

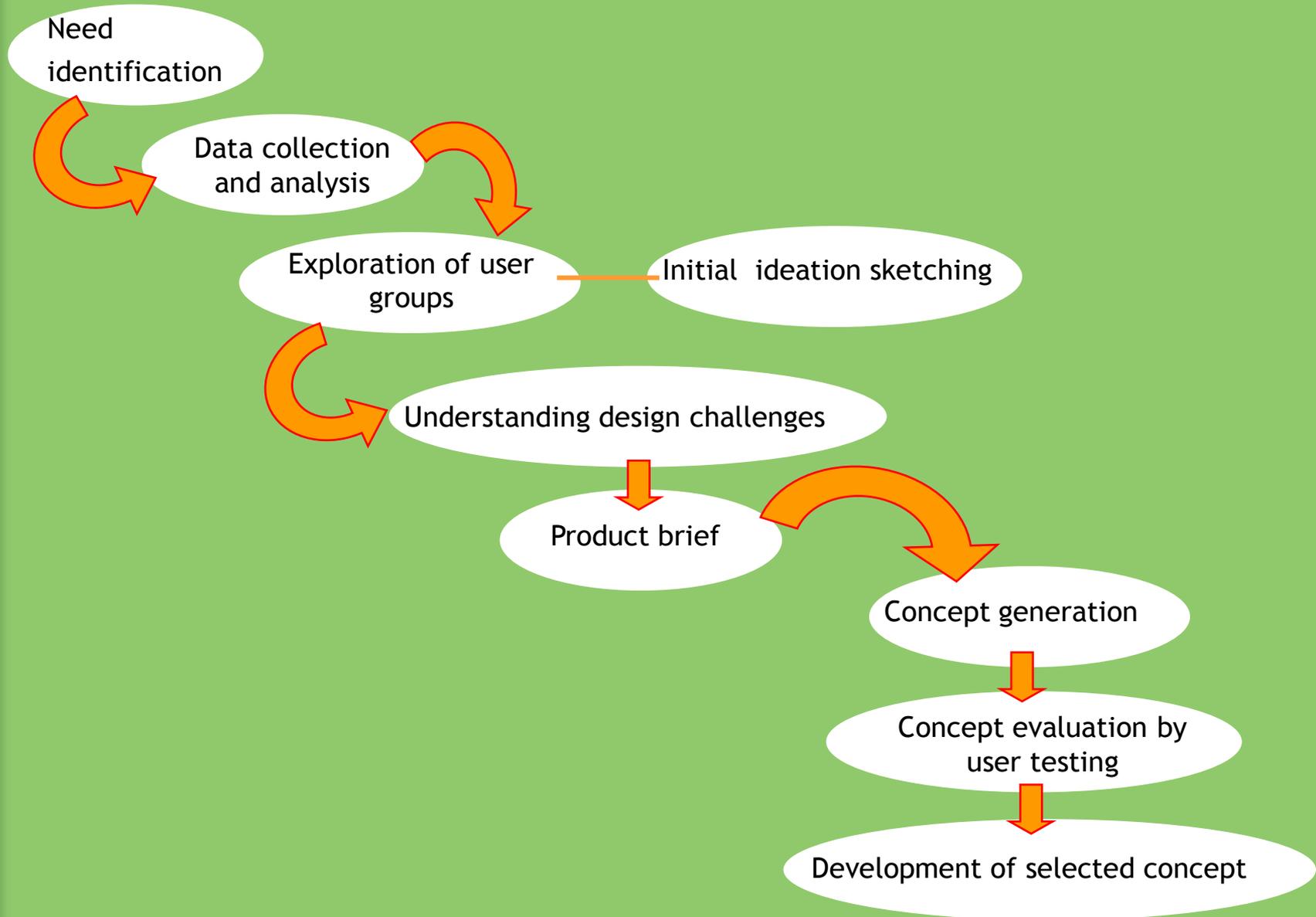
# Mobile phone - 'identity for individuals'

By

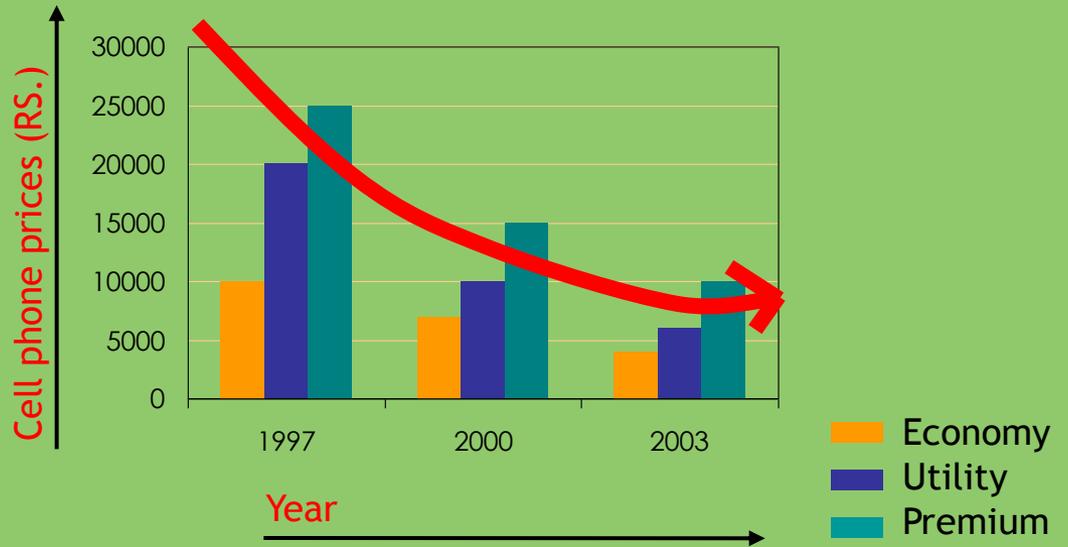
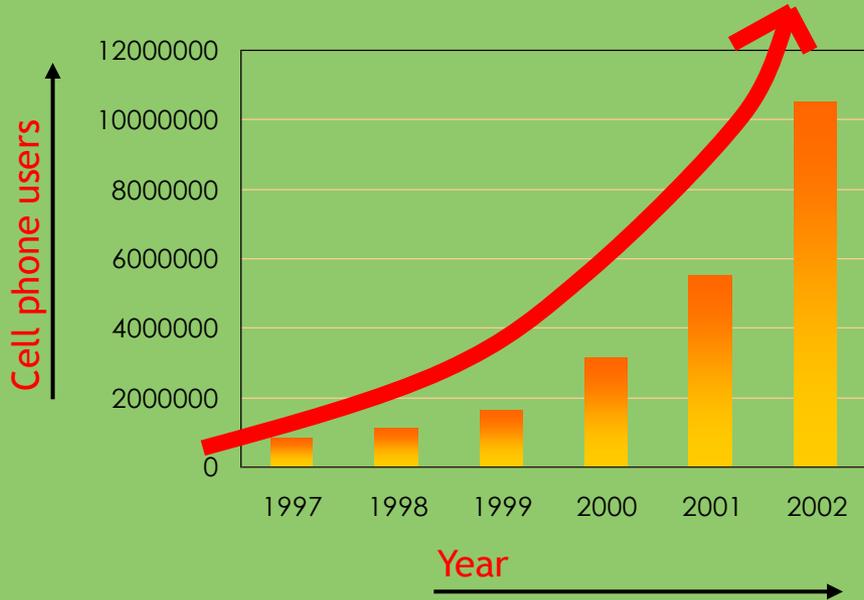
Rupali Babhulkar  
0 1 6 1 3 0 0 2

Guide

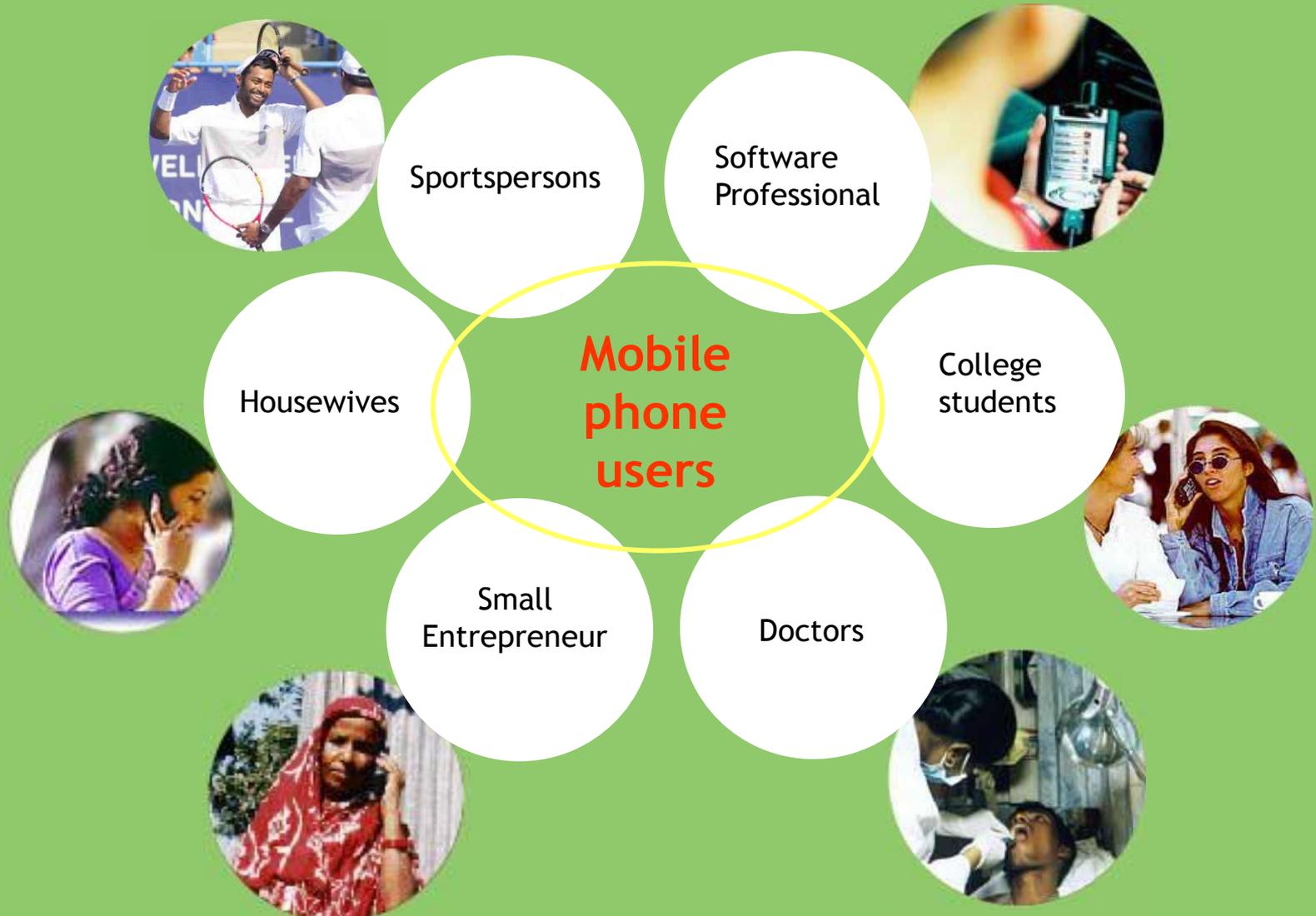
Prof. V. P. Bapat



Why?



