Reading 5/2
+ Revisions

Michael Plasmeier
Assignment #4
Science Essay for the General Public
First version

✓

You have chosen an excellent topic for this essay. I think a lot of people are curious about cutting edge advances in information technology; they welcome a glimpse into laboratories to see what ideas researchers are working on.

good ✓ I also like the basic approach you've taken with the essay, including the organizational scheme and the style. I like the way you draw the reader into the topic, and delve into the technical content by describing Mistry's initial work on "bringing computers into the physical world." You go on to show that there are still many hurdles to overcome before this technology becomes a reality, i.e., before computers become naturally integrated into our daily lives in the way that Mistry and his colleagues envision. And you point out at least one very compelling application of this technology for people who are visually impaired. awesome → structure I really worked on

One problem I see in the essay concerns the technical content. For example, I simply did not understand the explanation of wall painting (p.3) or the browsing of a website on a blank piece of paper (p.5). Depending on who you are writing for, you may need to go into more detail in explaining how this system works. More explanation of how the camera, cell phone, and microprocessor work together would help, since that is basic to the whole story. The problem here is classic for scientists and engineers writing for the general public: you're writing on a topic that is "second nature" to you, and having to write for people who may have relatively little knowledge of that subject. It's difficult to figure out what you can assume on the part of your reader, and what you must explain. but need to improve

and w/o vid its hard

I was also somewhat confused, at one point in the essay, about the state of development of this technology. The first part could lead many readers (e.g., me) to believe that most of the basic problems have already been solved. But later on, when you turn to the reviews, it becomes clear that this technology still has a long way to go. explain how demo is easy but robust product is hard

A key question that is likely to arise among your more technologically skeptical readers, is: "So what?" "Isn't this just more technology for technology's sake?" "Why would I need to have a piece of technology tell me the location of the nearest coffee shop when I put my empty cup of coffee on the table?" The essay should anticipate and address this skepticism.

- iPhone like this years ago
why need internet in phone?
- find stuff in history
Now just good demo but will advance to be more robust

The essay has a general focus. The basic scope of the essay seems fine. But you could *sharpen* the focus with a clearer central theme. I saw this as essentially an informational piece, introducing me to a new and intriguing development in informational technology. But a more defined "angle" would give the piece more flavor, and might ensure that you hold your readers' attention to the end, and motivate them to hang on through the technical explanations. For example, suppose you were to approach this as a an essay that not only informs, but also makes a case for the benefits of this technology for the general public—not only for those with disabilities?

but how make broader focus -? just include more of usefulness (see last para on Pg 1)

Although your prose is generally clear, I've noted some awkward phrasing and sentence structure (to be expected in a first version). Of course the "higher level" elements of the essay should be your priority in revising the piece. Nonetheless, I need to point out that there's a lot of missing punctuation in this version. opps again

Overall, this is a solid first version. Most important, it shows definite improvement in the areas you were most concerned about: organization and focus.

Theme/focus: √
Overall structure: +
Content/development: √
Organization/coherence: √+
Audience: √
Style/tone: +
Articulation/phrasing: √+
Mechanics: +

