. Mobile phones and networked mobile computers have given us access to services and people that are not in the same place as ourselves. The technology has successfully allowed us to interact in various ways over short or long distances.

But our mobile lifestyle also has consequences for the ways in which we interact with the places where we are at a particular time. A mobile lifestyle brings

with it a more temporary relation to the locations we visit and the situation we engage in. Mobility allows us to encounter more people and visit many places. But the relations might be thinner and the visits shorter.

First, people who are on the move as part of their jobs can be difficult to collaborate with. They may be hard to find, or it or it might simply be tricky to figure out their availability for a meeting or a particular shared task. Therefore mobile work has a tendency to depend on people with more individual responsibilities, as compared to stationary work, where collaboration draws upon peoples' collocation. Second, even though mobility means that the chances of meeting more people will increase, these meetings might be shorter and more shallow. Therefore it might become harder to build meaningful social and professional relationships. And finally, the mobility of people obviously takes us to many more

places – but every visit will be shorter. Thus a mobile person will be more misplaced in a specific setting.

In a truly mobile life, we not only need access to people and activities in other locations – we must also always consider the things at hand. We can expect a new generation of mobile services that provide better means for exploring and engaging with unplanned activities, unfamiliar places, and brief encounters – in other words the world as it is right here and right now. As work, leisure and social activities blend together, this shift to services that provide both global and local access become important both to support work-oriented tasks and to emerging leisure-oriented activities such as mobile gaming, community services and media consumption.

This requires a new approach to how mobile services are designed and evaluated – not remote and disconnected, but right here, right now. The Mobile Life Vinn Excellence Centre will be a hotbed for Swedish research and development of these next generation mobile services.



*Kristina Höök, Oskar Juhlin,
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MOBILE LIFE

VINNExcellence Centre

The Mobile Life Centre at Stockholm University in Kista, Sweden, performs research in mobile services and ubiquitous computing. The Centre joins forces with local research organization such as SICS and Interactive Institute. The topic of the Centre includes research on consumer-oriented mobile and ubiquitous services spanning all areas from entertainment and socialisation to work and society. It has major partners from the IT and telecom industry, including Ericsson Research, TeliaSonera, Sony Ericsson and Microsoft Research Ltd. Partnerships in the public sector, including City of Stockholm Municipality and Kista Science City will secure societal relevance, and collaboration with Stockholm Innovation and Growth ensures that results are integrated in the innovation system. In the Centre, this academic, industrial and public partnership will be able to jointly work on strategically important projects that can provide a sustainable growth for Sweden. The centre is funded by VINNOVA on a 10 year grant, 2007 - 2017.

The Centre adopts a fundamentally user-oriented perspective on services for the future mobile life. It provides a neutral arena where researchers and industrial partners together develop:

- New interaction models and platforms that provide a unified interface across different applications and terminals
- Efficient and user-oriented methods for developing mobile services
- A deepened understanding of the unique properties of the future mobile life
- A future mobile service ecosystem where we explore alternative universes for infrastructure, business models and the industry's new roles
- New mobile and ubiquitous services in areas such as pervasive games, social, emotional and bodily communication, Mobile 2.0, and new mobile media

Partner Descriptions



Research Organizations

Stockholm University

Mobile Life will be organized as a unit under the Department of Computer and Systems Sciences (DSV) in Kista. The Centre will be physically located in the Kista campus in the Electrum building. Through Stockholm University, the research in the Centre will be well connected with future undergraduate and graduate educations. Students employed at the Centre will be enrolled in the masters and doctorate programs within the University, primarily in the Computer- and Systems department. Senior researchers will be actively involved in the formation of such programs, primarily in this department but also in other departments within Stockholm University and the Royal Institute of Technology (KTH).

SICS and Interactive Institute AB

The role of Swedish Institute of Computer Science (SICS) and Interactive Institute AB in Mobile Life Centre will be that of a co-executor of research together with Stockholm University and some of the research will be contracted to SICS and Interactive Institute. SICS and II have their main offices in Kista.

Industry Partners

The group of industry partners for the Centre is expected to grow during the Centre life time, reflecting that the industry for mobile services will grow and to some extent mature during this period. Here, we describe the set of partners that are involved from start.

Ericsson AB

Ericsson is a world-leading provider of telecommunications equipment and related services, to mobile and fixed network operators globally. Ericsson Research will provide the Centre with concrete technology as well as deep knowledge in the opportunities and limitations of future telecommunications systems and their interaction with other technology such as WiFi and peer-to-peer networking.

TeliaSonera AB

TeliaSonera is the leading telecommunications company in the Nordic and Baltic region. TeliaSonera bring to the Centre its vast

experience of service provisioning, both from a cultural and business technology but also on multiple platforms including both fixed and mobile telephony, hot spot wireless communication, portals and communities.

Sony Ericsson AB

Sony Ericsson Mobile Communications is a global provider of mobile multimedia devices, including feature-rich phones and accessories, PC cards and M2M solutions. Sony Ericsson brings to the Centre both the technical, practical, and business requirements associated to the development of novel and innovative mobile devices.

Microsoft Research Ltd

Microsoft Research Ltd has identified three key domains in which support from Microsoft will enable University researchers to achieve the greatest progress: the emerging computing environment, transformation of science through computing, and advancing computer science curriculum. Through its focus on social and mobile services, the Mobile Life Centre targets the first of these areas. The researchers of the Centre have a well-established collaboration with Microsoft Research Ltd in Cambridge, furthering in particular the deep understanding of information technology use in everyday life activities.