Similar mobile phone for **everybody!**



Can it be **personalised** to an individual's precise needs ??

Specific use phones are already coming in.....



Nokia 9210 Communicator, Corporate Solutions



Nokia 3300, Music phone



Nokia N-Gage, game deck

## Understanding the User

- User survey
- Changing profile of users
- Activity analysis
- Internet product reviews



**Data  
collection**

## Understanding the product

- Visual grammar
- Changing interface
- Keys layout
- Packaging, internal details
- Ergonomics
- Features offered
- Latest technologies
- Smart products

## Understanding the environment

- Peripheral products
- Latest products

## Understanding the User



**Data  
Collection  
analysis**

## Understanding the product

- Trendy forms, colours, attractive materials.
- Compact size, lightweight
- Multimodal input for interface
- Minimum number of keys avoid confusion
- Mess of Features offered, may or may not be useful for the user
- Wearable technologies
- Connectivity of mobile product to various other products.

## Understanding the environment

### Understanding the User

- User's expectations- compact size, bigger display area, lightweight
- Sleek, easy to carry, Tough, easy to learn interface
- Optimum size of buttons to press, good finish and material for better grip.
- Awkward movement of thumb especially while operating bottom buttons.
- Wearable product than carrying the phone in hand everywhere.
- Personal identity in the product
- Only useful features



**Data  
Collection  
analysis**

**Understanding the product**

**Understanding the environment**

Understanding the User



**Data  
Collection  
analysis**

Understanding the product

**Understanding the environment**

- Peripheral products  
Use of soft looking forms, more than two colours.
- Latest products  
various applications of the mobile technology than for telephony
- Various mobile companies have started developing wearable communication devices.

# Exploration of possible user groups

## Profession

Music composer

Journalist

Designer

## Age group

Children(10 -15 yrs)

College students(17 - 22 yrs)

Elderly

## System

Bus driver, transportation agency, Passenger

Taxi driver, passenger

Milkman, customers

Fishermen, Market place, customers

## Others

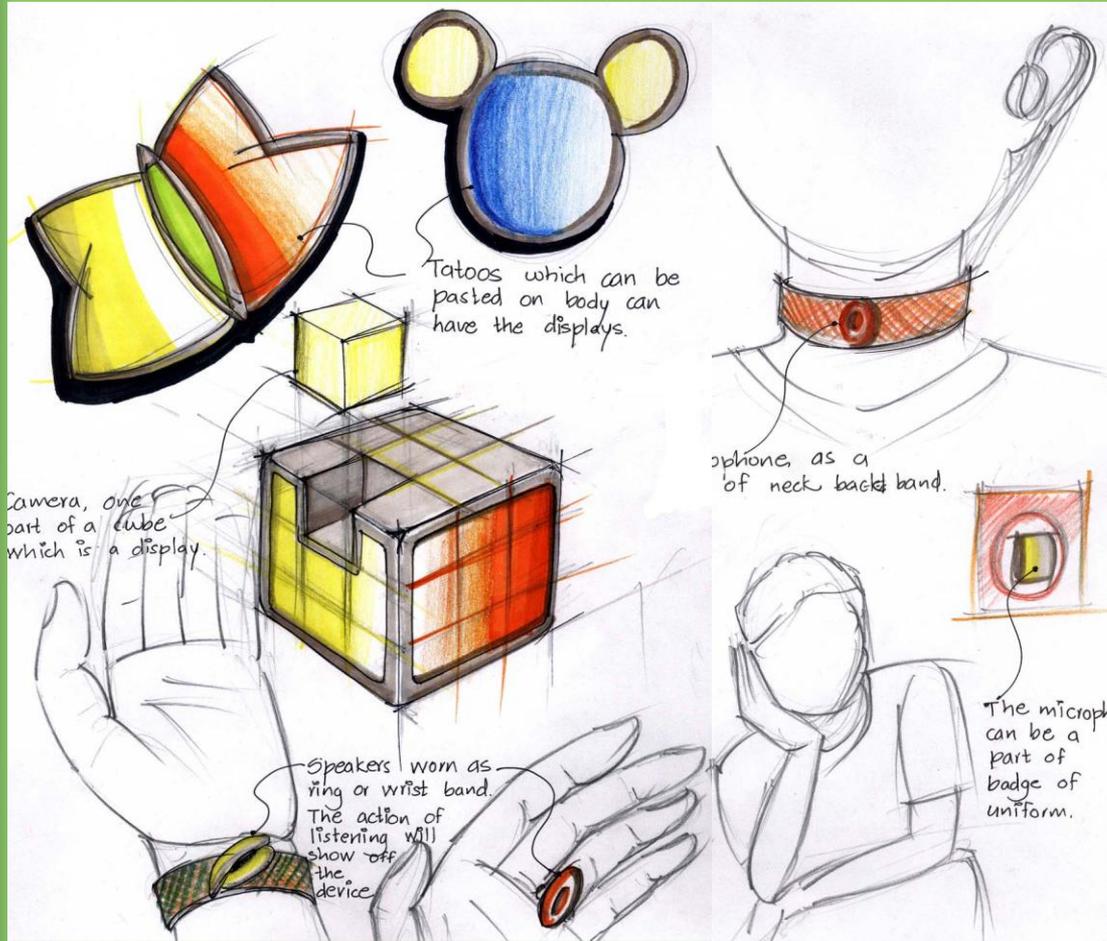
Sportsperson

House wife

# Ideation sketching

Target user - Children (10-15 yrs)