Overall mark: √ again

SixthSense

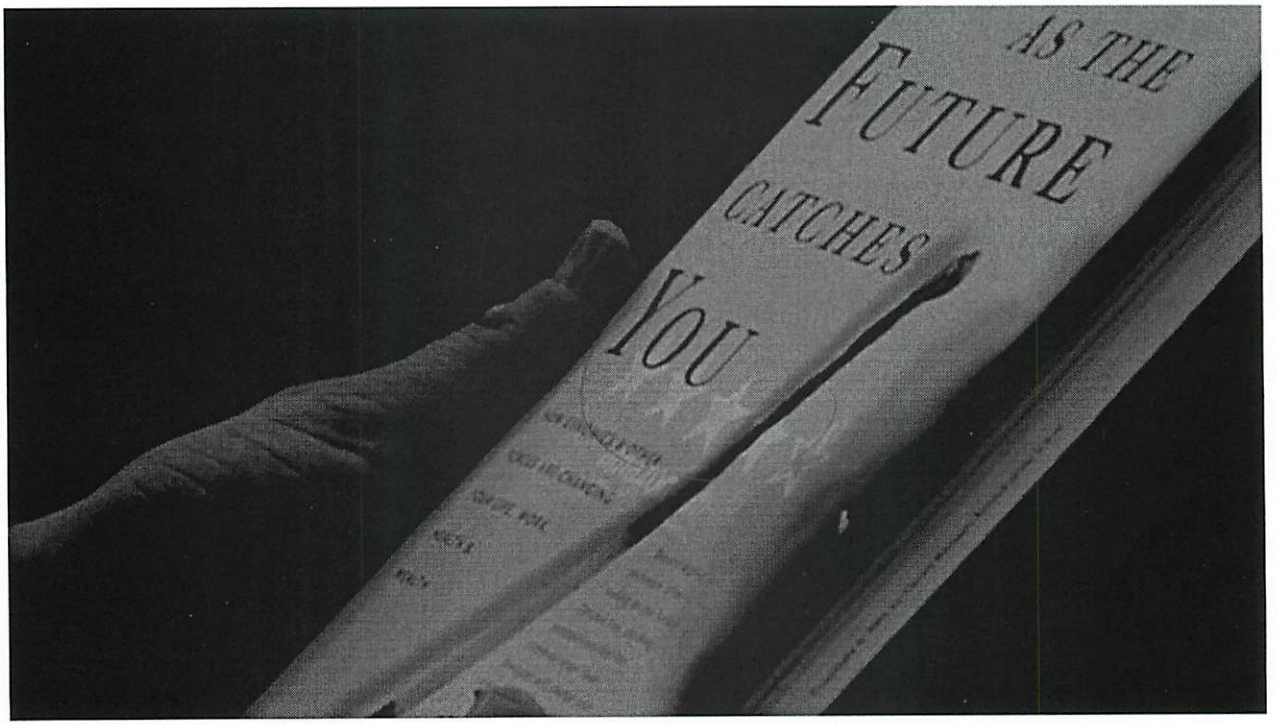
Pranav Mistry's Fluid Interface

Michael Plasmeier

off

When you pull a book of the shelf of a bookstore, you want to know what other people thought of the book. Right now, you can pull out our cell phone and search the title of the book. Perhaps, with some of the newest cell phones, you could take a picture of the barcode. What if, when you picked up a book, the rating from Amazon.com would appear on the book's cover?

your



Panav Mistry a graduate student in the MIT Media Lab's Fluid Interfaces group has done just that. The Fluid Interfaces group is run by associate professor Pattie Maes and it seeks to integrate digital information into our daily lives beyond the traditional interfaces.

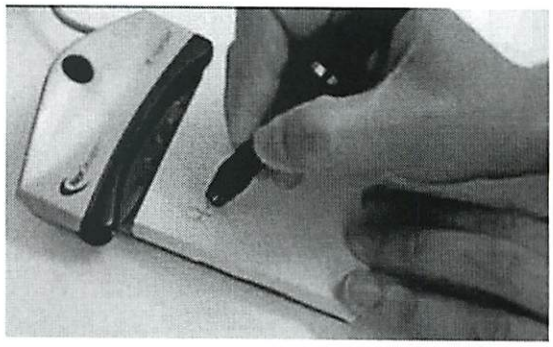
Mistry started out trying to bring the real and digital world together on his own in 2000 when he disassembled old fashioned mice, the kind with balls in them. He hooked up the encoders that read the ball's position to strings which he attached to his hand. As he moved his

it's not clear what he's done — carefully look at how this phrase relates to the previous sentence at the end of the first paragraph. Do you see the problem?

mouses?

