



“ I shall give you a talisman. When faced with a dilemma as to what your next step should be, remember the most wretched and vulnerable human being you ever saw. The step you contemplate should help him ! “

–Mahatma Gandhi

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SEARCH

Society for Education, Action and Research in Community Health



Summer Internship at
SEARCH Foundation
Project I

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Industrial Design Centre, Indian Institute of Technology, Bombay 2009



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Acknowledgements

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I am also thankful to Priyadarshan Sahasrabuddhe for helping with my project. Also my thanks to Dr. Sanjay Baitule, All Arogyadoots and supervisors, Sanat Ganu, Amrut Bang, Gopal Mahajan, All members of SEARCH family for helping and hosting me.

My special thanks to my Prof. Anirudha Joshi who suggested and encouraged me go and work at SEARCH & my parents who are always there to help me.



ABOUT SEARCH: Dr. Abhay Bang & Dr. Rani Bang

Dr. Abhay Bang is the Director of the Society for Education, Action and Research in Community Health (SEARCH), which he started in 1984. He and his wife Dr. Rani Bang, both are doctors and did their Masters in Public Health from John Hopkins University America. They live and work in Gadchiroli, India where they provide medical care and conduct research in 100 villages. Dr. Abhay and SEARCH developed a new approach, 'Home-based Neonatal and Child Care,' which has significantly reduced the infant mortality rate. This research has been selected as a milestone paper to be included in the Vintage Lancet. He has received the highest honor of the Maharashtra state, a national award from the Indian Council of Medical Research, and has been honored by Save the Children and the MacArthur Foundation. Abhay and Rani were honored by Time magazine as 'Global Health Heroes' in 2005 and several other awards.

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ABOUT SEARCH: The Organization

SEARCH (Society for Education, Action and Research in Community Health) is a non-government organisation registered as a public trust and charitable society in India.

It was founded in 1985 by a doctor couple, Abhay Bang and Rani Bang. Inspired by the life and philosophy of Mahatma Gandhi. Their dream was to develop an institution of community health which provided health care to the local population, and generated knowledge for the global community by way of research. **“Think globally, act locally!”**

Following program are running under the organization:

- a) Newborn and child health
- b) Dissemination, policy influencing and scaling up
- c) Health of women
- d) Tribal friendly hospital
- e) Adolescent Reproductive Education
- f) Tribal Health
- g) Alcohol and tobacco control
- h) Training & Fellowship
- i) Community life in Shodhagram

visit www.searchgadchiroli.org for more information

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ABOUT SEARCH: Why Search foundation?

I wanted to go and work at a place where I can live with the people I am working for in order to know them and understand their problems and concerns better. The SEARC foundation was the place I was looking for as it works with the people. There they follow this quote

**“ Go to the people,
stay with them,
Love them learn from them,
start from what they know,
Build on what they have got.”**

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MY WORK: Projects

After attending the annual planning presentation done by each department at SEARCH I planned to work on the following projects:

- a) HBNC (home based neonatal care) on instruction device for Birth Asphyxia**
- b) NREGS (National Rural employment Guarantee Scheme)**
- c) De-addiction (Tobacco)**
- d) Community Radio**

After the discussion with the director I decided to work on the first two a & b because of the time constraint and interest.



MY WORK: Approach

I was suppose to present the plan, outcome and output for both the projects after reading knowing the project properly

About HBNC:

It is a Home based Neonatal Care system developed for the places where doctors can't reach. It was aimed to train eligible person from each village called VHW's(village health workers) so that they can treat and take care of both child and mother at the time, before and after the child birth. They are called as arogyadoots.

In the above project there is a concern called Birth Asphyxia, whose treatment is time critical. So for that persose the organization made a prototype of a device which can give instruction during the child birth for the treatment of birth asphyxia.

I worked on the Usability Testing and redesign of the Birth Asphyxia instruction device.

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MY WORK: Approach

Plan submission before starting the work

Present device:

Output –1) A device with speaker to give instructions to CHWs (community health workers) during child delivery, in order to diagnose and treat for Birth Asphyxia

Outcome –1) To help CHWs to perform occasional practice of the process on their own
2) To use the device while delivery

Plan:

- 1) To perform Heuristic Evaluation
- 2) To Ideate for design idea
- 3) To do Think Aloud Test & card Sort Test with users
- 4) To make checklist of the problem faced and any other insight during the test
- 5) Design Interventions in the problem area

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MY WORK: Approach

Plan submission before starting the test

Assumed:

