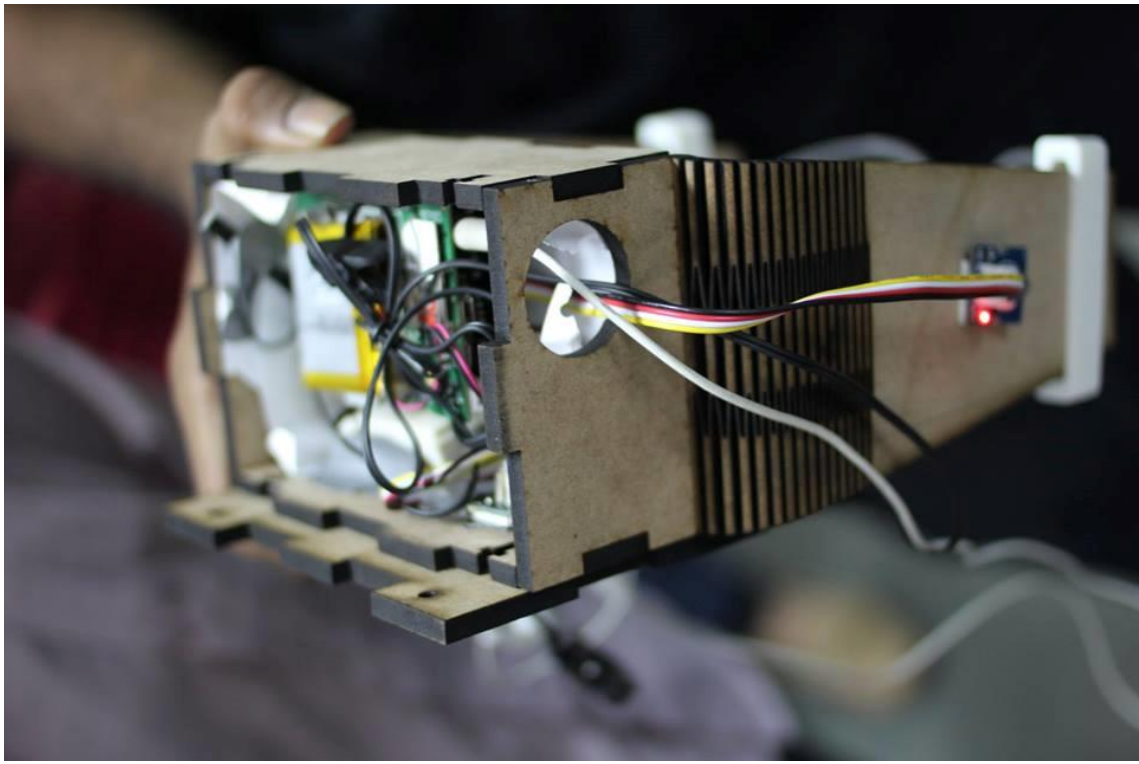
auro

what?
Asylum Hack an elderly care hackathon organized by Godrej Appliances

where?
Maker's Asylum, Mumbai

when?
Dec '15

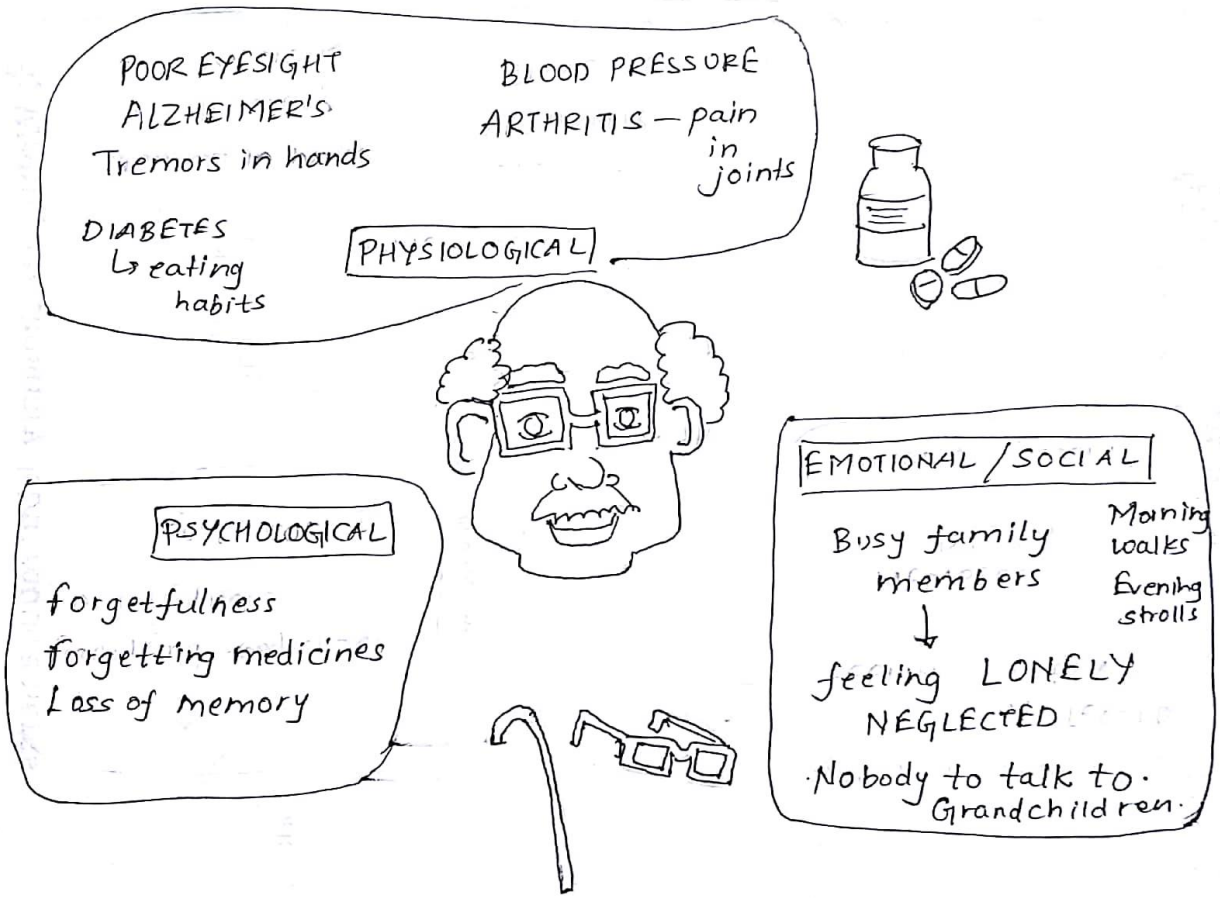
who?
An interdisciplinary team of 6, comprising of mechanical, electronics and computer engineers. In addition to ideation and design research, I was responsible for prototyping and design of the hardware.



The aim of the hackathon was to prototype and demonstrate an IoT based solution towards elderly care. Our team developed smart spectacles that can assist the elderly people who stay alone away form their family.
The team brainstormed on the problems faced by the users i.e. the elderly, based on interviews and personal experiences with the elderly. Various user tendencies such as forgetfulness and hesitation towards technology were identified. Following a design thinking approach and using open source IoT platform these problems were addressed in our technological solution. After presenting our prototype to a panel of judges from Godrej Appliances, our team won the first prize along with a cash prize of INR 50,000.

design thinking|internet of things|arduino|rapid prorotyping|elderly care|problem solving

1 User research



Target users:
Elderly people staying alone

Identified problem/situation:
No family member around. Nobody to look after. Lack of care and attention.