talked about in class
I say mice

fingers up and down, the system was able to read the position of each finger and display the result on a computer. Later he became a student in MIT's Media Lab. In 2008, he made Quickies, which created digital sticky notes as he wrote on actual sticky notes. The system also parsed the sticky note as he wrote and presented relevant information on his computer screen. It could also take relevant actions such as scheduling a meeting in his Exchange calendar when he wrote a note about the meeting on a sticky note. Another one of his projects modeled an airport map. As he put objects on the table, the map would respond. When a boarding pass was placed on



the table it would show the user how to get to the gate. When a coffee cup was placed on the table, the table would provide directions to find more coffee. He had brought objects into the computer world.

a very well-structured paragraph

But in 2009, Mistry wanted to do the opposite. He wanted to bring the computer into the physical world. Instead of pointing at icons with a mouse, you point at objects with your hand. Instead of learning an interface developed thirty or more years ago for ease of implementation, you act naturally. Mistry's project is called "SixthSense" and it consists of a

people would ...

people would ...

not you she wants

camera, cell phone, and projector linked together. All of the components can be bought off the shelf; what Mistry did was put it all together and demonstrate use cases. The camera recognizes the objects and gestures. The cell phone retrieves information over the cell network. Finally a microprojector displays the information onto the object itself.

Besides the book reviews, the SixthSense device could display real time flight status on a ticket or evaluate paper towels for a set of criteria.

But the system is not limited to objects; the camera can also track fingers as they are waved through the air in front of the camera. Currently, the device requires that one wear special caps on one's fingers, but future versions should be able to track fingers without this. A user wearing the SixthSense device can walk up to any wall and start painting on the wall using their fingers. When they walk away, the painting disappears. But the painting is not really gone. Because it is a computer, the painting can be emailed to anyone or posted on a social network.

Even if you are not in front of a wall, the gesture interface of the SixthSense can be used to tell the device to take a picture. The wearer only need to make his hands in the shape of a photo frame and the device will take a picture. Later, he or she can walk up to a wall and display the photos. Similar to any gesture interface, the wearer can browse through the photos by waving through them as though they were physical photos lying on a table. However, unlike any other gesture interface, the wearer can take a step back and project a slide show to his friends.

In fact, the collaborative aspects of the SixthSense may be its most appealing. Although much of the promotional materials from the Media Lab only show one person using the system, it is not ideal for this purpose. What you are looking at is broadcast for anyone to see. While you at least had some semblance of privacy on your screen, you are now literally projecting what you are doing to the world. In some cases this can be a positive. For example,

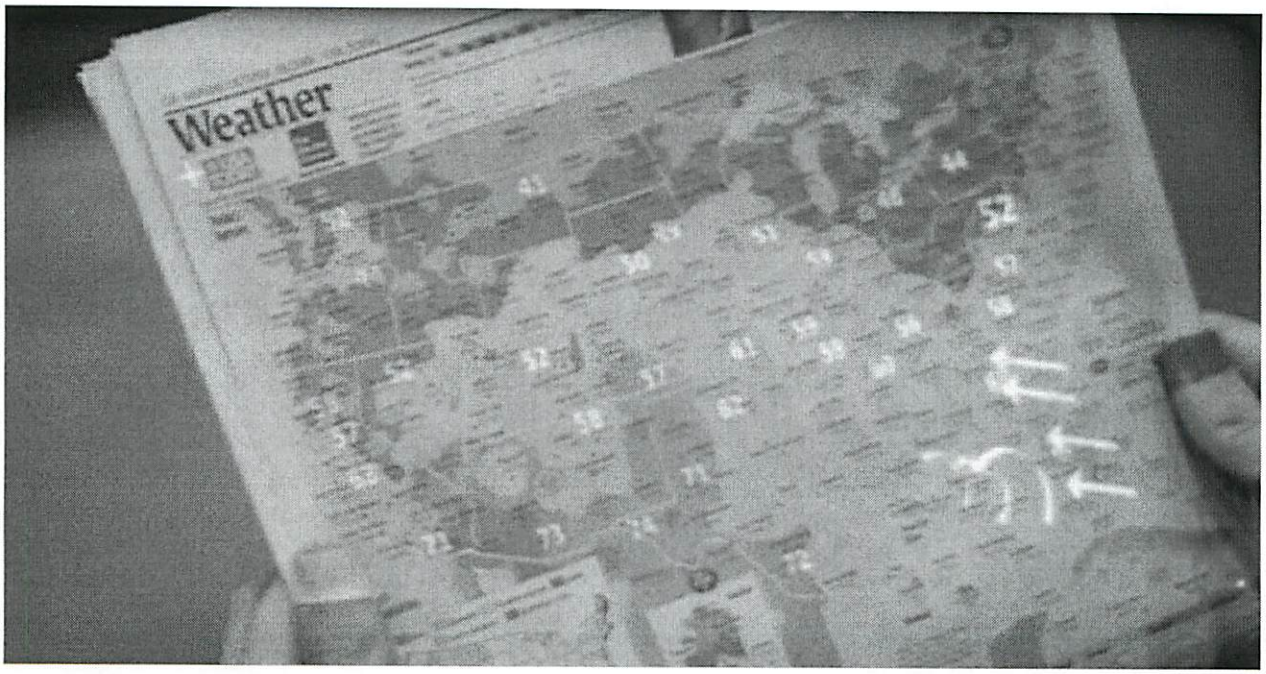
you could play Ping-Pong on the floor of a subway car.

