Artists: Sidney Fels & Sachiyo Takahashi

Artistic Concept: The PlesioPhone series is a set of four interactive artworks that comment on the evolution of human communication. It uses the medium of the telephone and cell phone. Each piece attempts to provide an interactive experience to allow participants to step into the future essence of desired communication. Through the pieces we look at the question, “what is our communication future?” Do we want to have a “puff of air” to open our closed ears as in lands from Gulliver’s travels?

PlesioPhone 0 - Airphone: In this piece, two people talk to each other through plastic masks around their face and ears connected to each other by a plastic tube. The masks allow two people to talk to carry their private space around with them while they talk. Their voices are meant only for the recipient and are not public property. The tube connects the speakers so that the distance between them is always close and intimate. In a sense, it is the opposite of the public, portable cell phone.

Technical Realization: The installation of the AirPhone involves supplying people with Airphones to try in public settings such as galleries, parties, festivals, and so forth. Of course, they can also be sold. The requirements for each AirPhone include a filter mask, ear protection headphones, some tubes and connectors. Currently, we have built two Airphones.

The AirPhone can be seen in use on the video and is shown in the sketch in figure 1.
**PlesioPhone I - PhysicalPhone:** In PhysicalPhone, two people communicate with each other through two channels. One is a long distance voice channel and the other is a physical channel formed by touch. PhysicalPhone complements the inTouch\(^1\) system as we explore intimate conversation through touch. In contrast to the force feedback cylinders, in PhysicalPhone, communication can only occur when two people touch each other. When one person calls another they must touch before they can hear each other. We use a simple touch sensitive circuit to detect when two people are touching. Now they can have an intimate conversation. They are physically close, but we process their voice so they appear far apart. If they lose contact, their communication is cut. We use jMax running on two computers to add noise and delay to the speech. This reinforces the virtual distance of the voice channel using a cell phone and the real physical distance of the physical channel. The jMax patches also receive the human contact sensor information to connect the talkers. PhysicalPhone provides the opposite experience to the telephone. It creates virtual distance between people who are physically close. Users have freedom to exchange their voice and thoughts in virtual space, but also maintain their physical intimate channel. It suggests a new style of human communication and physical experience. In a variation of PhysicalPhone, the physical channel can be made remote so talkers can be anywhere in the world. Here body touch becomes virtual but stays physical to link the people always by the two channels.

**Technical Realization:** The installation of the PhysicalPhone involves a table and chair with a cell phone and headset for each participant as illustrated in the accompanying video. The installation fits inside a small, reasonably sound proof room. Each cell phone has metal contacts on the back so that it makes an electrical connection with the participant's hand. The computers are not visible. The requirements for the PhysicalPhone are two cell phones, two computers running Linux with jMax, a touch sensor, an A/D converter (we use the iCube), two headsets and a table and chair.

The PhysicalPhone is shown in the video and is sketched in figure 2.

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**PlesioPhone II (StringPhone):** The third piece of the series is called StringPhone. In this piece we engage the talker’s bodies to enhance personal and intimate conversation. This piece is like a traditional string phone. Tension must be applied to carry sound. We use both a real string and a virtual string attached to each phone. The virtual string is projected on a large screen which appears to be connected to the real string. This is depicted in the video except we do not have our video projectors yet so we show the piece on a small computer screen. We use force sensors to measure the tension of the string. When one person calls another, they both must pull the string before they can hear each other. If one lets go, the conversation stops. The voice and tension sensor are processed by jMax. When they pull tight they are reconnected. The physicalness of both pulling the string intimately links them through their body. Literally, you can feel the tension in the phone; it gives a sense of strong connectedness with the other talker through the pulled string during the conversation. Stringphone lets you remember the simple, but often forgotten principal of communication which is that communication is a collaboration of both sides and it is fulfilled only through your physical effort.

**Technical Realization:** The installation of the StringPhone requires two large rooms. Each room has a large video projection on the wall that shows the remote caller's computer graphic string. The cell phone is attached by a real string to the screen. The cell phone is on a small stand about 2m away from the screen for callers to communicate. It is also possible to have more than one phone in each room. The hardware and software requirements for the StringPhone are two cell phones, two computers running Linux with jMax and OpenGL, two force sensors and the iCube, and two video projection systems, stands for the phones and some string.

The StringPhone is shown in the video (using a small screen instead of large video projection) and is depicted in Figure 3.