Selected design statement:
Design a companion/assistant to take care of the elderly people staying alone

2 Ideation

Design requirements/constraints:

Functional:

- Should assist the elderly in his day-to-day life
- Should track the wellbeing of the user
- Should keep the family members informed about the user's condition

User-centric:

- Should be acceptable by target group
- Should not be an annoying and difficult to handle technological device
- Should not require frequent maintenance

Product attributes:

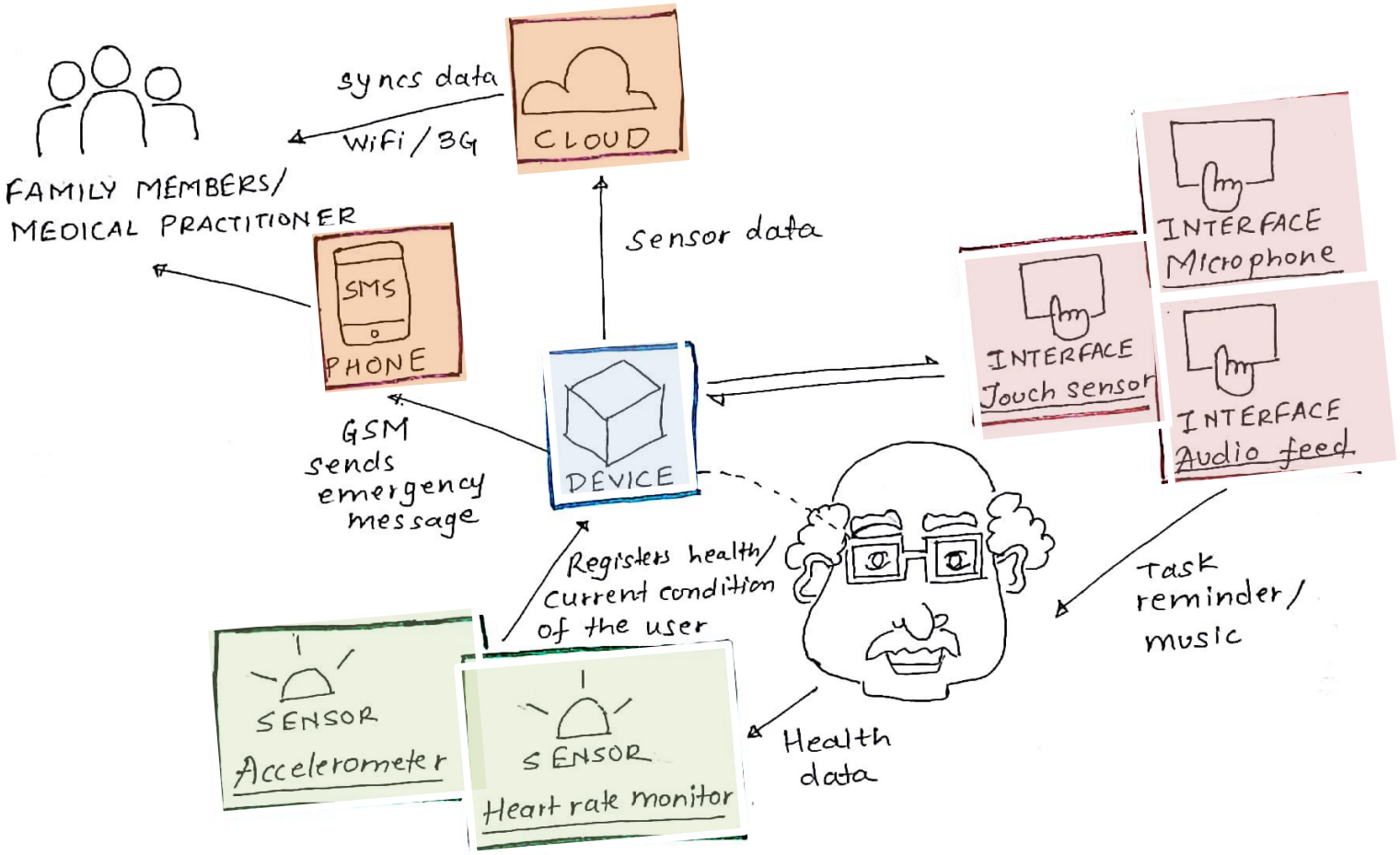
Functional:

- Audio assistant to remind about daily tasks- wake up alarm, medicines, etc.
- Accelerometer- to detect sudden fall of the user
- Heart rate sensor- to track pulse rate
- Cloud access- to store data and allow family members/ doctors to access it
- Text message- send text message to family members in case of emergency

User-centric:

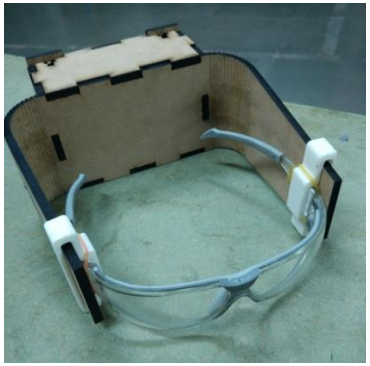
- Feature added to the spectacles as most elderly people use them. No additional wearable
- Over night charging when the spectacles are taken off

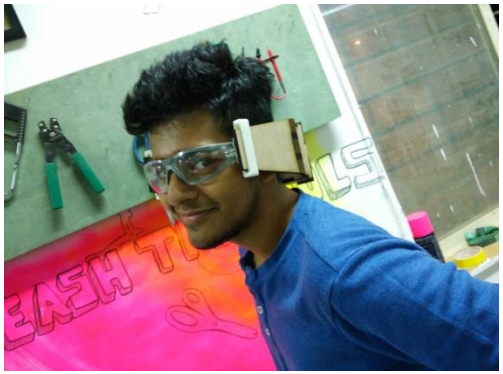
Mapping the process helped in determining the components and their connecting links to design the electronic circuit and the program.

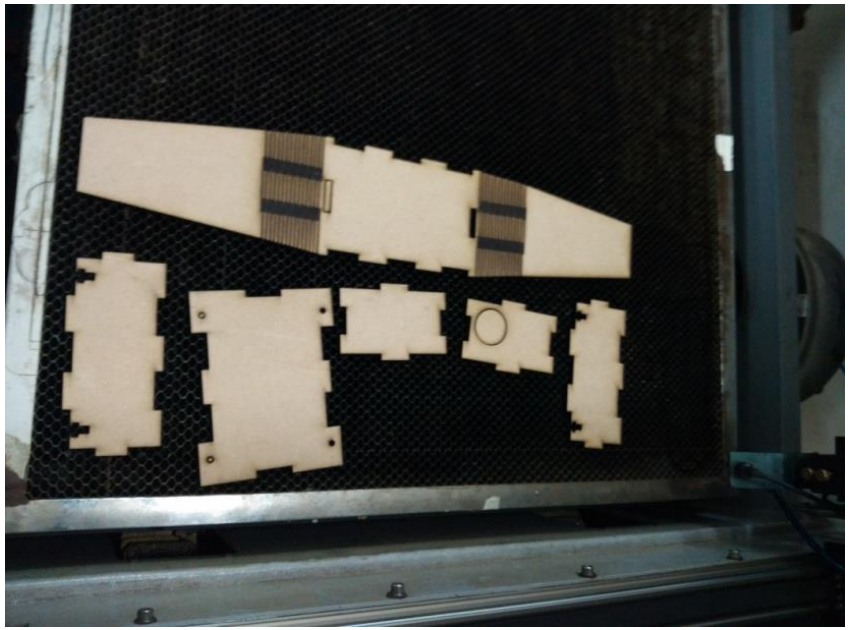


3 Development

A working prototype was developed using MediaTek LinkIt One prototyping board.
Considering the bulky electronics a casing was designed to be mounted on the spectacles.
Casing parts were assembled from laser cut MDF sheet.







Further scope

Reduce the size of electronic components.
Make the assistant a modular integrated part of the spectacles
Work on the form of the casing
Further develop the design for mass manufacturability