Show-off, Colourful, Fashion statement, I should look Like adult

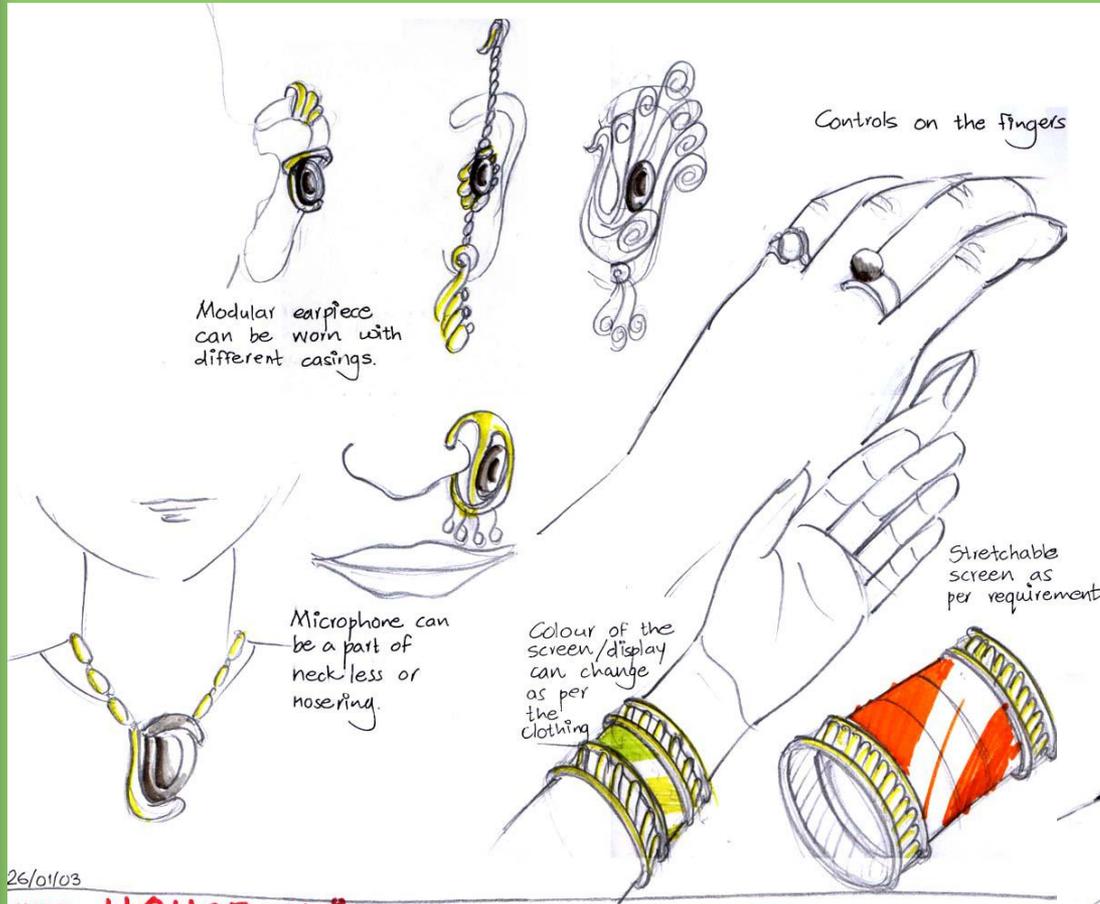


Target user - Journalist

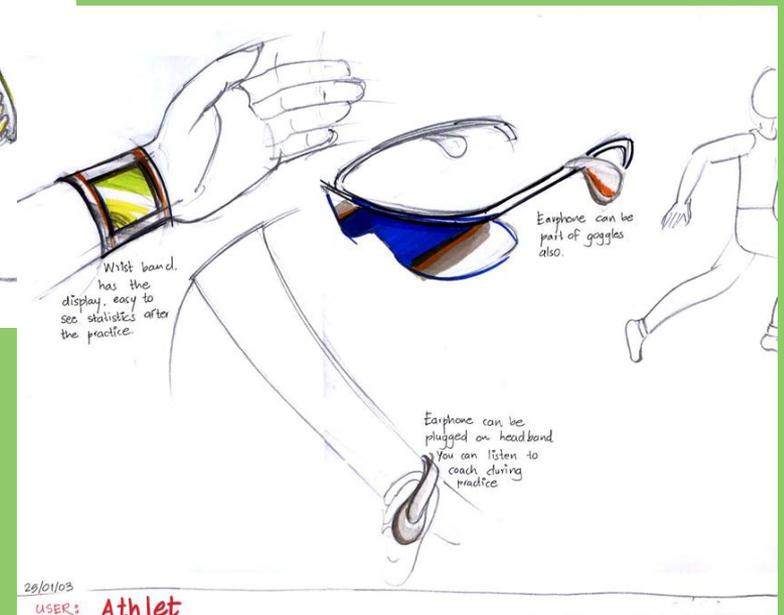
Tough, Handy, Instantly available

# Ideation sketching

Target user - housewife



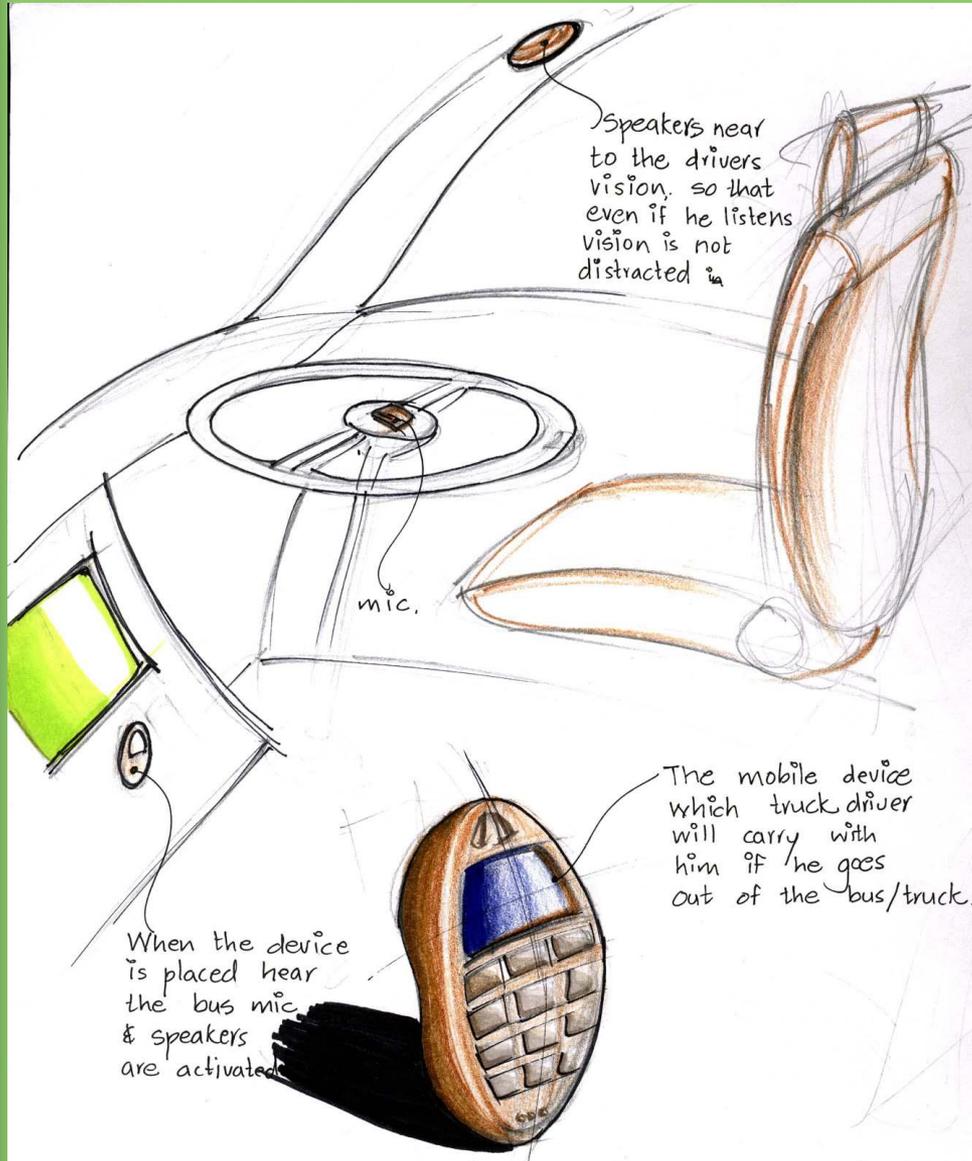
USER: HOUSE WIFE



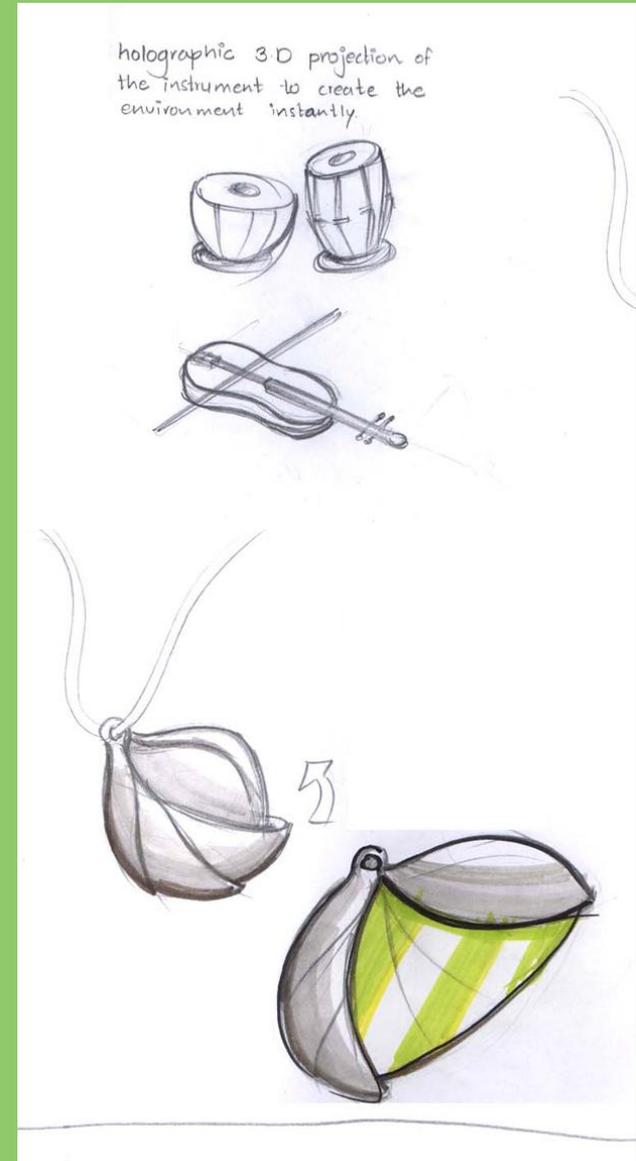
USER: Athlet

Target user - Athlete

# Ideation sketching



Target user- Bus journey system



Target user - Music composer

**Target**



Age group - 17 to 22 years

Economical status of the parents - Middle class and above. (Annual income RS. 2lakhs +)

**Why??**

- Number of students is rapidly increasing.
- They use available technology to maximum potential.
- They look forward to new technology.
- Ready to accept new things.
- In today's competitive age such product is a need for them.

## Design challenges

- Balance between Educational, entertainment activities.
- Scenario friendly form.
- Making student more social and not introvert.
- Product as companion of the user.
- Non-intrusive in day to day activities of user.
- Interconnectivity with other devices.
- Interface that can be learnt in 5 min without the manual.



## Socio-cultural background

- Dependent on parents (mostly)
- More western impact on everything  
Clothing, food habits, other products used
- Fashion oriented
- Gender based products

## Changing phase (From school to college)

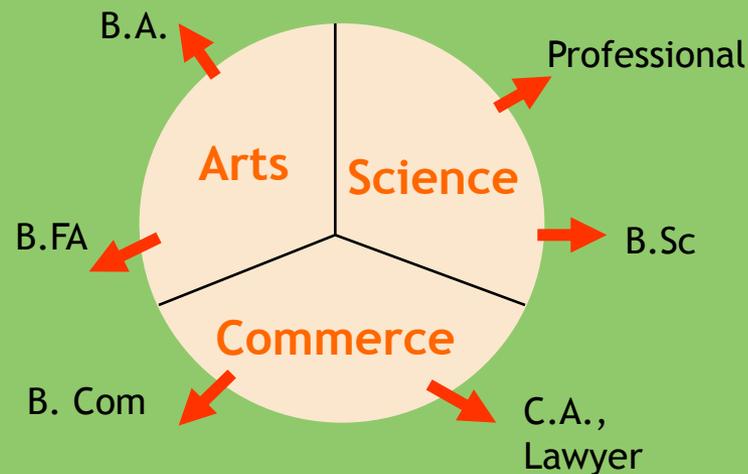
- Surrounding environment
- Mind sets
- Way they study
- Maturity

## Student activities:

- College activities
- Extra curricular activities
- Friend circle
- Family life

## Gadgets used:

Digital diary, Calculator Computers and accessories ,Walkman



### Daily college activities

Attending classes,  
referring library,  
discussions with professors, friends,  
Lunch break.

### Exams

Reference of daily notes,  
reference of the publications,  
revision

### Sports

Daily exercise,  
practice sessions for college events,  
participation.

### Cultural activities

Theatre, Music, Dance, arranging/performing

### Youth club activities

Attending meetings, Active or passive participation.

### College picnics

### Traveling to college

### Interaction with family

## Quick solutions for design challenges

### **The device used in both activities academics and entertainment.**

Time or memory division for games

### **Physical form**

cushioning material

changes form for various scenarios

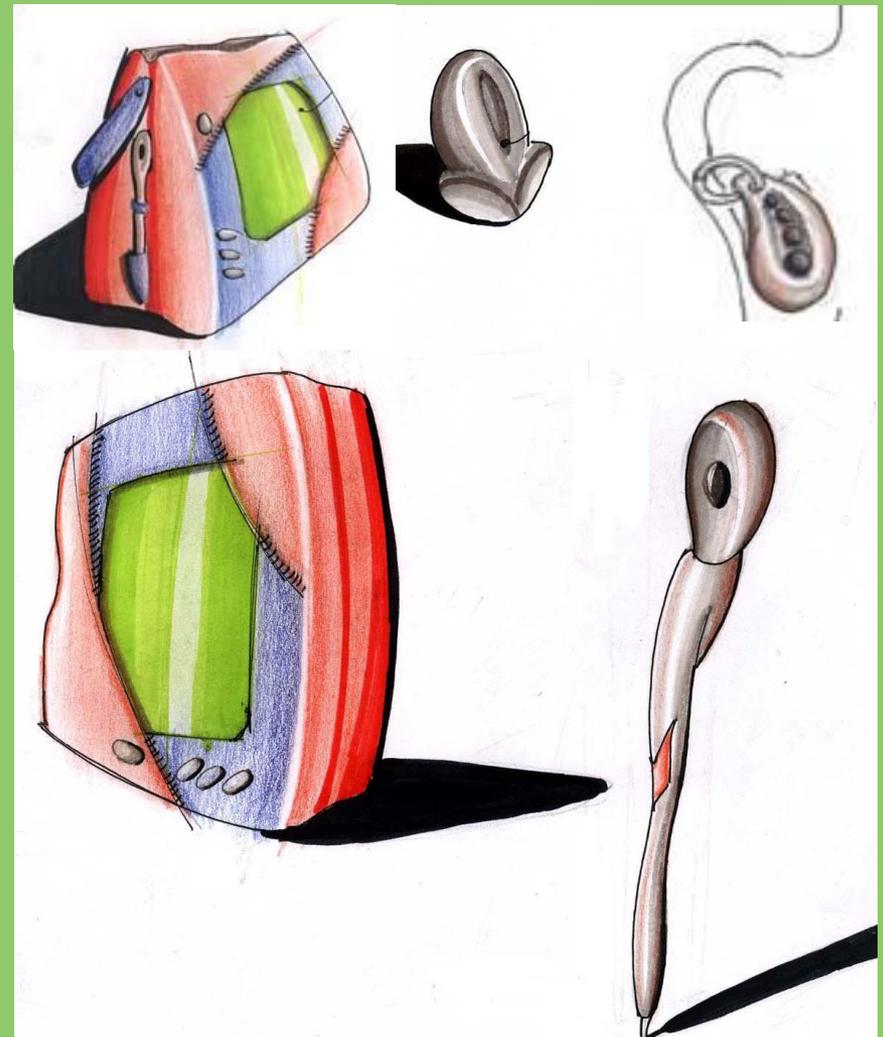
### **Product as companion**

visual clues which arouse the feeling of 'personal' product.