![Figure 3: StringPhone](image)
PlesioPhone III (SMSPhone): In this piece, we comment on the future of communication. Currently, short messaging service (SMS) accounts for more than 30% of all cell phone traffic. What does this mean? We comment on this by connecting two talkers on their cell phones through a voice processing system. Figure 4 illustrates how the piece works. Each phone talks to a voice-to-text system such as viaVoice. The talker’s voice is converted into a text representation (this is expected to be only a very rough approximation of what is actually said). The text is then sent to the other cell phone and converted to speech using a text-to-speech synthesizer (also available in viaVoice). This works both ways. Thus, each talker communicates solely through text messages. These messages are also sent to each talker using SMS for reading later.

Figure 4: Block diagram of SMSPhone

SMSPhone provides an experience of future communication. It also emphasizes that the telephone is a contemporary art form enabled by its mass audience. SMSPhone on the surface is nothing more than a telephone number, it is the mass audience that collaborates to make it an artwork.

Technical Requirements: In the purest sense, the SMSPhone installation only requires that we advertise a telephone number for people to access the artwork. It really is accessible from anywhere in the world. However, for a gallery setting, two SMS enabled cellphones or telephones can be made available in separate rooms for people to access the artwork along with a display to see the SMS messages. Of course, if people bring their own cell phones to the gallery they can just call. The technical requirements are two SMS enable cellphones plus the telephone service connected, two computers running Linux with jMax and modems, and two video displays so that the audience can see the SMS messages being sent.

The SMSPhone is shown in the video, though, it is more of an auditory experience than a visual one making it difficult to show the feelings that result from using it. A sketch of the system is also shown in figure 5.

Figure 5: SMSPhone
Summary of Artistic Concept and Tech. Requirements: The telephone and the cell phone are both incredible interactive artworks. As mass produced objects they are rarely considered artworks. This is a challenge to us as artists, engineers, scientists, technicians and telephone users. We agree with Gerfried Stocker's comment about "Who's doing the art of tomorrow?". Sachiyo and I are pushing ahead with our risky collaboration involving this mass marketed device. The PlesioPhone series provides both interactive artwork and future product. Is this the direction of contemporary art? We think so. The mass market can access it from anywhere in their daily lives and in doing so creates the new direction of interactive artwork.

People interact with the pieces in PlesioPhone series using their voice and body through various communication channels. Each piece in the series uses at least two people in the interaction. The design of each piece carefully considers the expectations of each caller to provide the experience of devices and communications that do not exist today. One key technical innovation we created to enable the telephone to be clearly seen as an interactive art media is the phone object in jMax. jMax is a visual programming language for sound processing produced by IRCAM in Paris. The phone object allows people to call the artwork and have the artwork hear the caller's voice and connect them to other people or communicate to them. Effectively we have enabled interactive telephone art. Coupled to the cell phone, we now have interactive artwork which is accessible by nearly anyone, globally, 24 hours a day. Each piece provides an original communication experience. As a whole, they encompass aspects of close communication as well as a reminder of the fragility of voice communication both in public and in private spaces. We use the computer directly and indirectly. Obviously, the AirPhone doesn't use a computer. The PhysicalPhone needs two computers for processing the voice channel and acting upon the touch sensor. The StringPhone needs a computer for displaying the graphics associated with the string tension as well as controlling the audio. The SMS phone needs two computers for doing the voice-to-text and text-to-voice translation as well as answering and redirecting phone calls. But you must also realize that in the case of the SMS phone, there is an enormous computer network infrastructure in place to enable the telephones and cellphones to work. Understanding the complexity, scale and impact on the population and its role in how we communicate as experienced when using the PlesioPhone of this human achievement adds another level of significance to the series.