- Output** –
- 1) More user-friendly device
 - 2) To have alternative instruction medium
 - 3) Provision for feedback
 - 4) A version with connectivity facility to a group

- Outcome** –
- 1) Flawless service at the critical time
 - 2) To get supervisors informed about the practice performed by the user
 - 3) Data collection of any new findings by the user during practice as well as real time use

b) Think Aloud Test



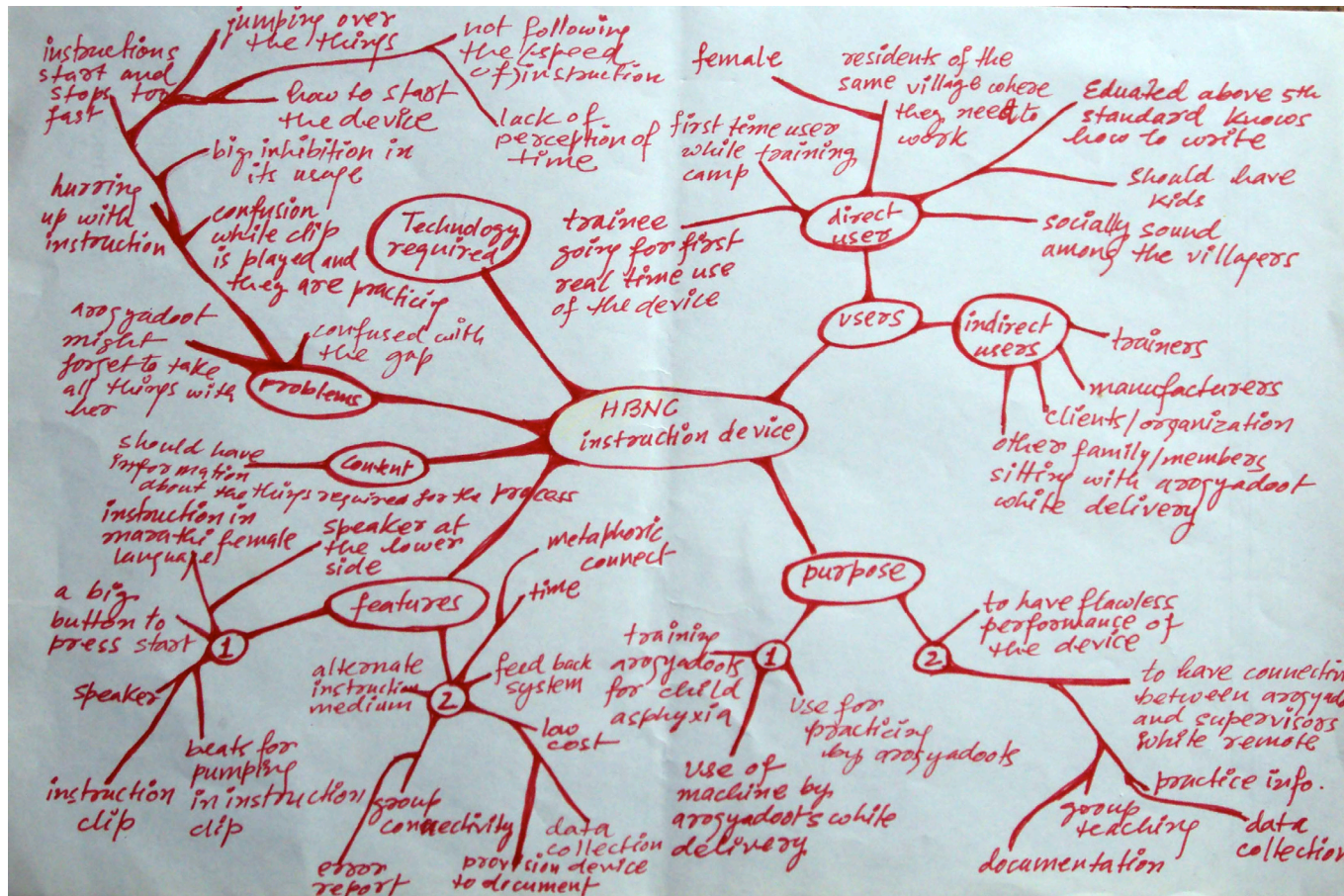
hbnc1									
New Open Save Print Import Copy Paste Format Undo Redo AutoSum Sort A-Z Sort Z-A Gallery Toolbox Zoom Help					Sheets Charts SmartArt Graphics WordArt				
	A	B	C	D	E				
	Sr. No.	Comment	Type	Classification					
1	A1-001	She is hurrying up for all instructions	observation	medium					
2	A1-002	Instructions starts and stops too fast	breakdown	medium					
3	A1-003	There should be redundancy in giving instruction, either it can be said slowly or can be repeated one more time	Insight	medium					
4	A1-004	She has to jump over one device in order to get another	observation	low					
5	A1-005	They might forget any apparatus to carry	insight	low					
6	A1-006	Instruction can have list and order of things needed while delivery, it will help them to have all the things they require and	design idea	medium					
7	A2-001	Even after telling she is not pressing on the device	observation	high					
8	A2-002	Though she has treated 13 neonatals for birth asphyxia she don't remember the steps of its treatment	breakdown	high					
9	A2-003	Again after prompting her to start the device and perform the practice she is getting confused with it	observation	high					
10	A2-004	The device should have some metaphoric connect with arogyadoots or else they are not able to relate to it	Insight	high					
11	A3-001	After telling her to switch it on she is asking how to do it, cant figure out the red thing as pressing button	observation	high					
12	A3-002	At the end has to press it on for her	breakdown	high					
13	A3-003	She was getting confused while instruction was getting played	observation	high					
14	A3-004	She was actually now following the instruction she was doing it on herself what ever she remembered	insight	medium					
15	A3-005	Not able to perceive the gap between the instructions and asking is it over	breakdown	high					
16	A3-006	Asking for how much time that beep will go on in between the practice	observation	medium					
17	A3-007	Getting impatient as she is not aware of how much time the process is taking	insight	medium					
18	A3-008	There should be some time count there in the device	design idea	medium					
19	A4-001	Not able to perceive the gap between the instructions and asking is it over, should she close it	observation	high					
20	A5-001	She is having problem in starting the device/pressing the button	observation	high					
21	A5-002	Not able to perceive the gap and having problem with that	breakdown	high					
22	A5-003	She is not following the beat while pumping	observation	low					
23	A6-001	She is having inhibition in touching the device	observation	medium					
24	A6-002	She is confused with the device	observation	medium					
25	A6-003	She is hurrying up with the instructions	observation	medium					
26	A7-001	Problem in switching on the device even if told	observation	medium					
27	A7-002	She cant hear the instruction as there was noise of people and cooler in the room that's why she took the device and broug	observation	high					
28	A7-003	Gap in between the instruction is a problem for her	observation	high					
29	A7-004	She is not following the instruction as it is too fast and she is confused	insight	medium					
30	A8-001	She is hurrying up for all instructions	observation	medium					
31	A8-002	she was not prepared with the instruments to be used while the treatment	observation						
32									
33									