Public Sector Representatives

City of Stockholm Municipality

Within Sweden as a whole, the Stockholm region and Kista play a crucial role in the establishment of a consumer-oriented service industry. This role has been recognised by the City of Stockholm that has chosen to establish and participate in several initiatives focused on this sector, including the Mobile City Initiative (MCI), the Kista Mobile Showcase, and now to participate in the Mobile Life Centre. The City of Stockholm plays a natural central role in the Mobile Life Centre, through providing multiple channels for local collaboration, dissemination, and take-up with both small and large companies.

The city of Stockholm contributes to the Centre by being prepared to be test-users representing the public sector. Furthermore the City strives at coordinating and cooperating regarding the various mobile initiatives in the city.

Kista Science City AB

Kista Science City brings to the competence Centre its project 'Kista Mobile Showcase' as well as several contact networks for small- and medium sized service development companies in the Stockholm area. The Kista Mobile Showcase is a physical test- and demonstration platform for the concrete presentation and dissemination of results, where the industry partners have provided both hardware and software for demonstration purposes. Kista Science City will set up a framework which enables its showcase partners and network members to participate in the Mobile Life Centre activities, further strengthening the dissemination and take-up potential for the Centre.

Innovation System Partner

STING

Stockholm Innovation & Growth (STING), founded 2001, is a support 'system' for technology startups. The ambition is to generate more technology startups through a well-designed extensive support system. STING provides support for entrepreneurs at a very early stage continuing throughout the growth process. The aim of STING is to commercialize ideas from the IT-university, research institutes and spin offs from company employees. STING offers support for entrepreneurs in four sequential programs named Startup, Business Lab, Business Accelerator and Go Global. STING also offers pre-seed capital via Sting Capital, a new venture capital company for technology startups.

Project Descriptions

The Mobile Life centre has initiated six projects that will run for the first two years of the centre life span

Mobile Eco-System
Generalized Interaction Models for Mobile Services
(Em)bodied Emotional Interaction
Mobile 2.0
More Video!
Socially Expanded Games

Mobile Eco-System

The Centre will do justice to the users' role as customers of mobile services. We will study, and also do experimental research, on the organisational and economical landscape in which the service is placed. In our vision, there will be an abundant market for mobile services of various kinds to please different customers and different interests, which differ from the current situation where the value webs are dominated by large operators collaborating closely with equally large technology companies. From the user and consumer perspective, it is imperative that mobile services can be shared irrespective

of mobile device, operator or country the users happen to be in. Furthermore, the industry must support rich and dynamic generation of services, even including the users themselves as service providers. We will specifically address the role of the future network operator and the necessary models to sustain and thrive on useful and meaningful services.

Our ambition is to approach the future mobile service market in the same innovative and experimental way as we approach the individual domains: by experiments with alternate market spaces for mobile services

and ubiquitous technology. The key goal is to understand how a mobile service eco-system can be made to work. The term eco-system is used because it puts the service in both users' contexts and in business systems. This alternative mobile service eco-system will be explored through several activities – one will be a working environment in which both Centre partners and others (e.g. SMEs) can enter their mobile services to be tested with these alternative business- and operator models.

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Generalized Interaction Models for Mobile Services

This project will develop generalized models for how users can interact efficiently and intuitively with a wide range of mobile services, without having to learn a new interface or metaphor for each one.

Currently, mobile devices often make use of variations of the desktop metaphor, originally developed by Xerox PARC in the 1970's for document processing on stationary computers. This is problematic for several reasons. The obvious one is the small size of the device as such, which can make pointing and direct manipulation problematic. More interestingly, mobile devices are used in shifting contexts and many mobile and ubiquitous services weave together environmental factors such as the context, other devices, other people and

physical artefacts with the core functionality. They also often make heavy use of various wireless technologies, which can offer widely different capabilities according to the different circumstances in which the user is situated.

We believe that mobile services should not imitate the models invented for stationary work stations, but find their own shape and nature. This will make it possible to better situate mobile services in the real-world contexts in which they are a part. For example, it may be that most services will be seen as spread resources than can be accessed through other people's mobile devices or through wireless connections, rather than as services that need to be downloaded to my particular device and used from there.

New technical developments also make it possible to make use of sensors, tangible devices, haptics, wearable computing, and other materials that allow for more physical interaction with the mobile and ubiquitous services.

In this project we will therefore revisit the idea of what we mean by an application, a process, being connected, and distributing information and interaction. This will help us find new ways of addressing general problems of mobile interacting, and to the formulation of a unified set of interaction primitives and input/output operation that can be generalized over a whole range of different mobile services.

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(Em)bodied Emotional Interaction

In face to face communication it is not only what is being verbalized that carries valuable information. By looking at people's body language, listening to their voice or catching up on their vibes, it is possible to learn so much more of what they actually want to communicate. In digital media, people attempt to communicate as much as possible of these physical and personal experiences of conversations; phoning, sending SMS/MMS, taking photographs, using smilies or emoticons, but still there is little personal and

physical experience of the dialogue. Keeping in touch with friends and family to maintain strong social and emotional ties is however as important as before, if not even more important in our busy and technologically driven lives.

In this project, we want to create systems that use both physical and cognitive modalities so that users get strong experiences of the underlying and more physical signs that occur in real life communication. However, we do not believe that these experiences

need to be and also could not be exactly the same as in real life. Instead we argue that the digital setting instead has other modalities to offer.

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Mobile 2.0

Web 2.0 is one of the hottest memes to appear in recent years. According to Wikipedia, the term refers to “a supposed second-generation of Internet-based services — such as social networking sites, wikis, communication tools, and folksonomies — that let people collaborate and share information online in previously unavailable ways.” It also implies accessing services through a unified, distributed interface – i.e. web browsers. In fact, what the user sees often looks just like a stand-alone application, except that it runs in a browser window.

