DIGITAL SMELL TECHNOLOGY

B.JEBINA PRISCILL[#1], M.ANANDHAVALLI[*2]

1,2 UG SCHOLAR, Department of Electronics and Communication Engineering,
Kings Engineering College, Chennai.

Abstract: The technology has targeted to attract our sense of sight and sound. To further improvise the virtual reality experience and adding flavour to it, technology is now targeting your nose and tongue. This technology has a wide range of application from normal entertainment to the Internet and e-commerce application. People will be able to smell the products before buying them online. California- based Digiscents Inc. has developed the iSmell personal smell synthesizer. It is a small device which connects your PC via serial port and has its own driver. There is a smelling screen that generates localized odour distribution on a two dimensional computer or phone screen or it can also be any display screen. It can also be said that it is an olfactory display. This odour generated from the smelling screen helps the person to perceive the odour as if it is emanating from a particular region of the screen. We can tell about this elaborately in this article.
Keywords: e-commerce, Digiscents Inc, iSmell, e-nose

I INTRODUCTION

Till now online communication involved, sense of sight and a sense of hearing. The sense of smell will be involved soon. Digital smell technology is the main application of e-nose which enables us to sense, transmit and receive smell through the internet. The realistic effects of the visuals can be felt by the person when this very new facilities of smelling are introduced in movies or in games. This basic idea for this was given by the perfume making companies for the advertising their perfumes .The four air streams one in each corner of the screen is fed odour from the vaporization get pellets continuously. These air streams are blown out parallel to the screen's surface by fans and varying the strength and direction of them spreads the sent to any given spot on the screen. Like fingerprint each one of have a different smell. Ancient Greek and Chinese medical practitioners used smells of the patient to diagnose a disease. But not all the practitioner's nose is a precision instrument. This led to the invention of devices of smell technology.

Figure 1. E-nose

II HISTORY

[1]In late 1950s, Hans Laube invented the smell-o-vision. It had a competition with AromaRama invented by Charles Weiss.[2]In 1999, DigiScents introduced a device called iSmell. [3]Due to loss, DigiScents was shut down in 2001.[4]In AromaJet developed a device called Pinoke.[5]In 2003, TriSenx launched Scent Dome to recognise smell identifying codes.[6]In 2004, the Japanese firm "K-Opticom" placed a special units named Kaori web(consisting of 6 different cartridges for different smells) in their internet cafes for their experiment until march 20,2005.[7]In the same year 2004, the Indian inventor Sandeep Gupta claimed to show scent-generating device prototype at CES 2005.[8]In 2005, XML Smell was developed by the researchers from the university of Huelva and worked on reducing its size.[9]Simultaneously, Thanko launched a P@D Aroma generator(a USB device) and [10]the announcement of the work on a 3D television with touch and smell to be released by 2020 was given by the Japanese researchers.[11]the demonstration of a smell generating device was done by an Israeli company Scentcom.[12]In March 2013, the Japanese researchers came up with their invention, "the Smelling Screen". There are so many advancements and researches happening in this domain.

III HARDWARE DEVICES:

3.1. Smell synthesizer

It is a device which is used to generate smells such as iSmell is a device used to produce gas using a computer. The DigiScents industry makes various types of smell synthesizer.

Figure 3. Smell Sensitizer

3.2 iSmell

The iSmell is about the size of a pc speaker that connects to a pc via a serial or VSB Port. The catridges which can be used and replaced in a way similar to ink catridges in ink jet printers is used in this device. The iSmell device reads a digital scent file and creates a smell from a "palette".

Figure 4. Twilley- Digital-Smell-doomed

3.3. Catridge

The chemicals (either natural oils or synthetic fragrances) will be contained in the catridges. Heat or air pressure will activate these chemicals when you send a signal from your computer. Currently, 128 chemicals are stored in cartridges. The oils from the core of the replaceable catridges are inserted to the iSmell device.

Figure 5. Lemon-haze-vape-catridge

IV. BROADCASTING OF SMELL

Broadcasting the smell is an important part of the process. It is carried out at three levels.

4.1. Digitized scent

A scent is indexed along two parameters, its chemical makeup and its place in the scent "spectrum" and then digitized into a small file.

4.2Broadcast

The digitized scent file is attached to enhanced web content.

4.3 Smell synthesizer

The smell synthesizer is used to generate the smells.

V. EFFECTS OF DIGITAL SMELL

5.1. Over the theatre

The concept of smell technology will soon be implemented in the commercial theatres. This aims at giving virtual reality to the audience.

Figure 6. The 3D glasses will smell speakers

5.2. Over the television

Better picture quality, better voice and iSmell devices will be introduced in commercial televisions which will be an interesting factor for the ones watching the television.

For example: If there is a fire accident in the movie, we could smell the burning fire through the television to get realistic effects.

VI. CURRENT CHALLENGES

Current obstacles are the adaption to timing of the distribution of the distribution of scents. This involves the understanding of the human olfactory responses. The health hazards of synthetic odours are also a considerable factor besides the excitement this technology gives.