Mistry has been working on using a blank piece of paper with the device, which makes it work like an iPad. He took the microphone from the webcam out of the webcam and clipped it to the paper. The microphone can detect as a finger is dragged along a piece of paper. This is needed because the camera cannot discern if the finger is hovering a few centimeters over a paper or touching it. Mistry demonstrated browsing a conventional website on a blank piece of paper. The paper can also be tilted in order to control a game, such as a racing game. However, the touch controls are nowhere near as good as the iPad. SixthSense really works better augmenting other information. For example, SixthSense could display current information over a newspaper's weather map, or project a video related to a news story on a blank spot in a newspaper.

condense this phrase

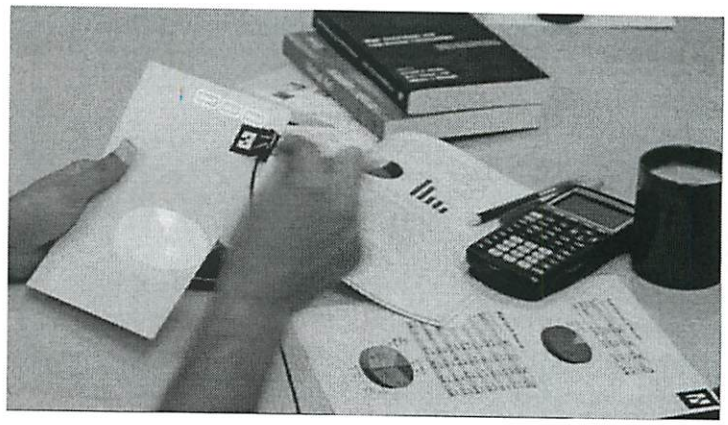
a finger dragging

duh - for better phrasing

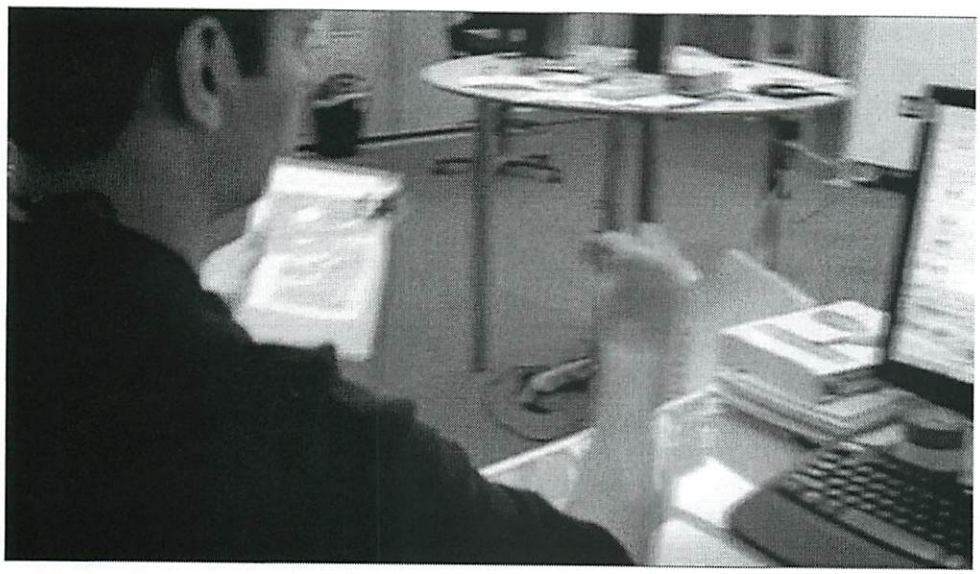


Where SixthSense really shines is when information is treated as objects on paper. One can point to a report with a graph, circle the graph, and then pull it to a blank sheet of paper.

SixthSense projects the graph onto the paper so that one can use gestures to edit it. Next, one could print the page on a printer and make further changes to the document with a pen. The system recognizes the new text and it updates the digital file automatically.



If one wanted to do more in-depth editing, one can pinch the document and throw it onto a computer. The camera notices as one grabs the document and it tracks the hand as it moves to the computer screen. The document then pops up on the computer. This requires a lot of behind the scenes effort, but is very intuitive for the user.



The device attracted glowing praise for it from top news agencies all over the world. Gizmodo called it a technology that may "change the way we look at the world forever."[1] Gizmodo said that SixthSense has the potential of "becoming the ultimate 'transparent' user interface for accessing information about everything around us."

[1] http://i.gizmodo.com/5167790/sixth-sense-technology-may-change-how-we-look-at-the-world-forever

David Pouge from the New York *Times* called it "a very cool idea."[2] Popular Scientist gave it a 2009 Invention award.[3] CNET said the device could "trump Apple's multitouch."[4] The Sun in the United Kingdom compared the device to the movie Minority Report.[5] Mistry was named a Technology Review "Young Inventor Under 35."[6]