Most phones come with web browsers and already the idea of a “Mobile Web 2.0” is doing the rounds. It is only a matter of time before most mobile phones can access even the most complex Web 2.0 services. But as we already know in the Mobile Life Centre, using services designed for a stationary environment on a phone is not always such a great idea. This project is about how the combination of advanced mobile terminals, on-line services, and mobile context can be leveraged beyond the idea of simply accessing Web 2.0 services like wikis, Flickr!, MySpace,

Google Maps, etc. on the move. In particular we want to look at multimedia content such as music, movies and photos – both user-generated and provided by professionals – and the collaborative aspects of finding, browsing, sharing and recommending such media.

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More Video!

This project on future Mobile TV, will specifically focus on the creation of new and innovative services supporting the local and collaborative production, distribution and consumption of mobile media, and especially TV and video. The design will be informed by ethnographic studies on current media usage in mobile situations as well as ethnographic studies of professional TV production.

Motivated by a number of contemporary trends of media production and media sharing on the Internet in the area of user content

creation, such as blogging, podcasting, and wikis, and by similar attempts made by mobile phone manufacturers to incorporate mobile blogging and high quality video recording functionality, we argue that the scope of research and development efforts around mobile media should be extended. It is possible to envision mobile, collaborative and mundane user content creation, which may result in local production, distribution and consumption of mobile TV on the spot. We envision applications whereby the media

material will be locally, collaboratively and timely produced and shared with others within their peer group in mobile situations. Thus, more TV will be generated in new social situations by non-professional people.

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Socially Expanded Games

Games are usually considered to take place inside a defined social boundary – a *magic circle* – which serves as a protective frame defining playful events as happening outside the players' ordinary lives. Pervasive games – game that take place in the real world and integrated in everyday life - are however typically socially expanded. A socially expanded game does not maintain a clear boundary between the participants and the non-participants of the game; instead the roles become ambiguous and the games offer opportunities to shift in and out of the player role.

The main attraction of pervasive games is

that they are reality-based, drawing upon a real world which is richer, more varied, and emotionally and historically more interesting than any made-up game world can be. Pervasive games provide a 'lense' through which we see our ordinary environments and activities in a new perspective; mundane activities of ordinary life can be perceived as a playful and enjoyable experience. For this reason, social expansion is not an ethical problem to be solved but a core design feature of pervasive games that we can draw upon to make the games culturally richer and more valuable. In this, it is equally important to study the effects of social expansion both

from a player perspective and from the perspective of the by-stander who becomes aware of the game.

The goal of this project is to set up and study a range of pervasive games that are socially expanded. Some games will be developed as experimental prototypes within the project, to study specific design options including unaware players, reward structures, and rabbit hole invitation models that combine real-world and mass media experiences.

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Demo Descriptions

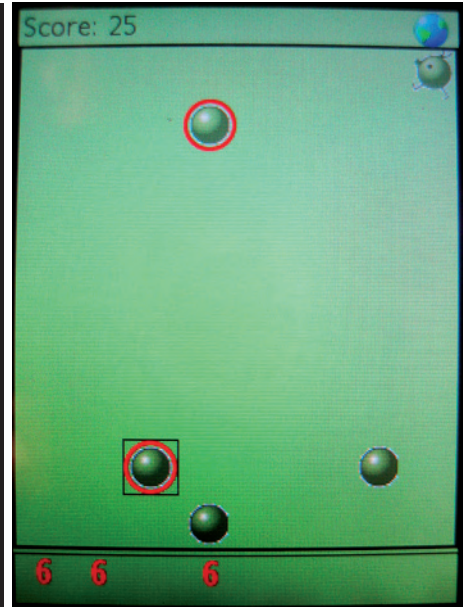


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Affective Health
Affective SensorNet
MobiTip
GlowBots
Push!Music
Push!Photo
Autonomous Wallpaper

Hot Potato

Hot Potato is a pervasive game created for Bluetooth-enabled cell phones. It illustrates how people and the environment around us play a role in reality-based games. When the game starts, each player carries a number of (virtual) potatoes. The potatoes heat up as the game progresses, and eventually they burn. If this happens the owner of the potato is out of the game. Players can cool down potatoes by associating them to people close-by who are carrying mobile phone (using Bluetooth), without their knowledge. When the potatoes have cooled down, they can be picked up by any player. The player who has carried the most potatoes for the longest time wins the game.

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Build your own pervasive game

We demonstrate how pervasive technology and knowledge about pervasive game design have been built into an on-line system for developing and running pervasive games. The online system is directed towards non-specialists or programmers, and centers around central concepts for pervasive games; the people, places, and things used in the game. It is also built in an extendable way, to support a wide variety of ubiquitous technology.

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More Video!

MoreVideo! is a new research program that explores and develops technologies for collaborative real time production of mobile video. This first project explores possibilities and limitations of mobile video streaming and user content creation entering the mobile domain. The setting for this application is a club environment, where visitors co-produce live video visuals on location, to be edited, processed and displayed on large screens. The video content created by the visitors is streamed from mobile camera phones using custom software and edited live as a part of a visual performance.

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Backseat Playground

Backseat Playground creates a unique game world that permeates the objects and landscape that you pass by, regardless of whether you are a passenger in the backseat of a car or sitting in the bus on the way to school. Backseat Playground uses mobile technology in combination with GIS-databases, GPS and compass, in order to create a unique and innovative experience wherever you are in the road-network.

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Backseat Grabber

Backseat Grabber provides a new interaction form to enable more interesting location based journey games. When the passenger who enjoys such game play, and direct his mobile phone towards passing geographical objects, it will generate a tactile feeling of being touched by the hand. "zombies" at a graveyard, or the "magnetism" around a power wire, will reach into the vehicle.