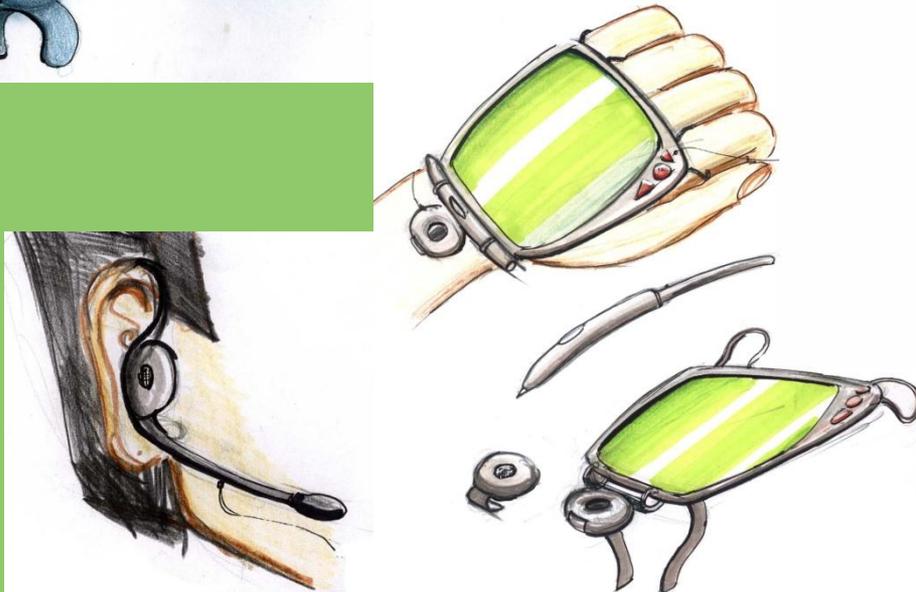
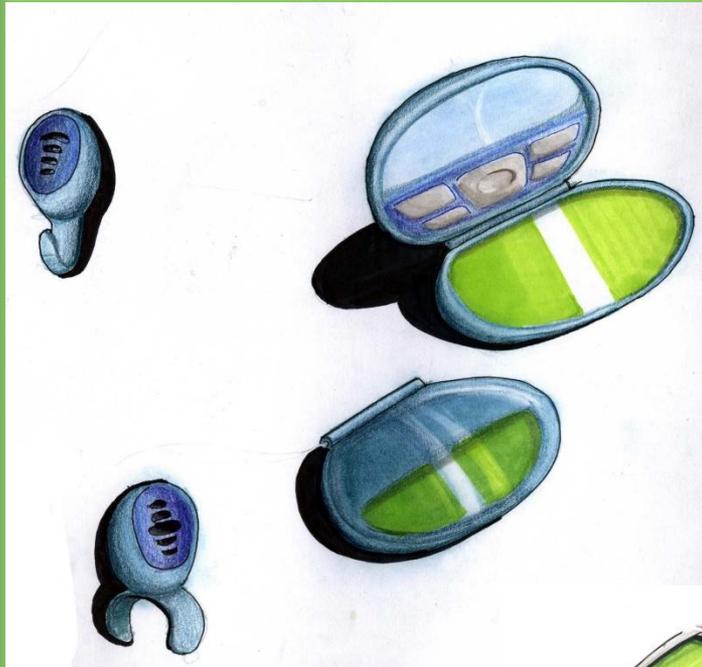
### **Making student more social than introvert**

Team games

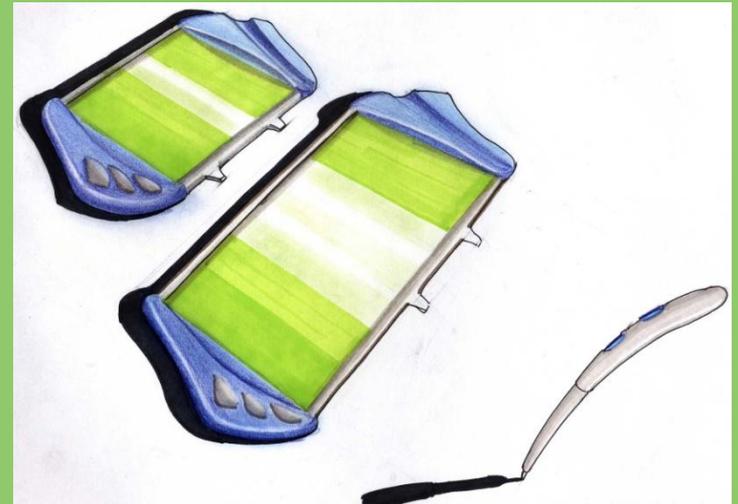
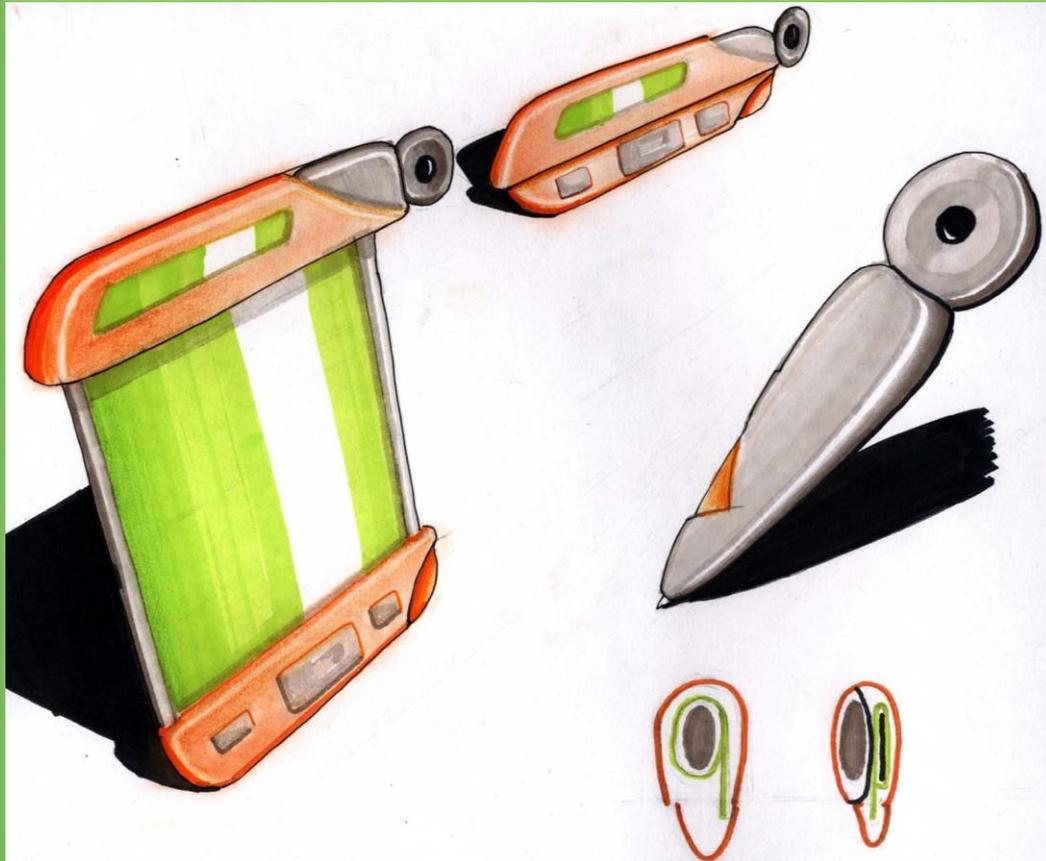
Based on similarity with frequently used products



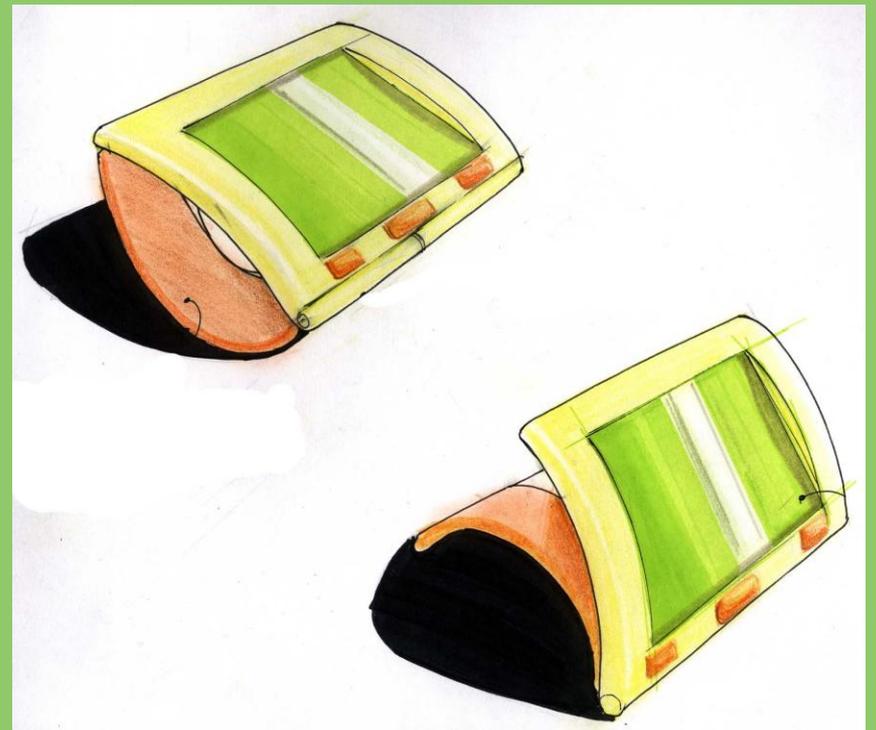
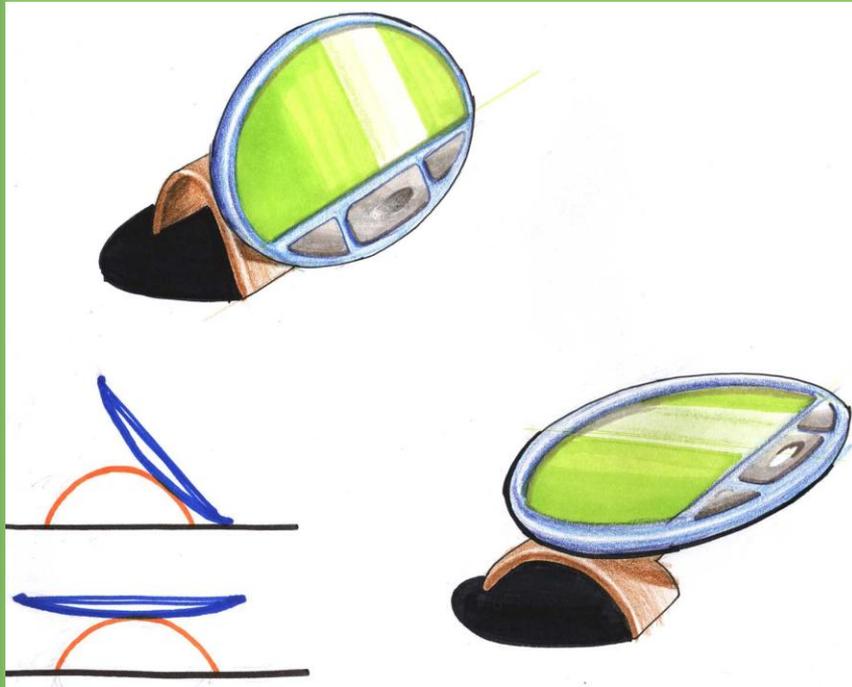
Based on similarity with frequently used products