MY WORK: Method

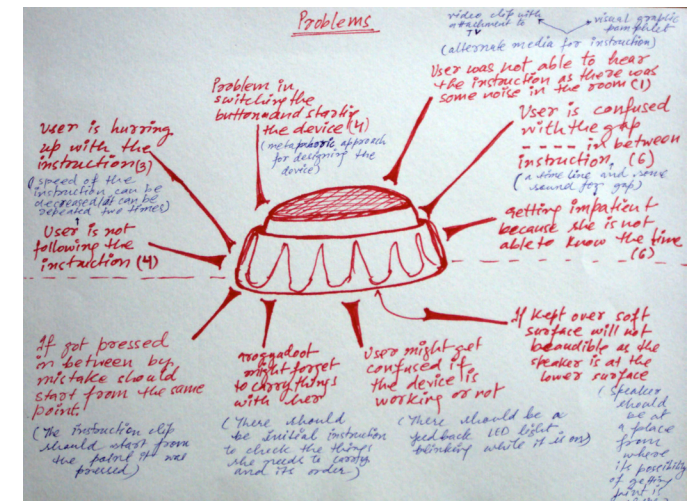
a) Heuristics Evaluation

- 1) Problem with the gap in between the instruction
- 2) Alternate for the verbal instruction, as there might be some case they cannot hear
- 3) There is no feed back that whether the system is on, its working or not