The demo combines the results of two separate master projects i.e. "the haptic cube" and the "the mobile direction sensor".

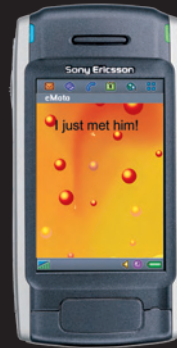
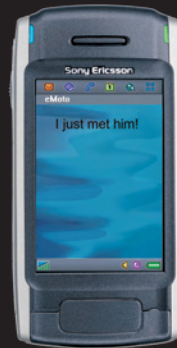
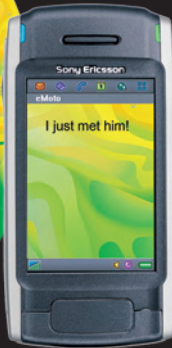
Contact person: Anton Gustafsson, anton.gustafsson@tii.se



eMoto

eMoto is a mobile messaging service for sending and receiving affective messages. The application extends on both input and output channels when sending text messages between mobile phones. The aim is to convey more of the emotional content through the very narrow channel that a text message otherwise provides. Emotional communication between people meeting physically in the “real world” make use of many different channels, such as facial expression, body posture, gestures, or tone of voice, little of this physicality of emotions is used in a similar digital context. In eMoto users therefore use affective gestures to convey the emotional content of their messages which are then translated and communicated in colours, shapes and animations.

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Affective Diary

With conventional diary keeping as our starting point, we have created a digital diary where users can scribble their notes as in a conventional paper-based diary, but where we also record bodily memorabilia. The bodily memorabilia are constructed from body sensor data. We also enter mobile media, collected from our users' mobile phones, into the digital diary. Put together, the mobile media data and the bodily memorabilia offer scraps and bits from our users' daily life that invites for reflection and production of narratives descriptions of their experiences.

Contact: Anna Ståhl, annas@sics.se



From: me
2006-03-16 11:57:00
Hi Dear! Thanks for yesterday!
Now Im all wired up. I thinking of
buying fresh coffee to bring to
Anna and Daniel, we could share
it as a present! Kisses!

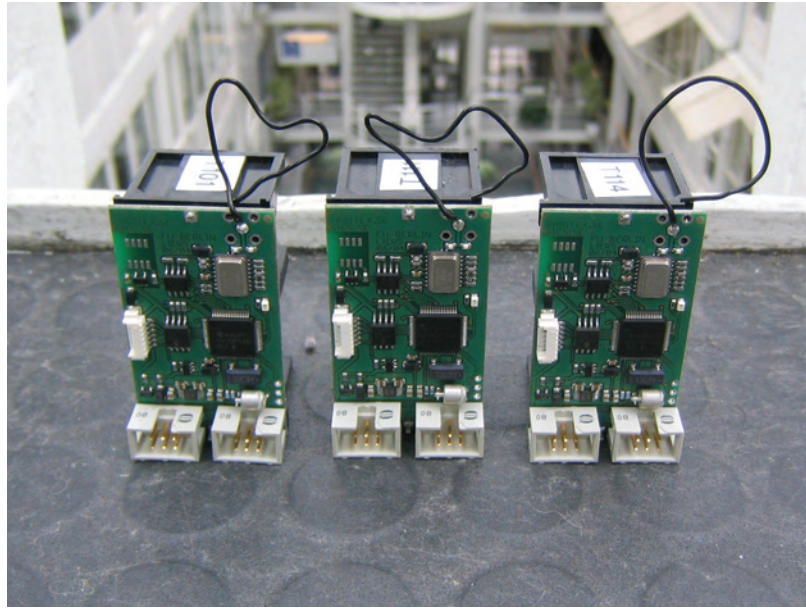
Glad!

Lugn

Affective SensorNet

A joint project, in its start-up, between Mobile Life, TeliaSonera and The Networked Embedded Systems (NES) group at the Swedish Institute of Computer Science. We aim to explore the complex layers of friendships, layers that are not so easily captured by newcomers but also hard to get hold on by people deeply involved in these friendships. Layers that constantly change when people argue, fall in love or get emotional with each other, layers that are inseparable from situation, social context and physical surrounding. The method is prototype-driven and the design process is coming from two different directions, one conceptual where we use various creative methods to get closer to people's real life experiences and practices of friendship and one direction inspired by methodology within product design and where a sensor network with its prominent hardware properties and the actual programming required is the design material at hand.

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MobiTip

MobiTip is a Bluetooth enabled social mobile service that allows its users to exchange tips about objects, places, events or people in their neighbourhood. User movement, tips and reactions to tips form a web of social trails that is propagated between MobiTip devices as their users pass in range of each other. Co-present users are also visualized on the screen of the device. What tip is presents in a given situation is determined based on similarities between you and your fellow users, and on tip popularity.

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GlowBots

GlowBots are small robots equipped with round displays that can interact among themselves and with the users to create interesting patterns and to encourage explorative play. This prototype demonstrator is a result in conjunction with a newly developed design method called Transfer Scenarios. In this research we have for instance studied how those special relationships between owners of odd pets can inform robotic designs for everyday life. GlowBots are based on the *e-Puck*, an open robot platform. In order to increase interactive capabilities we have then extended it with a round display consisting of 148 individually controlled light emitting diodes (LEDs).

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Push!Music

Push!Music is a mobile music player with wireless sharing capabilities that allows music to be shared between users who are in the vicinity of each other. The sharing can be done in two different ways: users can directly send songs to other nearby users as personal recommendations, or songs can autonomously copy and recommend themselves to other nearby players. With Push!Music, we explore what would happen if we could share music with and recommend music to friends and strangers who we meet in everyday life.

