

Concept Product: Human Memory Storage Device

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Abstract. The main theme of this article is product concept and related positive and negative social issues of the concept device, 'Human Memory Storage Device'. This device will store human memory in audio-visual format in computer and it can be visualized at any time while user wants. This article includes a field survey analysis which reflects the public opinion to this idea. This survey also gives a direction over the possibility of commercialization of this product idea.

Keywords: New Product Concept, Human Brain, Human Memory, Human Memory Storage Device, Human Mind Storage, Saving Human Mind, Saving Human Memory, 3D Life

1 Introduction

We, the human being, are used to forget, sometimes willingly, or sometimes unwillingly. Whatever it is, this time, the proposed concept product will prevent to forget, but in a different way. This concept product is a handheld device which can be owned by individuals to use just like a personal device. In this article, the concept product is named 'Human Memory Storage Device', in short 'HMSD'. This computer connected device will store the memory or life experience of an individual human being in three dimensional video format with sound. This device will collect data by scanning that person's head from outside which doesn't require any surgery.

Since this article is on a futuristic concept product, this study majorly focuses on, (a) imagining how this device can be in size, convenience and design rather going through much technical details (b) social impact of the device and (c) sensing the public impact on this device based on a small survey. This study has many limitations which will be portrayed later in detail under 'Limitation of The Study' topic, but in short, the main limitation is, this study doesn't focus to the detail of technicalities of the product. Still, this study hasn't missed to focus on major technical issues.

2 Related Work

On similar domain there are several works carried forward. Many of them are still in theory state. Let this short overview of related update start with 'Whole Brain

Emulation' [1]. The concept is, scanning the structure and particulars in detail of a particular brain so that it can run on a particular hardware and it act like the original brain.

An organization named 'Brain Preservation Foundation' [2] is working on preserving brain of humans and animals. To promote the research exploration on Brain Preservation they offer 'Brain Preservation Technology Prize' [2] worth of \$106,000. Another fact found from there is, neuroscience has identified the cellular and synaptic structure for memory storage and time of storage.

A concept of Personal Memory Device (PMD) [3] found from a write up which is, a memory chip will be kept in human brain and it can be entered or brought out when required. It can be used in computer and recorded data can be retrieved and viewed from computer. But it is just a concept.

The Blue Brain Project [4] is another project which is trying to develop a synthetic brain by reverse engineering the brain. This project founded in May 2005 by the Brain and Mind Institute of the École Polytechnique Fédérale de Lausanne (Switzerland) is to study the brain's architectural and functional principles. In 2007, the modeling and simulation of the first rat cortical column—has announced [4].

Among several studies Peter. W Foltz prepared a study that focuses on the similarities & differences in human & computer memory storage system to give a pathway to develop future human and computer retrieval models [5].

Another paper titled "Real World Objects as Media for Augmenting Human Memory" [6] illustrates how a wearable device can be used to gather, store and retrieve human experience. The study says, "A user conceptually encloses his/her experiences gathered through his/her sense organs into real world objects by simply touching the objects. He/she can also disclose and experience for himself/herself the augmented memories stored in an object by the same operation [6]".

The specialty of this device (described here in this article) comparing with other previous works is, this product is much advanced. The user can use it like other simple electronic device which will collect data by simple memory scanning and store in computer in re-viewable 3D video format with sound. So far studied, that kind of advanced device hasn't been found and talked about.

3 Product Concept & Design

Human Memory Storage Device is a handy device which will not be that much heavy, big or expensive. There will be an open scanning part of the device which will scan the memory portion of the brain. Cerebrum¹ is a portion of the human brain which's one of the main tasks is to learn and store memory. It is in the upper back part of human head. For storage work, one does not need any medical surgery or any physical change to do that. It will work just like other regular electronic devices. While the device is in operation, one end will scan the brain and another end will be connected with computer by wire. This will connect with USB (Universal Serial Bus)

¹ http://en.wikipedia.org/wiki/Cerebrum#Learning_and_memory

port of the computer. The user can store memory in 3D video format along with sound in it. This device will preserve our memory of what we see, hear and say. Depending on availability (sometimes we lose some portion of our memory), memory or experience of any time or age can be stored in the user's personal computer. The scanning duration may vary depending on freshness of memory, calendar date and volume of storage. User can go back to any time of life s/he wants to store. The picture below illustrates how this device will be connected with human head and computer. The whole process will be maintained, managed and processed by specialized software specially designed for this purpose.