Based on folding screen

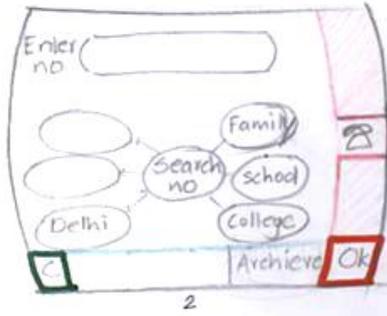


Based on Change in product form

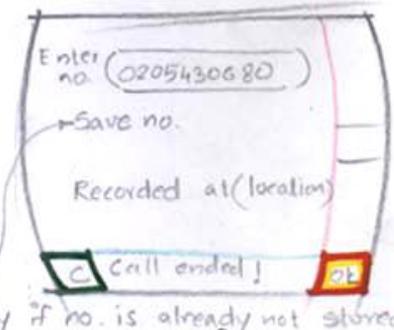
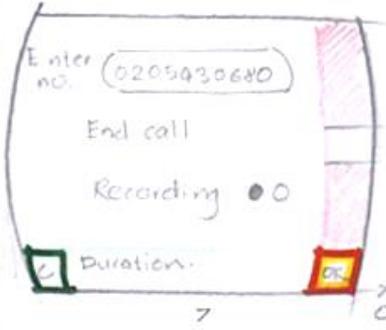
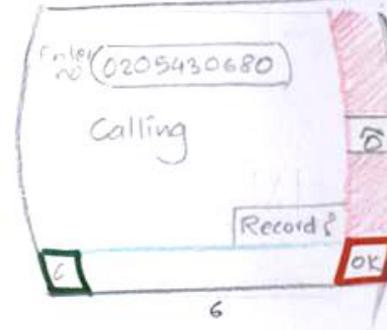
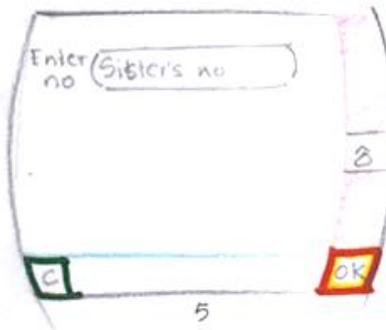
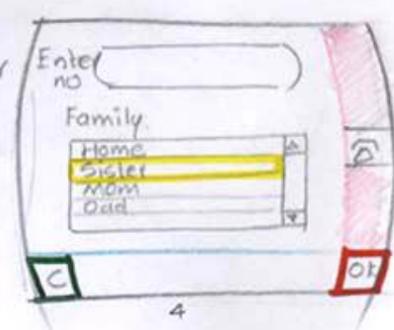
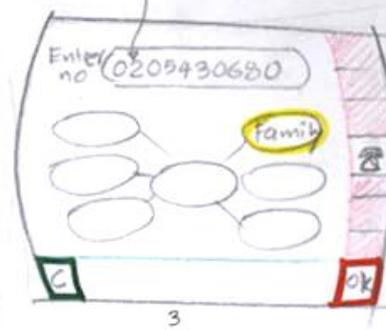


# Initial concepts for interface

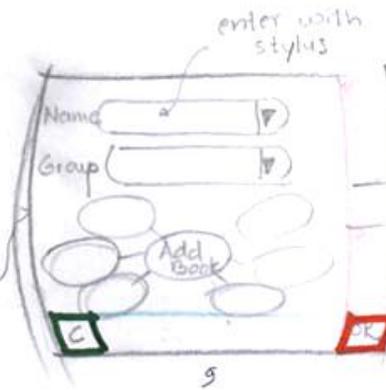
## MAKING A CALL



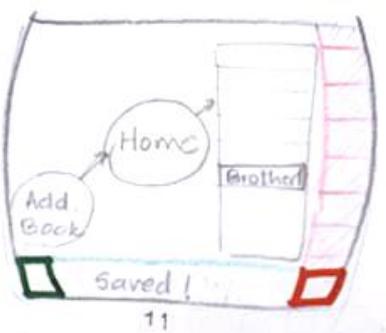
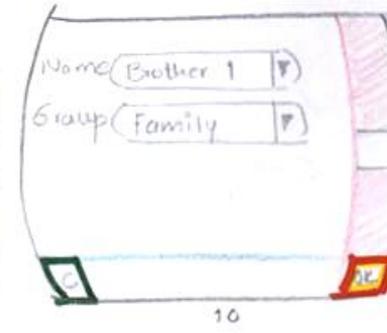
enter no with stylus.

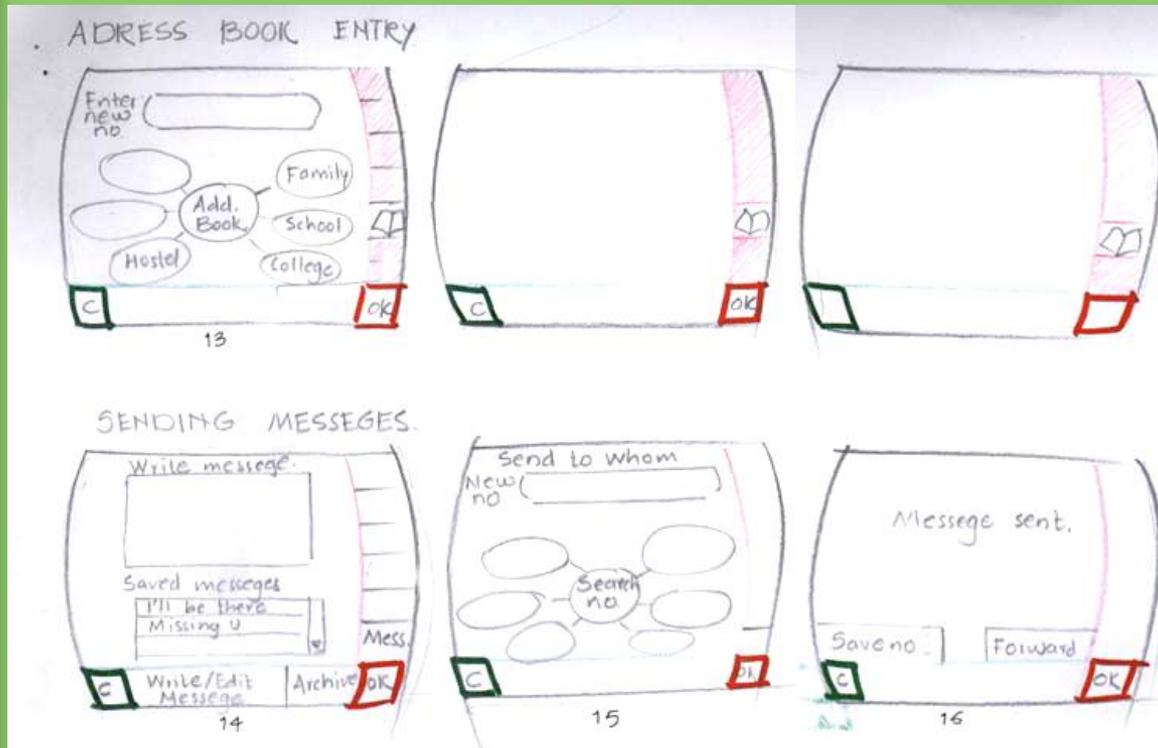


only if no. is already not stored.



enter with stylus





### Insights

- Default saving new number
- Voice conversation recording as very useful feature
- Status of the user, like in messenger software
- Multiple number saving for the same user name

### Statement

Designing personal mobile phone for young college students (junior and senior college), age group 17-22 years.

The product will assist the student in her/his daily activities such as studies, relaxing, extra curricular activities.

### Features

The device will be more than just a communication device. It will also offer

audio note taking

Scheduling

reminder

alarm setter

voice recording

digital camera

music player

### Form

- As the product is for young students the product should look 'fresh' and 'dynamic'.
- The form should be appealing for both boys and girls as it is a unisex product.

### Interface Usability

- The novice user should not take more than 3 to 5 minutes to learn how to use it, without help of manual.
- Once the user knows how to use one feature, he should get idea of how to use other features.
- User should not require memorizing the sequence, where he could fine the desired feature.

### Ergonomics

- As the product has to be carried every time, it should be compact and lightweight.
- The layout of keys should be comfortable to use with any of the hands, and there should not be any strain on the thumbs.
- The constant use of the product should not result into any fatigue for the user.
- Grip of the product while talking, dialing, and even carrying should be firm.

### Qualities

- Product should promote students for balance between studies and other activities.
- Useful in making student more social and not introvert.
- Product should be more like a companion to the user.