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Push!Photo

As mobile camera phones become ubiquitous the practice of photography changes. Camera phone pictures are usually taken with sharing in mind. Meanwhile, publicly sharing photographs online has become increasingly popular with websites such as Flickr. Push!Photo is a mobile photo sharing application where photos can be made public and immediately accessed by anyone nearby. The application also automatically searches for photos on nearby devices to find interesting and relevant photos. Push!Photo demonstrates how it is possible to share digital photos just as easy as paper photos.

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Autonomous Wallpaper

With autonomous wallpaper, users can send pictures taken with their camera phones to their living room wall. For each picture that the system receives (from a mobile phone using Bluetooth), a unique flower (agent) with a specific behaviour and appearance is created. The flower grows visually based on the pictorial input from the picture and its relationship to other flowers on the wall. For example, flowers that are nearby will affect how far the branches grow. If there are many flowers nearby, the branch will grow closer to the stem. The final shape of the flower leaves are used to stance (or copy) such a piece of the photo, giving it colours that are close to the original photo. Cross insemination can appear when flowers are different in their dominant RGB-value. The prototype is projected on a wall from a PC, and an ultra-sonic positioning system allows the user to decide the position of each flower.

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Short Story: Utopia 2020



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Spaces

I

I have arrived.

Everything in the house is new, sterile, and exquisitely arranged. I come from a small town, where this sort of sleek sparseness isn't really seen as being very wholesome and thus doesn't show up very often, but I've flipped through enough Ikea magazines to have some appreciation for it. If Mom could visit, she'd be throwing carpets over everything. Still, the price was right, and so was the effort involved. It never occurred to me that a company would arrange for housing like this. It makes a guy feel kinda special.

I ease the door closed as the cab pulls away, and I haul my luggage into the bedroom. I want to take some time to look around, to see what the drawers hold and how strong the water pressure is and all those other important details in which houses can differ, but I still have two days before I start work, and I am weary from the trip. So, I am going to sleep.

After some hurried preparations, I slip under the covers, idly wondering who made the bed. It is dark and dead quiet -- the thick silence of the suburbs. I have the sudden urge to play some music. When you live in a house with someone else that breathes, it feels like you are nestled in a warm support, like the walls and floors are simply there to frame your interactions. When you are in a house like this alone, though, the

building feels like it is the thing that is alive, as if you have tumbled into the lungs of a giant and you have to make noise to drown out his tics and inhalations. Otherwise, you're just left there, piqued, listening for those sounds. Holding your breath.

This is what it feels like, then, to follow your ambition.

Out of habit, I grab my phone from the bedside table to see who is concurrently joining me in slumber. But there are no blips: The map is dark. I can hear a light draft in the hall. I can feel the walls leaning inwards, resting on thick silence.

II

Day one complete. It went smashingly, all things considered. Mostly everyone has families here, so they all left long ago. I am free of these liabilities: This gives me ample time to show them up. That is my usual strategy when competing with people who are smarter than I. I leverage my tenacity.

The phone tells me it is 1:14am. Oh, my. Flick, flick: The night bus does not come for another 45 minutes. I can walk home in that time. The walk will not be stimulating, as I will be leaving an industrial park and entering a suburb. However, I've been sitting for almost 15 hours.

The idea of moving around is quite appealing, and the night is

comfortably warm. The road is monotonous. There aren't any cars around, let alone any other pedestrians. After spending the last 8 hours of my day in an empty office, it is somewhat unnerving to be alone in an unoccupied space that is many orders of magnitude larger. I turn on the dots, in the hope that I'll trip over one and prove to my skittering nerves that other humans have actually trod this path and lived to write about it.

Sure enough, a handful of steps later the phone buzzes as I near a street corner. *On March 17th, 2018, my little Maya was struck by a car and killed while crossing the street here. Please, take a moment and say a prayer for her.*

I'm not a religious man, but I am compelled to at least lower my head for a twinkling. I am not really thinking about the tragedy of Maya's death. Rather, I am wondering if Maya was actually a small girl, or whether her mother was instinctively clinging to the adjective.

As I am doing this, a clucking sound emerges from the thick, tall bushes that abut the road, some fifteen feet away. I turn swiftly, trying to discern the source, and am confronted by a very curious creature. It is a bird that has the appearance of a miniature turkey, except that its head is colored a deep crimson -- or so it appears in the weak light cast by the street lamps. It turns and trots casually back into the trees, and I feel compelled to follow. As the green envelops me, I feel tranquility where I expected to feel apprehension. After pushing in quite a ways through it, I find myself in a small clearing, an oval of short grasses in the midst of the shrubbery. This is surreal, a snippet of Alice in Wonderland. In this context, the silence is a frame for my awe, an audience that is contemplating the moment with the same raptness that I am. I feel as if I have stumbled across some primeval altar that has never been perceived by a human before.

The phone beeps again. I am horribly disappointed -- someone has been here.

I fucked H.S. here. She loves the great outdoors

I flip the display in disgust. The brush now feels like it is invading my space, and I urgently feel like I have to get out. As I stumble out onto the sidewalk again, I see a moving light: The night bus is coming. I scurry quickly to the next stop and board it. As I take a seat, I turn off the dots. The display defaults back to the map.

No blips; just meandering lines that denote borders.

III

It is Saturday afternoon. I have been here just over a week. I am at work because my house is too empty to tolerate, and the idea of navigating the city was too stressful to act on. However, the office isn't much more comforting than the house. It is empty, but at least there is the potential that someone might stop in.