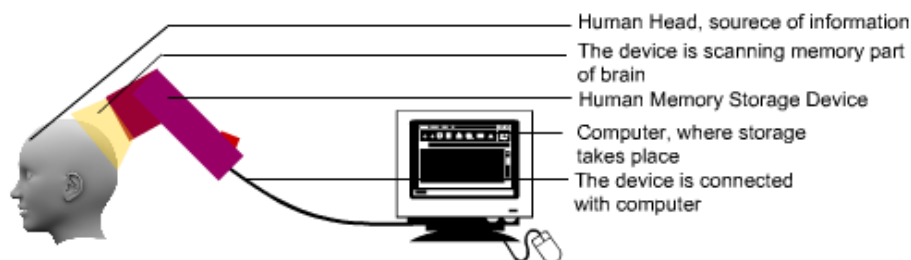


Figure 1 Simple design of ‘Human Memory Storage Device’ along with the illustration how it will be externally connected with human head² and computer

Watching the outcome (stored video) will be an amazing real life movie experience to the user. For security purpose and to avoid privacy problems, stored video will mandatorily have unique and strong password system. The commercialization part has detail about commercial viability of this product based on a quick survey.

4 Public Impact from A Field Study

A questionnaire (see: Appendix A) based field survey has been conducted in American International University-Bangladesh (Dhaka) premises on 11 December 2011 to get a partial and small picture on, how common people do react to this product if this device becomes available in real life. Social, personal and commercial aspects have been covered in the survey. Twenty graduating students participated in this one-to-one survey. All of them were the students of that stated university doing Master in Business Administration (MBA). Number of Male and female kept equal (10:10) in this survey, 75% of the respondents' age fall in 24-27 years' range and the

² Human Head Image:

http://www.secondpicture.com/tutorials/3d/3d_modeling_of_a_human_head_3ds_max_01.html

rest are not far from this. The following topics will cover the detail outcomes of the study.

5 Positive Social & Other Impacts

If 'Human Memory Storage Device' comes into reality as it has been stated in product concept part, it will create a big positive change in society. It will greatly help in medical, psychology, history, criminology, business, personal life and so on. In medical science, among many issues, this device will help to find the daily behavioral issues of the patients which may lead to a significant success to track the real problem. Sometimes, it becomes crucial for a psychologist to know about the past of the patient or it becomes imperative to show something to the temporarily memory lost patient to recall the memory. An old aged persons' stored memory can be a great treasure for anthropologists, historians and linguists to get the picture of that times' social system, life style and ever changing language pattern. The most positive and significant change will come in the area of criminology. Based on this audio-visual documentation, law enforcing agencies like: police and detectives will get the fact about the crime which will decrease the number of unwanted physical torture for interrogation or unwanted punishment like imprisonment even death penalty. Victim support providing personnel will be greatly benefitted by providing support efficiently and effectively. This device will also aid a lot to business people, specially to the market researchers to better read the consumers' mind which will lead to present better product to consumers. Better product will lead to better living style. HMSD will also help to mitigate many social and personal conflicts by capturing and reviewing the conflicting moments to have better review on the event. Since this device is in commons' hands, this will help people to get relief of remembering many things all together. It will make many memory related issues simple and easy. People will think more than twice before cheat or lie, which will aid to get human race back to the age, while humans were 'honest and truthful'.

This positive side also got revealed in the survey which put lights on public thoughts. 80% of the respondents think, this device will make personal life simple and easy. And 85% respondents gave their vote that, existence of this device will bring a positive change in life. 65% of the total number of respondents said, they agree, HMSD will bring a positive change in the society.

6 Negative Social & Other Impacts

As it has been said it will create a big positive change, in contrast it will do similar or even worse negative changes. Personal privacy will seriously threaten as anytime any hi-tech technology can be hacked. One little leak can create a great disaster to someone's life. But for that, the security system need to be always kept updated with high priority. People will show less interest to keep things in mind and using brain. Now-a-days, we see how technology has made us dull; we use calculator in cell phone for simple summation or we rarely remember some important phone numbers due to

the availability of cell phone devices. Rather solving a conflict, one record can lift another level to the collision. There are many issues that we don't want to share with even very close ones which in many ways better option rather informing. The worst application will be in war state. The enemy will use the device to retrieve the necessary information and use it to their side which will create even more devastating destruction. Individuals will lose faith over their peer fighters. Enemy troops can even take such step to destroy the memory of the imprisoned person to remove imprisonment experience which will be even more pathetic than today's forms of torture. Whatever 'enemy troops' have done can be done by criminals too. So these will be daily issues!

The survey outcome shows very positive response about the device although there are still some people who discovered different side of this device. They are few in number. 5% respondents showed no interest to this device. 10% individuals don't think it will bring a positive change in the society, where 25% showed confusion (neither agree nor disagree). 20% people are in doubt that whether this device will make life simple and easy. 5% people don't think, this device will make personal life better.

7 Commercialization of The Idea

According to the survey, 60% respondents spoke that, they are interested about this product. More interestingly a majority portion (70%) showed their interest to buy the device if it is in 5,000-10,000 BDT, which is the lowest range! Another important relative fact about the survey is: 40% of the respondents' monthly income fall in 11,000-25,000 BDT and same number (40%) of them fall in the income range of 5,000 BDT or less. Only 15% respondents were interested to buy it in range of 11,000-25,000 BDT and rest 15% crossed up that range up to more than 51,000 BDT. 35% respondents are not interested if the device isn't at their convenience in terms of price. 55% respondents are interested to store their memory for at least once a day.