VII SCENTOGRAPHY

It is the technique which involves the artificial of creating and storing smell and recreating it using chemical means.
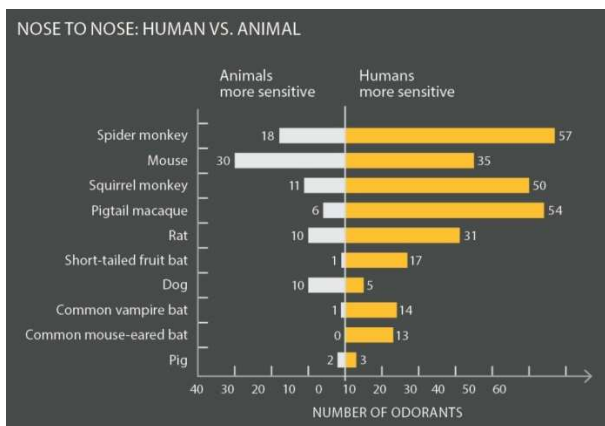

Figure 7.The graph showing animal responses to odorants

VIII. APPLICATIONS OF SMELL TECHNOLOGY

The Cyrano (digital scent speakers) will soon be implemented in smart phones that produce olfactory playlists or smell tracks which users can control.

Figure 8.Smart phones using smell technology

8.1. Multisensory marketing

Perfume manufactures have a great scope doing market research across the net.

8.2. Communication

[2]Digiscents implemented thousands of common odours into web pages and email that could be coded and digitized. Scented websites, electronic greeting card and e-mail will provide an amazing e-communication.

8.3. E-Commerce

The live shopping experience will be provided by the smell technology. Shopping sites based on scent enables to buy the perfume, flowers, food beverages, cigars from exotic places. For example: The smell of the assortment of the freshly brewed coffees for sale in online stores.

8.4. Education:

The teachers follow a way of virtual field trips which have become an invaluable tool for bringing important experience that the classrooms cannot provide. Sometimes the geographical effects or the insufficient time to complete the syllabus will be a hindrance. The addition of smell technology will neglect these hindrances and also enhances the memory of that experience is acknowledged as a tool that enhances the memory of that experience.

8.5. Medical

Smell technology plays an important role in the medical domain. Early Aromatherapy is an important application of scent technology. [14]The smell of body fluids, breath and skin can reveal their illness. The patients having diabetes will have their breath smelling like rotten apples while the skins of the patients having typhoid will smell like baking bread. This quick diagnosis will help curing the disease on time.

IX FUTURE SCOPES

In future, the smell technology can be introduced using 3 dimensional projections which enable people to view more realistic views. People can conduct meetings at different places during the same interval of time. The online classes can also be conducted by the schools and colleges during the rainy seasons.
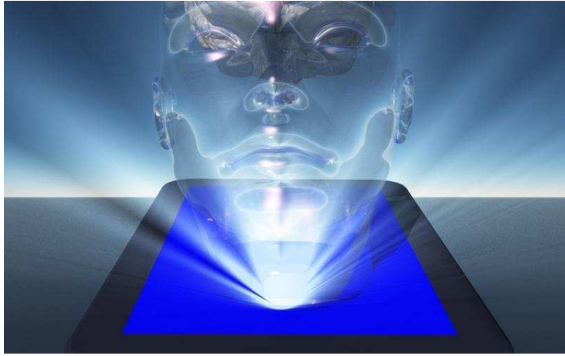
Figure 9. 3D projectors in smart phones using smell technology

9.1 Limitations

The price is a considerable factor. People using computers at homes will not afford to pay $250-500 price for the luxury of scratch –and-sniff websites. The exact replicas cannot be produced as the technology is still immature. The branded difference in smell is not been differentiated till now as there are only slight variations in the smell and the chemicals stored in the catridges are not enough for it. This technology requires committed partners and venture capitalists to invest their money so that this could be revolutionary.

9.

X CONCLUSION

A Scent has a great control over human beings. We even smell the food before tasting it. It gives an idea of what we are going to taste. This is the case in each genre. It also helps in identifying emotions such as anger or love. The virtual effect given by it will be interesting. It will also be an excellent measure in the medical field in diagnosing the diseases. This will become our need in future.

XI REFERENCES

1. Bosley crowther (December 10, 1959). "Movie Review: Behind the Great Wall (1959) - Smells of China; 'Behind Great Wall' Uses AromaRama". The New York Times. Retrieved 23 September 2012.
2. Martin, James A (1999-10-13). "Sniff That Web Site". PC World. Archived from the original on 2007-01-15. Retrieved 2007-07-06.
3. "Digiscents runs out of cents". internetretailer.com. 31 May 2001.
4. "Aroma Jet". www.microfab.com. Retrieved 10 December 2016.
5. "Smelly device would liven up web browsing". New Scientist. 2004-02-20.
6. "These images STINK. Really". esato.com. Archived from the original on 2011-07-23.
7. "Gaming Smells - It's a Fact". MegaGames. 2004-12-30.
8. "XML Smell language developed by university". The Inquirer. 2005-01-23.
9. "Thanko USB P@D Aroma Generator".
10. "3D TV with Touch, Smell by 2020?". betanews.com.
11. "ThinkNext2010 – Scentcom". www.geektime.co.il. April 2010.
12. Amanda Kooser (April 2, 2013). "Japanese scientists create 'Smell-O-Vision' screen". CNET. Retrieved April 3, 2013.
13. Nicola Twilley (April 27, 2016) the New yoker
14. Kate Murphy (May 1, 2017) "One Day, a Machine Will Smell Whether You're Sick".