The Lab's sponsors are currently looking into making the product a reality. Samsung already makes microprojectors and mobile phones, so the hardware will not be challenging. Battery life for microprojectors may continue to be a problem, however. Instead, the real challenge of this device will be the software. I am sure that the demonstrations were carefully stage managed or "simulated." It will be very hard for the device to work in the real world. Each individual scenario must be programmed in individually. In addition, it assumes that many difficult problems in computer science have been solved. For example, SixthSense assumes that one can hold up the back of a roll of toilet paper and it would be able to identify it. Even if it was the front cover of a book, the software is not completely reliable today; SixthSense relies on the SnapTell project from Amazon to identify book covers. Not a single cell phone supports printing today because of an antiquated driver model bounds printing to existing operating systems. Getting printing to work from a cell phone would be big news itself. All these problems would have to be solved before SixthSense was ready for market.

The Media Lab is also looking at using the device to restore a fifth sense to someone who lost one of their senses. In the case of a visually impaired person, the same visual

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[2] http://pogue.blogs.nytimes.com/2009/02/11/at-ted-virtual-worlds-collide-with-reality/
[3] http://www.popsci.com/scitech/article/2009-05/heightened-reality
[4] http://news.cnet.com/8301-17938_105-10159601-1.html
[5] http://www.thesun.co.uk/sol/homepage/news/article2224087.ece
[6] http://www.technologyreview.com/TR35/Profile.aspx?Cand=T&TRID=816

recognition systems built to recognize a roll of toilet paper from any angle could help a visually impaired person hear what brand of toilet paper they were holding and the current price. Reusing commercial systems is wise. Mass market projects cost far less than those created specifically for disabled users and do far more.

very interesting application of this technology

In a November 2009 talk, Prenav announced that the project would go open source. Six months later the code could not be found on his website.

I'm failing to draw the inference... ?

SixthSense captured the attention of everyone who saw it. It is not right for every situation, so keyboards, mice and cell phones with screens are not going anywhere. But several years in the future, once the other problems in software are solved, SixthSense could bring the computer world to physical objects.

drop or explain more about open source