So, having all data analyzed, the result is, commercially this device is not that much viable. Either this device need to be more economical or require further conceptual revisions. There is a little hope that, this outcome came from a specific group of people and the number of respondents is small, so bigger study may bring different values.

8 Limitation of the Study

The main limitation of this study is, it is technically not that much detailed & sound. It is more imaginary rather being more practical from the technical view based on today's possible technology. To develop such a device, it requires huge scientific research. This article doesn't provide a direction to meet this issue. In the article, it has been mentioned that special software will be used; but this study doesn't have detail about this software, which requires further study. The survey that took place to receive the opinion about this futuristic device doesn't seem to be enough as because

of the reason, it was on only twenty individuals and all of them share many similar attributes (like: income, social status, mind, education, age etc.). So, big number of respondents and more variation in respondents may change the bigger picture of the survey. The survey questionnaire requires to be more structured, detail and specific.

9 Conclusion

Human Memory Storage Device may bring a better tomorrow if this device kept secured, prevented from being misused. Although, it seems commercially the product may not create that much buzz comparing to the main idea; but a bigger and detail survey may portray the picture with different color. Although this will not remove the bad sides discussed above if not further conceptual modification takes place. Further study under this domain can be, storing human intention and feelings. But those studies may even harder than the study of storing human memory in audio-visual format!

References

1. Sandberg, A., Bostrom, N.: Whole Brain Emulation: A Roadmap, Technical Report #2008-3. Future of Humanity Institute, Oxford University (2008)
2. Brain Preservation Foundation, <http://www.brainpreservation.org> (Accessed: 14 December 2011)
3. Kent, J.: Your Personal Memory Device: You Could Have One Today. H+ Magazine (2010)
4. The Blue Brain Project EPFL (Ecole Polytechnique Fédérale de Lausanne), <http://bluebrain.epfl.ch> (Accessed: 14 December 2011)
5. Foltz, P.: Models of Human Memory and Computer Information Retrieval: Similar Approaches to Simiar Problems, ICS Tech Report 91-03, University of Colorado (1991)
6. Kono, Y., Kawamura, T., Ueoka, T., Murata, S., Kidode, M.: Real World Objects: as Media for Augmenting Human Memory. In: Workshop on Multi-User and Ubiquitous User Interfaces 2004 (MU3I 2004), pp. 37-41. Universität des Saarlandes, Germany (2004)

Appendix A

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Survey Questionnaire

Imagine a small machine which will store your memory in your computer in 3D video format with sound. In short will capture what you have seen and heard within a particular time. This device will scan your memory part of your head from outside and this machine will be connected with your computer. According to your time (your memory/age) requirement it will store your personal memory in your computer.

This survey is on your opinion about this imaginary machine. This survey is done for academic purpose and your personal identity will not be disclosed. Thank you.

1. Gender -
a) Male b) Female
2. Which age group are you in?
a) 18-23 Years b) 24-27 Years c) 28-31 Years d) 32-35 Years e) 35+ Years
3. Educational Background:
a) HSC b) Graduate c) Post Graduate d) Masters e) PhD/M. Phil
4. Which monthly income group are you in?
a) Less than 5,000 BDT b) 5,000 - 10,000 BDT c) 11,000 – 25,000 BDT
d) 26,000 – 40,000 BDT e) More than 41,000 BDT
5. How much money are you willing to pay to buy this product?
a) 5,000 - 10,000 BDT b) 11,000 – 25,000 BDT c) 26,000 – 40,000 BDT
d) More than 41,000 – 50,000 BDT e) More than 51,000 BDT
6. How much are you interested to use the product?
a) I am Very Interested b) I am Interested c) I shall only use it if it's convenient to me d) Not That Much e) No Interest At All
7. How many times you will store your memory using this device?
a) More than once a day b) Once a day c) More than once a week
d) Once a week e) Once a month f) Rarely
8. Do you agree this product will make your life simple and easy?
a) Strongly Agree b) Agree c) Neither Agree Nor Disagree d) Disagree e) Strongly Disagree
9. Do you agree that, this device will create a positive change in your life?
a) Strongly Agree b) Agree c) Neither Agree Nor Disagree d) Disagree e) Strongly Disagree
10. Do you agree, this device will bring a positive change in the society?
a) Strongly Agree b) Agree c) Neither Agree Nor Disagree d) Disagree e) Strongly Disagree

Appendix B

URLs of References

The given references of this article can be found from the following web links. The links are chronologically sorted. Websites last visited, 14 December 2011.

1. <http://www.fhi.ox.ac.uk/Reports/2008-3.pdf>
2. <http://www.brainpreservation.org/index.php?path=overview>
3. <http://hplusmagazine.com/2010/03/01/your-personal-memory-device-you-could-have-one-today>
4. <http://bluebrain.epfl.ch>
5. <http://ics.colorado.edu/techpubs/pdf/91-03.pdf>
6. <http://141.84.8.93/pubdb/publications/pub/butz2004mu3iproc/butz2004mu3iproc.pdf#page=43>