I decide that this is unhealthy and leave. I make my way to the bookstore in town, a largish affair that resembles a scaled-down Chapters. There are many people here, which is soothing in some ways and disquieting in others; I keep unconsciously expecting to run into someone I recognize, only to remind myself that this is impossible. I need to make some friends. However, I am not entirely sure how this is done. As an engineer, there is only one thing I can think to do. I must read about it.

A brief interaction with a store computer informs me that there are several books somewhat related to the topic. I choose the one with the plainest cover, in the hopes that it will offer me advice that is similarly reserved. There are several chapters on how to dress and how to make

oneself more interesting, which bruises a few of my sensibilities, but I persevere. A suggestion is made to pursue your solitary interests in the company of other like-minded individuals, at a coffee shop or similar venue. This seems like something I can handle, and there is one just across the street. The free coffee at work has also edged me into an espresso kick, so this will work out well.

The place is small and elegantly decorated. There are several comfortable-looking armchairs, and the music is inoffensive and playing at a reasonable volume. I change my mind about the espresso and instead order an African tea of some sort. It is served on a white square plate in a small white teapot with an accompanying white mug. I carry the whole package over to a table and sit down. I pull out my book from my shoulder bag and flip through the pages, trying to remember where I left off. I only read a few pages at a time, on the bus or before falling asleep, so I don't quite recall how far I've made it.

There are only a couple of people here; I suppose most folks have children to look after or other sensible things that need doing. I reach forward to pour my tea, but the pot is overfull. Brilliant orange tea splatters all over the white plate, and I feel like a five year old that has just knocked his glass over at the dinner table. I do not have any napkins, so my slobbery will have to remain in plain sight. I look around again, and realize that no one is going to notice. I feel slightly uncomfortable, like something unidentifiable within me has become strained. I turn on the dots to see if someone has left a note about when this place gets busy or something like that. There are no beeps. After a handful of minutes, I become restless. I rise to use the washroom, and am distracted by a painting that is opposite to the door. The canvas is a smattering of green chaos, and there is a whorl in the centre that I am fascinated by. I am on the verge of connecting the image of the whorl with some concept in my head when the phone beeps. There is a dot here.

This is a painting by local artist James DeBoer. The vague spiral in the centre is an abstract depiction of a snail that James once found crushed into the forest floor in the Trevor Nature Reserve.

This is not at all how I interpreted the scene when I first looked at it: There was something there, something more subtle that I hadn't quite had time to grasp. It is gone. All I can see now is a snail.

After a couple of more hours of reading, another pot of tea, and zero interactions with other humans, the sun sinks and it becomes dark. Also, I have finished my book. I cannot remember how it ended; I'll probably have to read it over again. I leave through the back door, curious about what lies behind the plaza. There is a parking lot here, and behind that is a small park with a hill in its center. The stars are bright and the evening is warm, as usual, so I climb the hill and sit atop it, gazing out at the sky. I sit here for hours, as the evening matures and becomes a full-fledged night.

I realize that I am in pain, but I cannot figure out what exactly is hurting or how to fix it. In my youth, my parents cared for several animals that had been struck by various things. I always felt such pity for them, because it was obvious that they were suffering but were confused as to what had happened, and could think of nothing to do except huddle in a corner and look miserable. There is no shortage of corners in this town.

Just as I am about to rise and brush myself off, the phone beeps. It is exactly midnight: the dot was time-triggered.

What upon the naked shore is this key? All briny, yes -- a haven for the briny things.

When you feel trapped, look for openings in the bulwarks.

www.mitigate

It is gibberish, but I am bored. A cursory search reveals that it is merely some lyrics, although the URL fragment intrigues me. Likely the scribblings of a teenager trying to seem profound. As I kill the dot display, the map springs up in its place. No blips. I have at least stopped expecting to see any.

IV

Sunday morning. I have taken the train up to the city, to explore a little and to increase the chances that I might run into someone that I can relate to. I have started to envision the process of meeting people as a chemical reaction. Perhaps if I physically rub up against enough bodies, there will be a loud noise and suddenly I will have a friend.

I am walking up Bazaar street in the general direction of the museum. I have had to turn off the dots, because they are laid thickly here in overwhelming numbers. I am pushing through the crowds of people that are slowing my progress, but this feels oddly therapeutic.

The current exhibit at the museum is about how immigrant and ethnic communities helped to found the city by doing all the dirty work, such as inhaling concrete dust, balancing precariously on hanging I-beams, and crawling through filthy passages, to name a few. A life-sized street from the 1950s has been assembled inside the museum, complete with buildings. I am not really engaged, and my surroundings flit by my eyes without causing any discernable traction. I turn on the dots, but the messages aren't making things any more interesting.

Suddenly, I am transfixed. I am on the third floor of a rickety building. Before me lies a tiny box of a room, furnished simply with a twin-sized bed and a chamber pot. The floorboards are scuffed and dirty, and the white walls are smeared. A square plaque identifies the room as the **Typical Quarters of a Ukranian Labourer**. The accompanying text

discusses how many such men suffered from extreme depression and dementia as a result of their solitary lifestyle and the long hours they worked to send money back to their families. I imagine a rough, calloused man sitting on the cot with faraway eyes and smoke rising from the cigarette in his mouth that is dangling there as if it has been forgotten.

A dot fires.

Don't get choked up looking at this: If you can afford to be here, there is so much else you could be doing. Don't let yourself be walled in. If you feel lonely you have only yourself to blame.

I cannot stand to be here any longer. I feel like it is I that has been trapped in this tiny room for a decade, searching for some exit that I am too stupid to perceive. I need to see the sky.