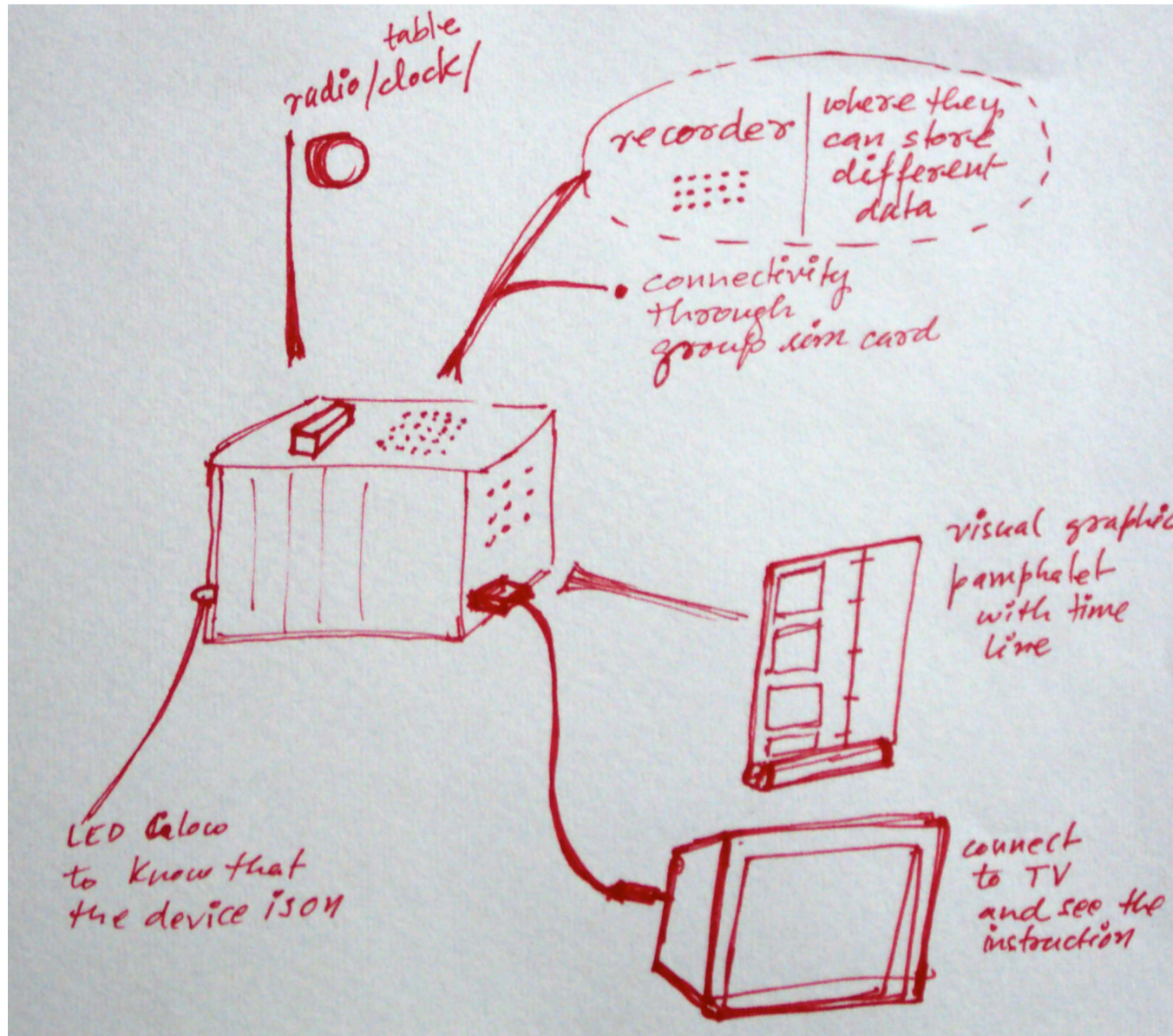
c) Mind map



d) Problem listing



e) Other Ideas



f) Problem rating

Rating Problems

- ① User is hurrying up with the instruction 3/8
 (critical) problem both ways as it is necessary as well as if they had it
 Solution: The instruction speed can be made slow. It should be repeated twice.
- ② User is not following the instruction 4/8
 (critical) its not very critical but the user should not have inhibition in using the product, as they cannot figure out on their own problem can be tackled.
 Solution: Metaphoric approach - a door, a room, a lock, a button.
- ③ Problem/inhibition in switching the button and starting the device 4/8
 (critical) if others also face this problem
 Solution: alternate measure, increase the volume.
- ④ Problem to hear the instruction because of noise. (ventilator with more people)
- ⑤ User is getting impatient as she is not able to perceive the time 6/8
 (critical) as lots of people feel this problem and they should get the sense of time.
 Solution: a clock sound or a beep sound and ignore every instruction they should say the time.
- ⑥ User is getting confused with the gap in between 6/8
 (critical) as lots of people feel this problem and they should get the sense of time.
 Solution: a clock sound or a beep sound and ignore every instruction they should say the time.
- ⑦ Speaker is at the lower surface, if kept on a soft surface will not be audible.
 This problem should also be considered.
 Solution: Speaker should not be at bottom surface.