# Concept-1





## Concept-2





# Concept-3



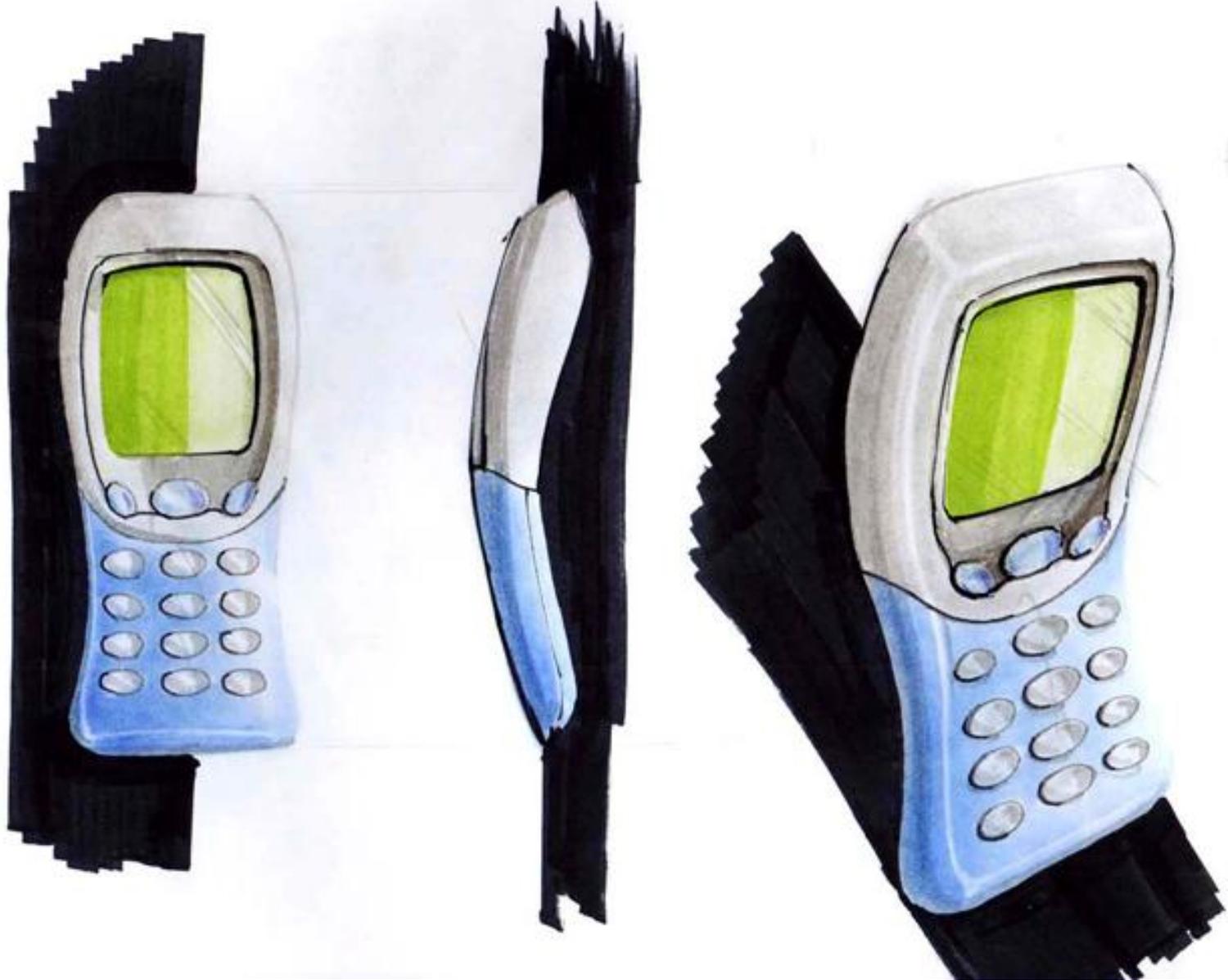


# Concept-4









# Concept-6





# Concept-7





# Concept-8



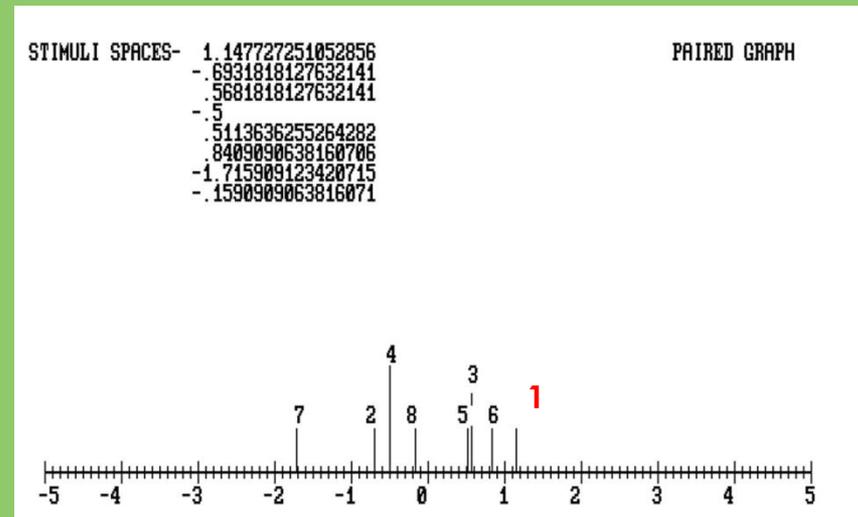
“Pair Comparison” method was used for evaluation of the concepts.

Number of concepts: 8

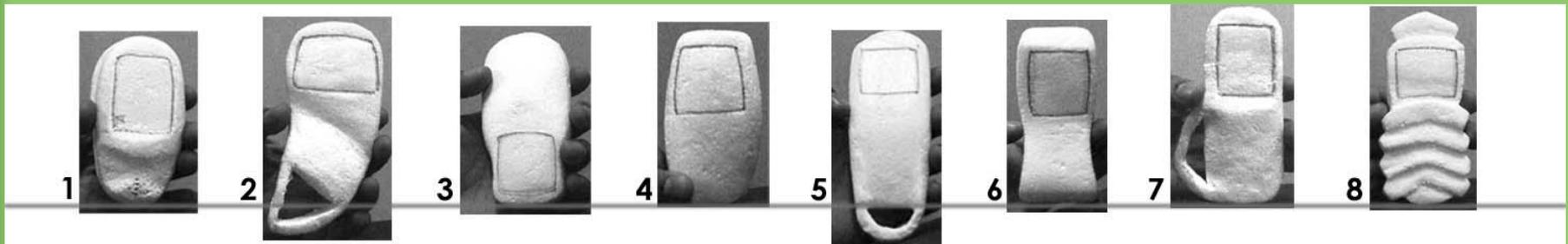
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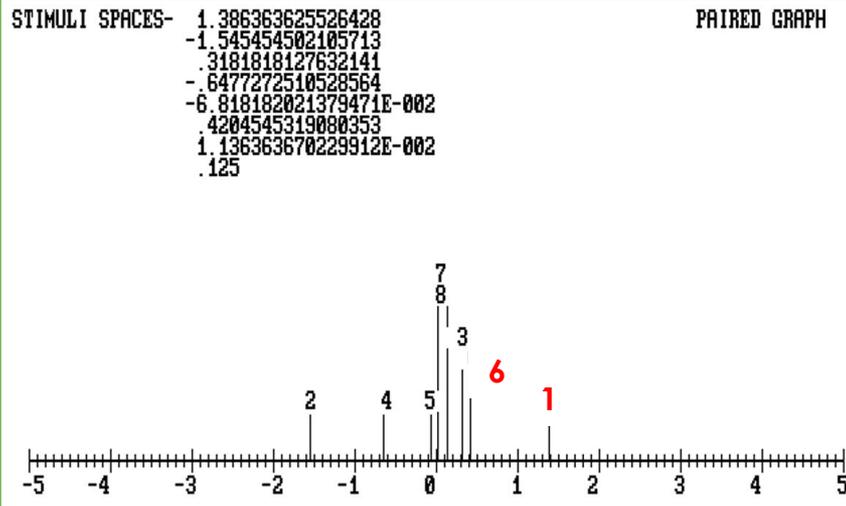
The parameters for evaluation were:

1. Form
2. Carrying
3. Grip
4. Dialing
5. Talking
6. Lifting up
7. Keeping down

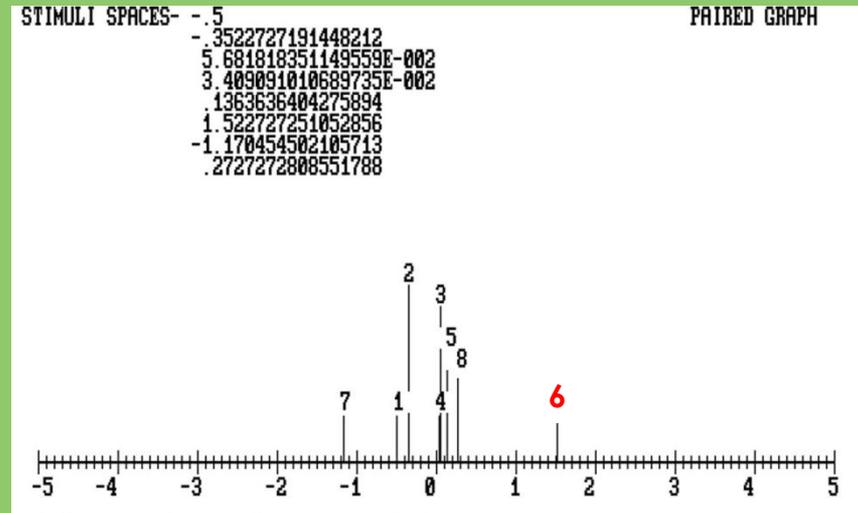


Form

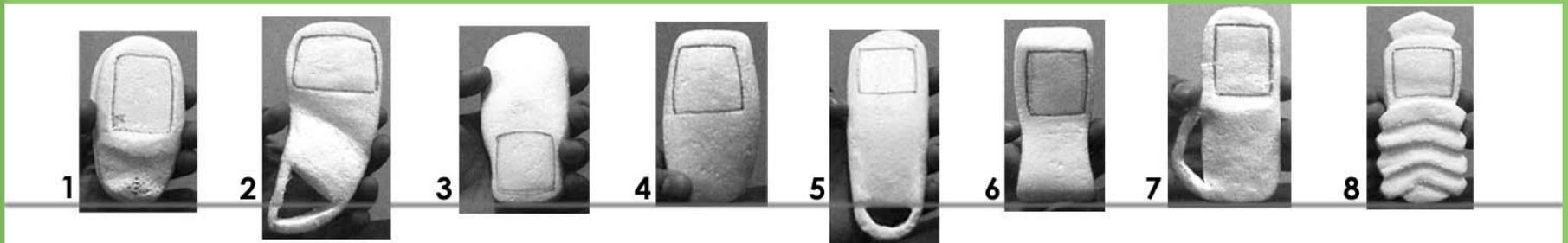




Carrying the phone

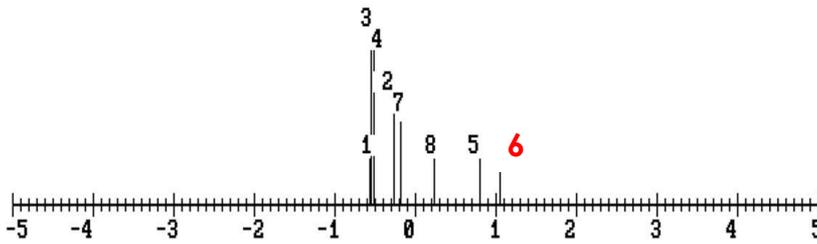


Grip



STIMULI SPACES- - .5681818127632141  
- .2727272808551788  
- .5568181872367859  
- .5113636255264282  
- .7954545617103577  
1. 056818127632141  
- .1818181872367859  
- .2386363595724106