V

Sunday afternoon. I am still in the city, wandering the streets. I feel calmer now. I am in an artist's neighborhood; all of the storefronts are occupied by galleries, bookstores, and coffee shops. Everything is grimy, but in a comforting and playful sort of way. The alleys are beautifully painted with murals, and it is sunny enough that they do not feel threatening.

As I make my way further into the network of alleys, the murals become stranger and the walls of the surrounding buildings grow closer together. I stop to admire a particularly strange work, in which pixellated unicorns are descending on a starfighter from a rainbow-striped sky, in the style of a 1980s arcade game. I notice someone approaching me from the way I just came. He is watching me in a way that I feel is menacing. I know that I should return to the streets, but I do not want to cross this man. I instead walk in the other direction,

deeper into the maze.

I round a corner, and am confronted by a passage in which the walls are so close together that they touch my shoulders on each side. Old fire-escapes above me blot out the sun. About thirty feet ahead of me, the way stops at a dead end. There are no murals here. I nervously inch forwards, looking for an opening. Violent scenes from movies and video games are playing through my head. I am expecting an ambush.

Suddenly, my right shoulder is freed from the wall. There is a passage to the side. I turn, and am forced to blink several times before I allow myself to believe what I am seeing.

Before me is a small nook. The floor is a square of unkempt grass, and in the center of the square is a small, sickly tree that is drooping over a surprisingly unblemished bench. It is almost noon, so the sun is directly overhead. A small sign beside the bench says "ELGIN WAY PARKETTE -- PART OF THE GREEN CITY INITIATIVE". I again have the feeling of having stumbled on a secret place. I approach the bench reverently and sit, and a feeling of peace washes over me. For long moments, there is only sunlight and silence.

The phone beeps. This time, I am not disappointed. I feel like I have discovered something.

I saw the shore expand on that joyous day -- breathed deeper, pulsed longer, sighed fuller.

Seek open spaces and vantage places. Let your eyes stretch from their sockets.

-and-flourish.com

At first, I am confused; then, shock pebbles my skin. Frantically, I connect the fragments and type them into my browser. All that appears is an austere white screen, with a simple snippet of text. "Sita Grinds, Sunday to Thursday, noon-9pm. Ask for J in the back."

A quick search, and then I am up and exploding out of the alleys. I do not even fully register the presence of the man that frightened me before as I push past him; he submits easily to one side.

Buses. I need a bus. My cells are humming as I wait for one to arrive. When I came to the city this morning, it felt as if the day would stretch on forever. Now I feel as if the entire world is careening recklessly towards dusk.

VI

I enter the shop and check my watch. It is 2:15pm. It is too easy to get lost in the city.

The place is cramped and full of character. There isn't a single chair available. I walk up to the counter and am confronted by a pair of painfully stylish people who are whirling about, venting liquids from a tangle of shrieking pipes.

"Excuse me," I say above the din. "Is there a 'J' working in the back?"

They look at me as if I am daft; however, I hear a clatter of dishware coming from behind a warped door to my left. It opens violently, and before me stands a woman who appears to be roughly my age. She is looking at me in disbelief. I imagine that I am doing the same to her.

After some moments of silence, she speaks. "Which ones did you find?" she asks haltingly.

I am confused by the question. "There were more than two?" I say; I am not sure, but I think my voice has cracked slightly.

She nods. "Yes. There were eight. Four first-halves, and four second-halves."

I think about this for a moment. It doesn't seem to matter. "I found one on the hill, and one in the parkette in the alley," I say. She smiles slightly, but says nothing. I have many questions to ask, but there is one above all that I must articulate. "How... I mean, did you really expect anyone to find two of them?"

She shakes her head. "No, I really didn't." Her hands work at her apron, gnarling it into ball. "Especially since some of them were timed... it seemed impossible."

"Then why did you do it?" I ask, at a loss.

She pauses for a moment before replying. "Well, I thought... I mean, I felt that if I was going to meet someone this way, that I wanted fate to have a part in it. You know what I mean?"

I think I do, but I am not really sure. I do not know what to say. While I am standing there like an oaf, she takes my hand and looks at me seriously.

"Listen," she says, "I can't talk to you right now, and I'm leaving town tomorrow for a week to visit family, but would you maybe like to meet me somewhere next Saturday so that we can talk?"

"Yes, I would," I say; too quickly, perhaps. "I would very much like that."

She fumbles about in her pocket, and extracts a slim wand of a phone.

"Here," she says, touching it to mine. "Track me?"

I nod. "Thank you." I am fumbling with words: Eloquence is an impossibility right now. After so much time in silence, my words are atrophied. "You do the same with me."

She smiles then, and tucks it away. Another pause, more fidgeting and not looking at each other. "I should go, then," she says. "See you Saturday?"

"Yes, I will see you Saturday."

She waves jerkily, and returns from whence she came. As she turns, I notice for the first time that her hair is glossy and black. I have already forgotten what her face looks like. The last minutes had been too replete with circumstance for my senses to adequately register even the coarsest details. I stand frozen for a short time, and then I head for home.

On the train, I realize that the tension that I had been carrying with me for most of the day has disappeared. I watch the landscape whir by the window, and for once my thoughts are placid and inane.

VII

It is midnight. I am in bed, once again reading this book, and once again oblivious to what the text is actually saying. I must go to sleep. I turn out the light, and instinctively grab the phone to take one last look at the display. On the map, to the northwest of me, there is an orange blip. It is pulsing warmly, and the diffuse orange light is faintly visible on the walls around me.

I place the phone back on the nightstand with a contented sigh. I feel the floor and walls framed thickly around me. The air is a warm fuzz, and I sleep.