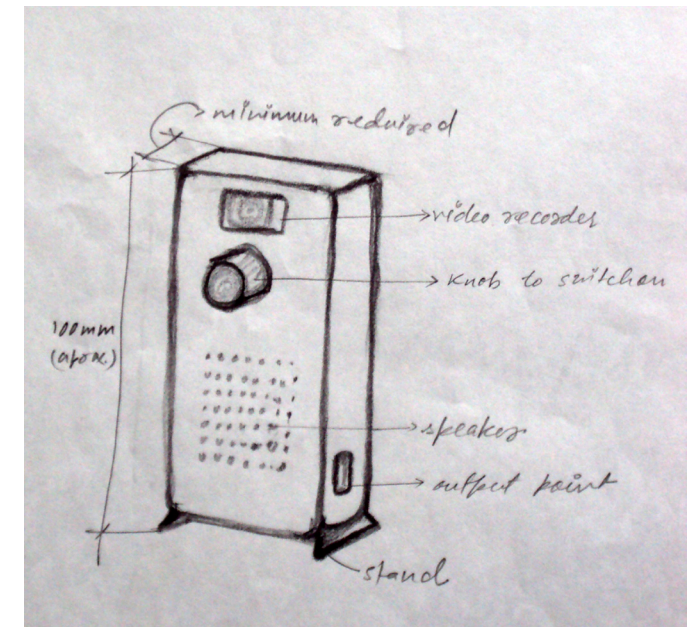
not much change in the hardware except the timer and speaker position for the above problems but if we want a video recorder in that what is the minimum possible things we require.



Extra feature

- documentation & keeping the check on the test
 video recorder with a camera so that they can record the process whenever they perform it.
- What if mobile phone?
 + best with mobile phone
 + Criticality will go high, as there are so many other things other than video and speaker and the angle problem.
- why not eliminate few steps. coz they will be able to take time

e) Rough Idea Sketch



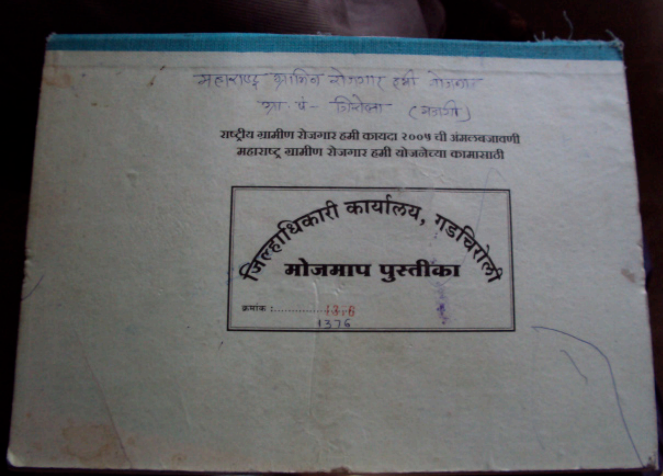


MY WORK: Approach for NREGS

Plan:

1. To understand the project and identify the areas for improvisation of time saving digital system
2. To understand all the users and connection between them
3. To know the skill set of different users and their limitations to access technology
4. To find out the resources available with better/suitable use and cost
5. To design a system/connectivity to meet the cause
6. To know and make the estimate of other required resources

The 1-4 actions were taken through user studies and data studies of NREGS



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My Learning & Experiences:

The followings are very general sentences used, but I learned new meaning for all of them at SEARCH

- 4) How to work hard and keep smiling: Whenever people do the work they like then they work really hard and still happy. This was what I saw and learnt there.
- 5) How to conduct systematic Research Work: As there were research happenings at SEARCH I encountered the flawless process. All the research was happening in three-four levels of verification with exhaustive data. The most important was that people on whom they are conducting research, they are living with them and are getting benefited with the process.

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My Learning & Experiences:

The followings are very general sentences used, but I learned new meaning for all of them at SEARCH

- 1) Participatory approach: By participatory approach now I mean to work with people thinking them as a part of us only instead of separating them as users and ourselves as designers
- 2) Working with group: The one should understand his/ her capabilities and liking before taking up any work and similarly distributing the work in the group. Performance result of that group work is always better.
- 3) How to learn even from mistakes and difficulties: Even to learn from wrong experiments and work in order to take care of them while working. To strive for learning more when encounter difficulties.

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References

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- 5) NREGA write up
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- 9) MacAurther awards article
- 10) Other related articles on google search