The PlesioPhone Series focuses on advanced communication with "phone" devices. The telephone used to be a device to link people who are distant, but since the cell phone, it is becoming more and more about linking people in closeness. What people are exploring now is no longer distance but the different qualities of communication. Remember, "Telephone" became a new Art piece through the imagination of a mass public. In turn, today, people are responding quickly to the proposition of the maker or artist—such as with SMS---so that now they are forming a complete new style of human communication using this semi-old device. Telephone is no tele-phone anymore. Thus, we propose the name "plesio-phone" which literally means close-phone, or more properly, close-voice, to catch up to the phenomenon in the cell phone "art" by mass public. We are waiting for the reaction from the makers/customers.
Biographies:

Sidney Fels

Sidney Fels is currently an assistant professor in the department of Electrical and Computer Engineering at the University of British Columbia, Vancouver, Canada. He received his Ph. D. and M.Sc. in Computer Science at the University of Toronto in 1994 and 1990 respectively. He received his B.A.Sc. in Electrical Engineering at the University of Waterloo in 1988. He was a visiting research at ATR Media Integration & Communications Research Laboratories in Kyoto, Japan from 1996 to 1998. He also worked at Virtual Technologies Inc. in Palo Alto, CA developing the GesturePlus™ system and the CyberServer™ in 1995. His interests are in human-computer interaction, neural networks, intelligent agents and interactive arts. Some of his projects include Glove-TalkII, Glove-Talk, Iamascope, InvenTcl, Sound Sculpting and the context-aware mobile assistant project (CMAP). Using the Glove-TalkII system a person could speak with their hands. The device was built to be a virtual artificial vocal tract. The person using the system wore special gloves and used a foot pedal. These devices controlled a model of a vocal tract so that a person could "play" speech much as a musician plays music. His collaborative work on sound sculpting is an extension of this idea to create musical instruments. The Iamascope is an interactive artwork which explores the relationship between people and machines. In Iamascope the participant takes the place of the coloured piece of glass inside the kaleidoscope. The participant’s movements cause a symphony of imagery and music to engulf them. The Iamascope was exhibited for two years (1999-2000) at Ars Electronica Center as well as the Millenium Dome for 1 year (2000)and other venues (see [http://www.mic.atr.co.jp/organization/dept2/Iamascope/index.e.html](http://www.mic.atr.co.jp/organization/dept2/Iamascope/index.e.html) for more information)

In addition to his scientific research, he has collaborated with Alzek Misheff and Sachiyo Takahashi to create the Forklift Ballet in 1999. This piece explored the intimate relationship that can form between person and machine through the medium of the forklift. They are also collaborating on a piece called Swimming Across the Pacific ([http://www.ece.ubc.ca/~ssfels/sap](http://www.ece.ubc.ca/~ssfels/sap)). He is also collaborating with Baerbel Neubauer and Sachiyo Takahashi on the Waking Dream production. He created the work, Video Cubism which is a study of interactive manipulations of temporal video visualization. He also has a web art piece at [http://www.sendsomemoney.com](http://www.sendsomemoney.com).
Sachiy o Takahashi

Takahashi studied new philosophy (culture and representation) at the Tokyo University and received M.A. in 1992 and continued research as an assistant there from 1993 to 1996. Her main research was in Japanese traditional theater (Noh theater and Japanese traditional puppet theater Bunraku) and "performance art" in this century focusing on voice and body in performance. From her interests in voice and body as media in performance, she created experimental pieces in Tokyo from 1988, applying traditional concepts to develop a new art form. She worked with Wono Satoru and Akitsu Maebayashi in several creation of herself and collaborated with Maebayashi for his media performance piece "hyper sync" in 1995 (info: http://www2.gol.com/users/mae884).

In 1996, she received a scholarship from Flemish Community of Belgium and came to Antwerp as a free researcher of theater science at the U.I.A.. At the same time she worked with Jan Fabre. She studied theater direction from him and performed in three of his works; two major theater performances "Glowing Icons", "Universal Copyrights 1&9" and a duo-performance with Wim Vandekeybus "Body, body, on the wall..." and toured in many European cities in dance/theater festival including; Lisbon Expo98, Tanz im August98 in Berlin, Im Puls Tanz99 in Wien, Montpellier Dance2000. She has studied electro acoustic composition with Prof. Annette Van de Gorne.

In December 1999 she created and performed her sound-action piece "Aviation/Abbreviation" (production: Troubleyn vzw) in Antwerp, Belgium. She is on tour with new version of this production. "Aviation/Abbreviation2001" as well as other collaboration in 2001. She has been actively collaborating with artists from different fields; May '99/"Aviation/Abbreviation"(version with electronic sensor mattresses) with Joel Conde at the BA Sonic Arts, Middlesex University, London; August '99/creation of "Forklift Ballet", collaboration with Sidney Fels and Alzek Misheff in Italy; August '00/for a performance "Waking Dream" with Sidney Fels and Baerbel Neubauer.