Mobile 2020: TackTalk



TACKTALK is a lightweight high technology mobile phone. It is smaller and lighter than a standard credit card. At the back of the mobile phone is a special material, which can be attached to any types of surface; it is also flexible and waterproof. The mobile phone relies on solar power, which makes the phone lightweight. With few technical elements assembled in the phone, three-dimensional holographic images can be projected. The phone is transparent or translucent depends on the wallpaper design when it is on standby mode; an incoming call will light up the phone. Since TACKTALK is a personalized mobile phone, customers are able to design their phone wallpaper online or in the store; each TACKTALK will be uniquely different.

I named the mobile phone "TACKTALK" because at the back of the phone is a special material that can be attached to any types of surface; people can tack the mobile phone to anywhere they want depending on what kind of activity they are doing. The mobile phone is bendable to 60 degree; users are able to bend the phone along the surface. TACKTALK is about the thickness of a standard credit card, but smaller in width and length.

Mobile 2020: TackTalk



Size:

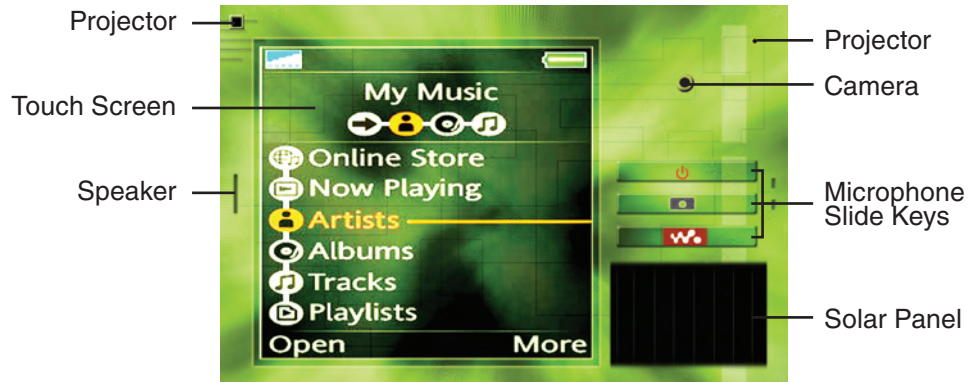
8cm x 5cm x 1.5mm

Material:

Fiberglass screen, Special Sticky Sheet

Colour:

May vary due to the wallpaper



THE FUNCTIONS OF TACKTALK

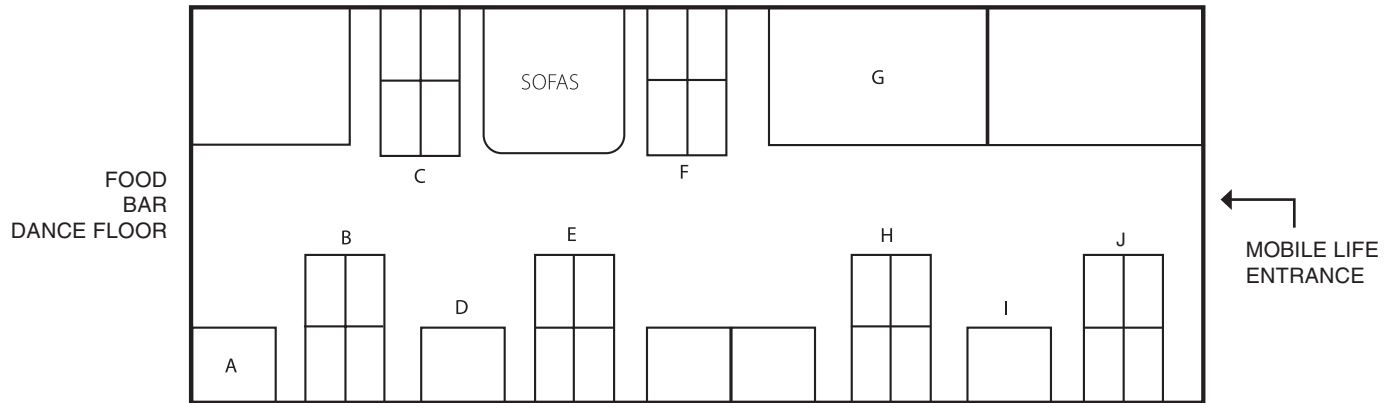
Basic Functions: Including all the functions of a current mobile phone, plus GPS.

Memory Capacity: Allow saving up to 250GB. The memory stick is located at the back of the phone.

Holographic: When the user chooses Holographic Mode, everything shows on the screen will be on the hologram. If the user needs privacy, they can change back to standard mode, which is same as a regular mobile phone.

TACKTALK relies on solar power and this makes the phone much lighter than other mobile phones. The 2 cm x 1.5cm solar panel is located at front bottom right of phone. There are two laser beams and a simple lens assembled in the phone. Users are able to send the phone wallpaper, designed by them. Then bring the design to TACKTALK store or send it through the Internet. Users are able to choose the size and function of the mobile phone depending on their needs. For example: a younger child's hands are smaller than an adult's hand, so the child can choose a smaller phone. For elders, they may need a simpler function phones. Deciding whether to have a transparent or Translucent TACKTALK since different kinds of wallpaper will have different clarity. When the users attached their TACKTALK on to their body, the phone will automatically appear to be transparent or translucent when it is on standby mode.

Map over the demos



- | | | | |
|---|-----------------------------|---|---------------------------------|
| A | Pieces of Identity | F | More Video! |
| B | eMoto & Affective SensorNet | G | GlowBots & Autonomous Wallpaper |
| C | Affective Diary | H | Push!Music & Push!Photo |
| D | MobiTip | I | Hot Potato |
| E | Backseat Playground | J | Build your own Pervasive Game |

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