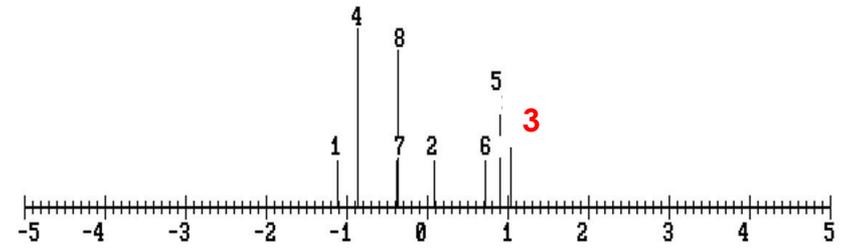
PAIRED GRAPH



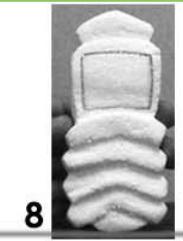
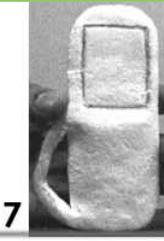
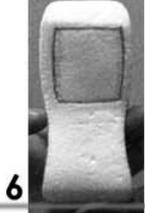
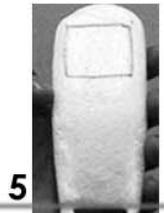
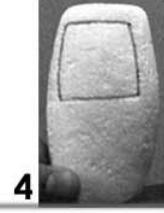
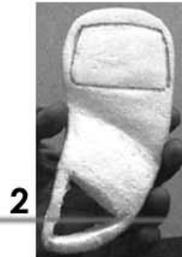
Dialing

STIMULI SPACES- -1.113636374473572  
9. 090909361839294E-002  
1. 034090876579285  
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- .8977272510528564  
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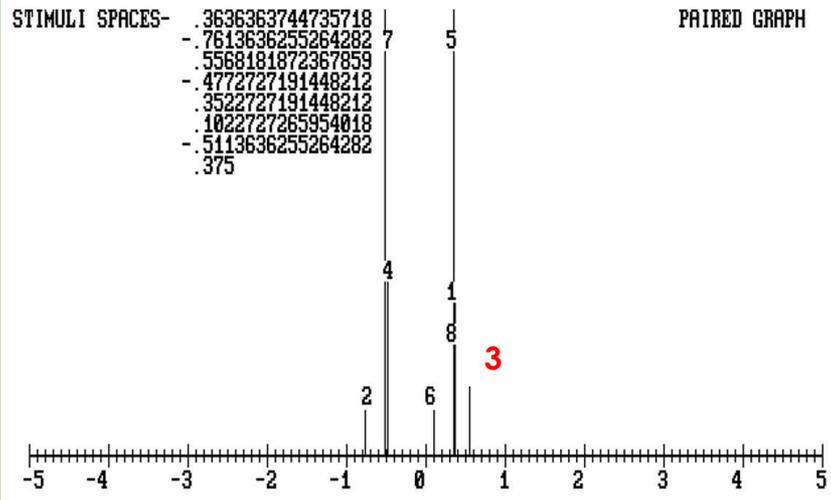
PAIRED GRAPH



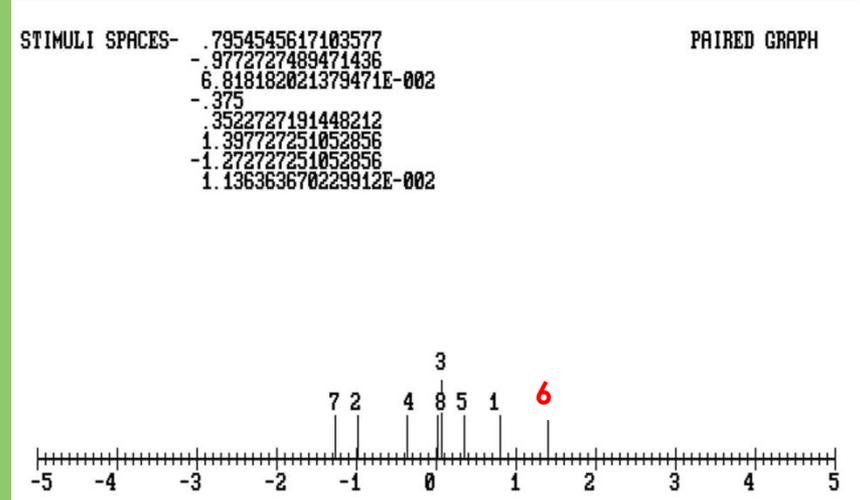
Talking



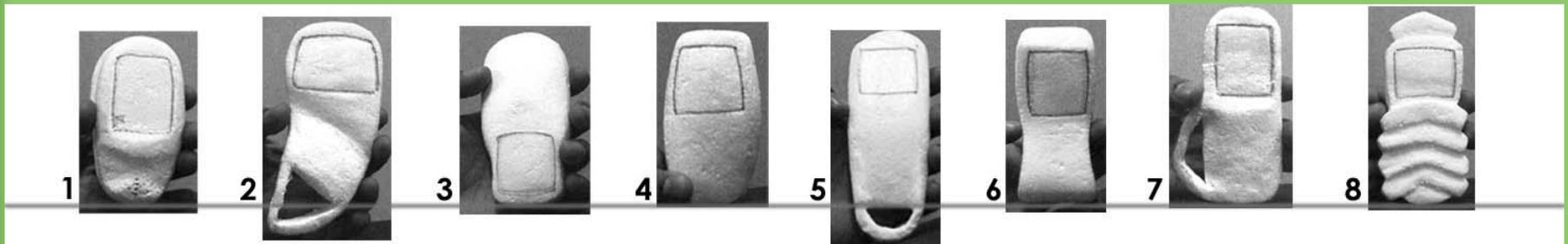
# Concept evaluation



Lifting up the phone



Keeping down



# Selected Concept



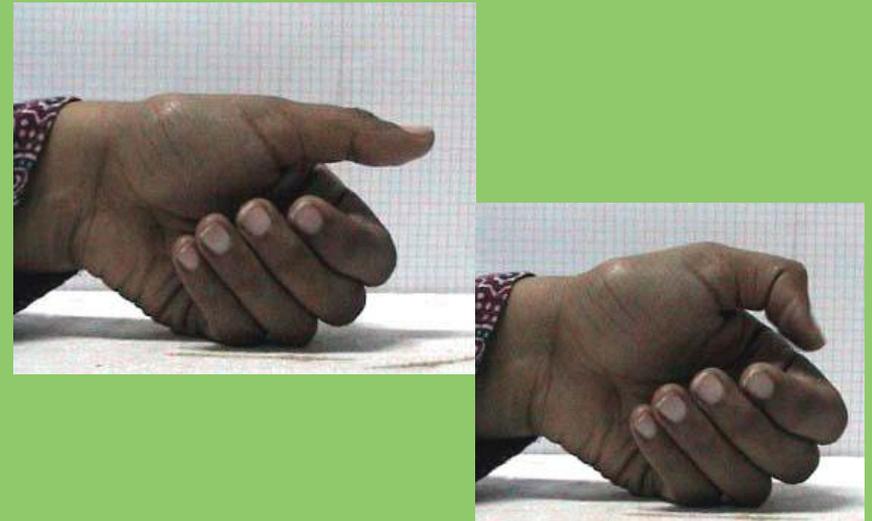
## Thumb movement study



To define comfortable area for keypad

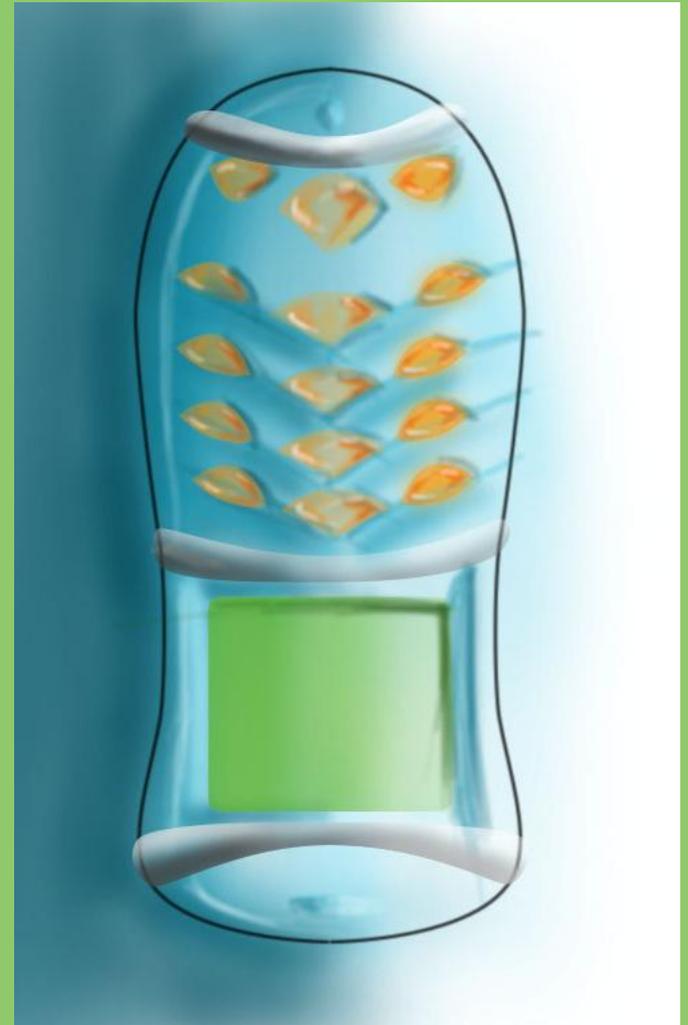


To define profile of keypad in side view.



To define profile of top and bottom keys

## Selected Concept - alternatives

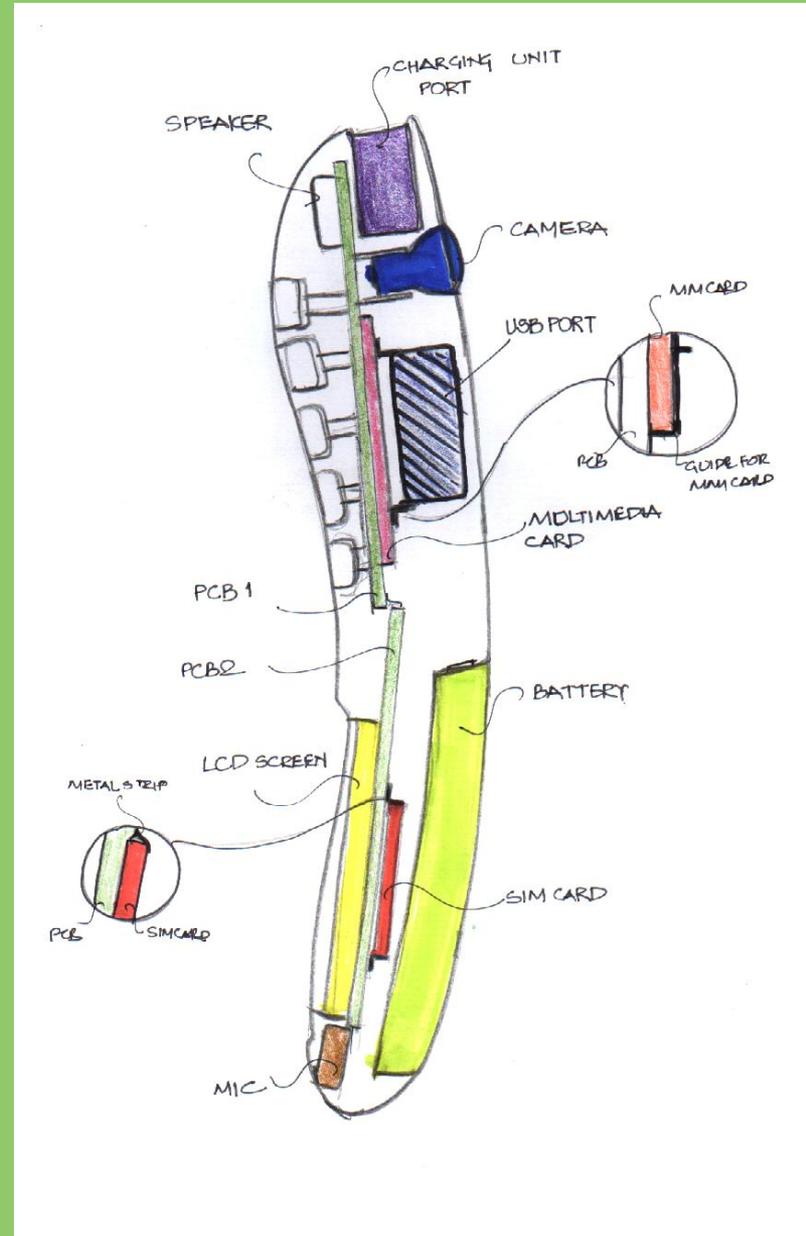
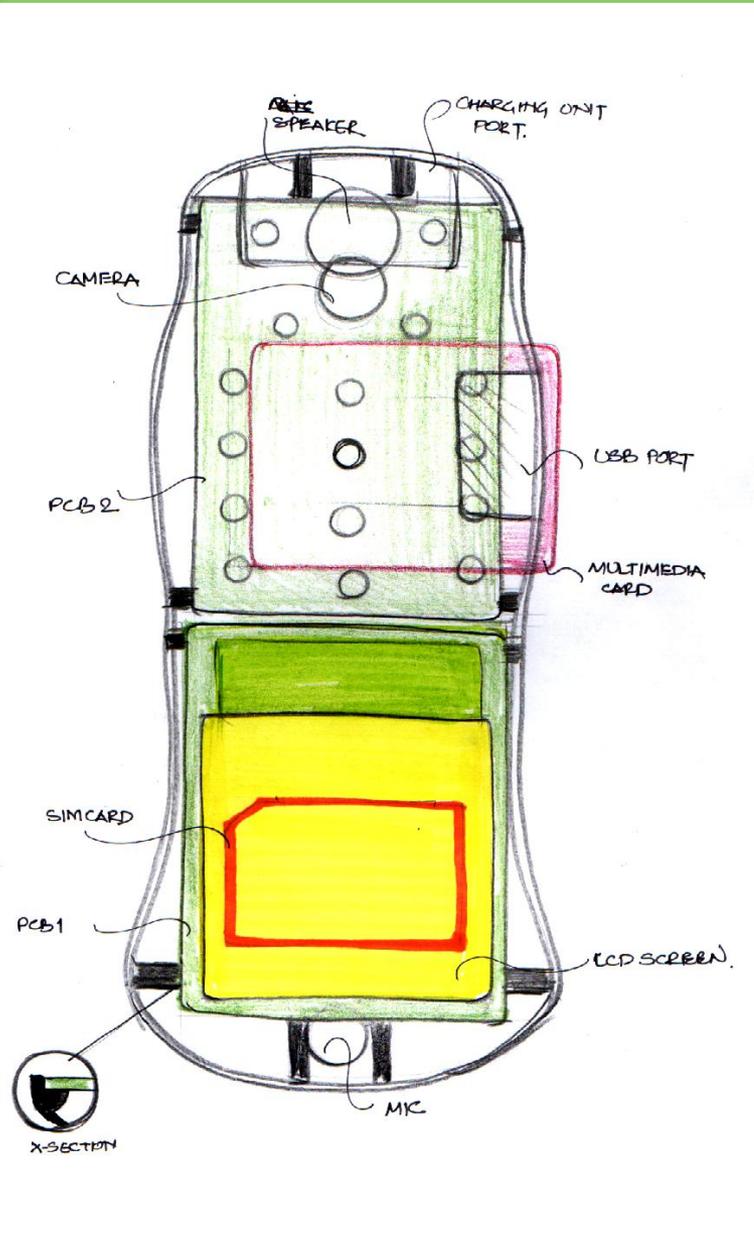


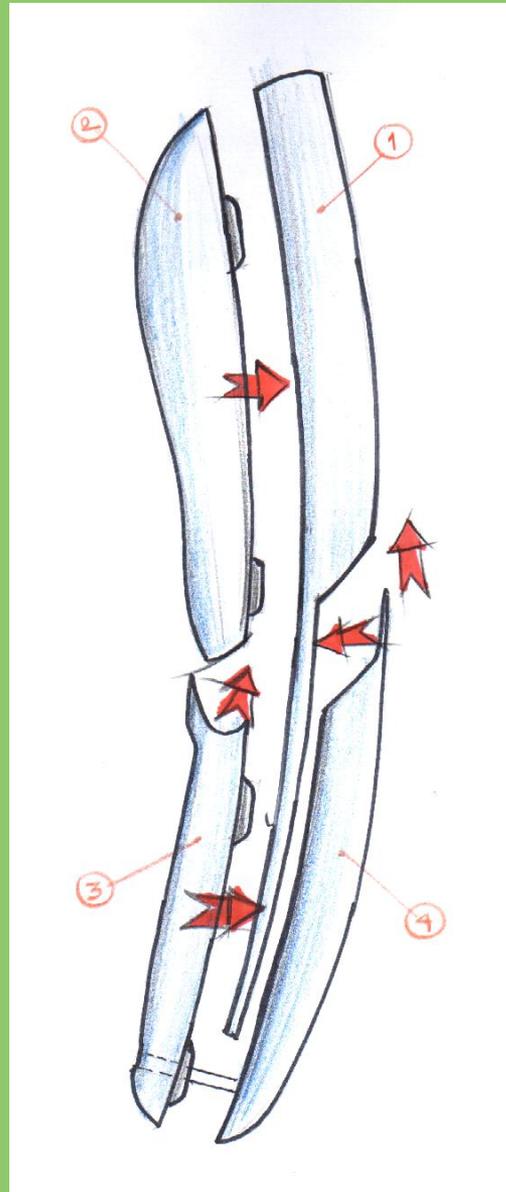
## Selected Concept - alternatives











## Colour variations



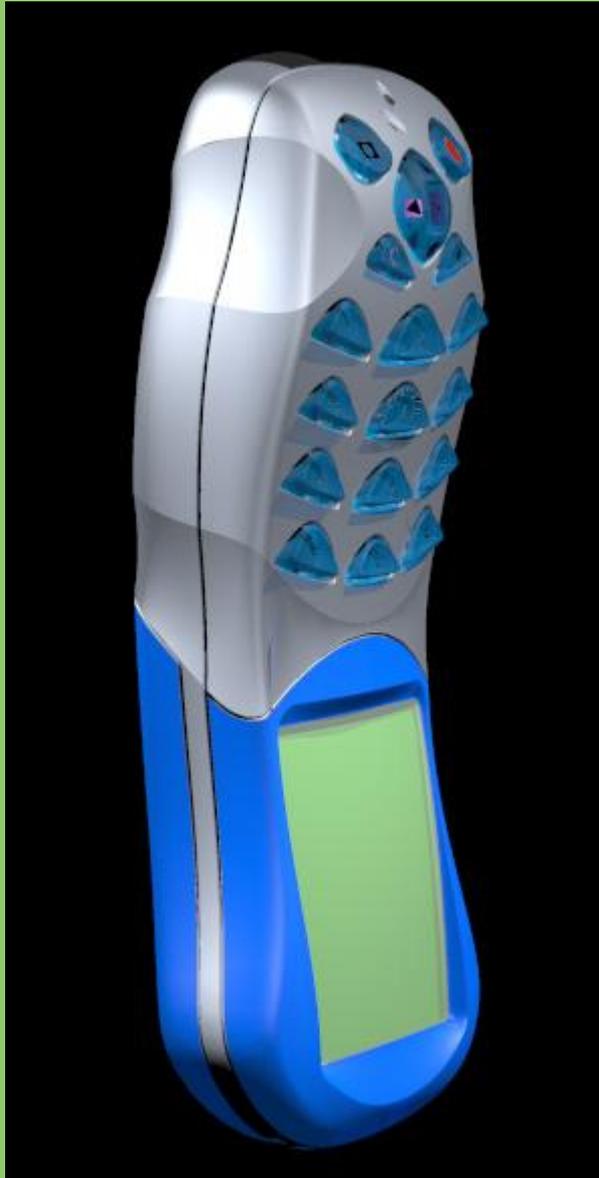
## Colour variations



## Colour variations









<http://www.arcgroup.com/homepage.nsf/toc/mh02>

<http://asia.news.yahoo.com/021204/reuters/ndel293754.html>

<http://is4all.ics.forth.gr/chi2001/files/chang.pdf>  
Designing touché based communication tools

[http://www.cs.strath.ac.uk/~mdd/mobilehci01/procs/vonniman\\_cr.pdf](http://www.cs.strath.ac.uk/~mdd/mobilehci01/procs/vonniman_cr.pdf)  
Shaping the future of mobile devices

<http://www.nokia.com/cda2/0,1083,2979,00.html>

<http://www.coai.com>

<http://www.howstuffworks.com/cell-phone.htm>

<http://is4all.ics.forth.gr/chi2001/files/chang.pdf>

<http://www.techconnections.org/resources/guides/Mouse.pdf>

<http://www.zdnetindia.com/supercentre/mobiles/overview/61.html>

Smart design products that change our lives- Clive Grinyer, Published by Rotovision SA, 2001

On Off, New electronic products by Mel byars, Rizzoli International Publication, Inc. , 2001

Human factors in Engineering and design:  
Ernest McCormick

Future shock by Alvin Toffler