

DESIGN + INNOVATION
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PORTFOLIO

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01

UNIVERSAL DESIGN EXOR : GLOBAL PROJECT ON HEALTH CARE

It is a nine month extensive user centred design program organized by the Sugar Network involving a global collaboration between universities from different countries and sponsors to work towards a brief that can have an impact to the real world problems. In this case, as a member of team ISDI in collaboration with **PUJ, Columbia** and having **Philips Healthcare India** as sponsors together working on the brief which is **"How might we design a wearable system for post-operative care of a patient with post-ACL surgery that helps them adhere to their recovery routine and elevate their emotional status using sensors at home"**.

TIMELINE



CONCEPT



Mobile Patient Monitoring



Interactive Patient App



Sensory Feedback

LED Feedback



Vibration Sensor



ESP-32



WORKING



Flex sensor

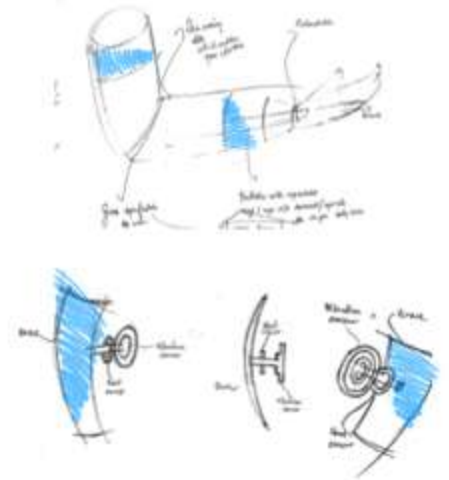
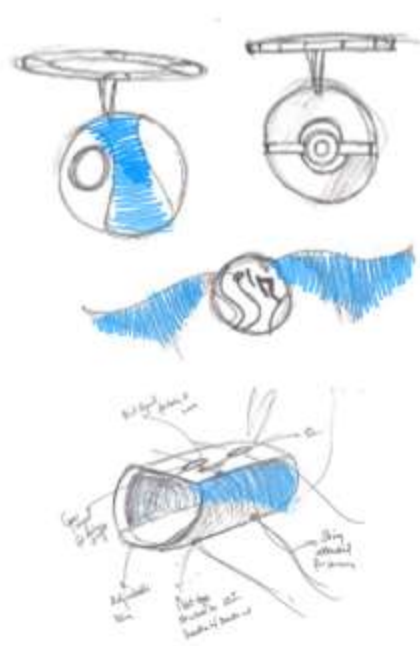
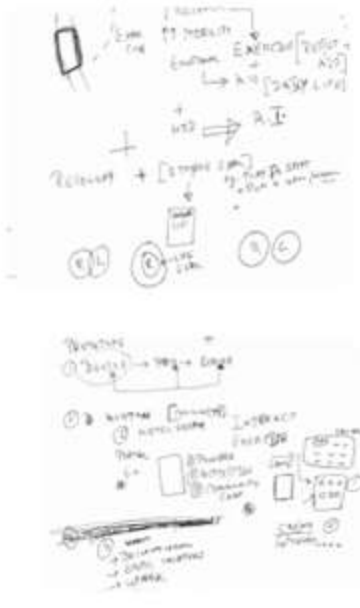
HARDWARE DESIGN
Measure the knee Angle

Count the number of repetitions and series per exercise

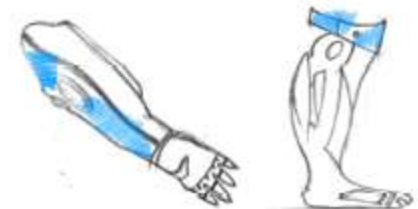
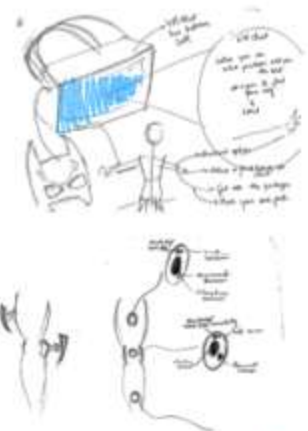
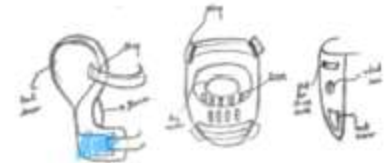
Send a visual and vibration feedback to alert the limits of the exercise.

Send this data to the smartphone

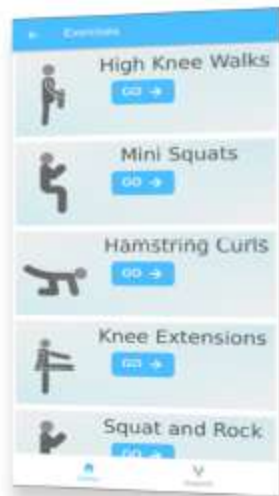




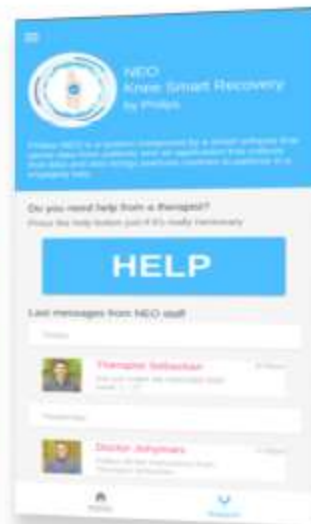
IDEATION SKETCHES
Dark Horse Prototype



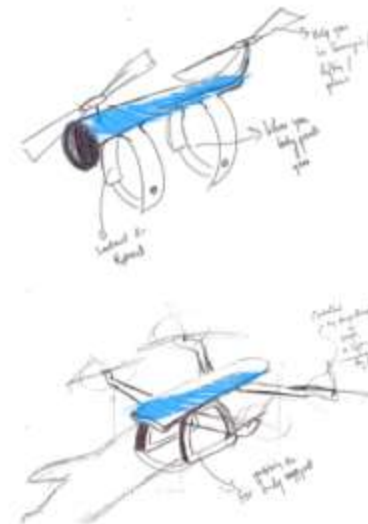
Receive data and show progress



Show exercises to the patient



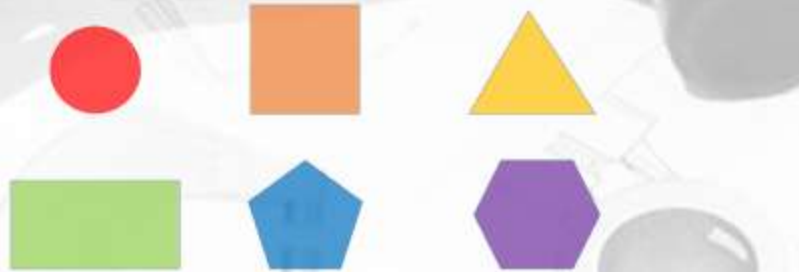
Show advices to patient and provide remote support to them



02

INTERNET OF THINGS MENTOR

Mentor is made with an intention to adhere people who are new to the sketching sphere and providing them a guide to learn the essentials. The result is a pen-paper solution and leveraging the technology 'IoT' to improve their experience through calculated feedback. The team consisted of two mechanical engineers for development of pen tool and also the mechanism of overall system.



Early development with shape detection and conversion from RGB to Gray scale via OpenCV software compatible with RaspberryPi

These are useful to detect the shapes, lines and contours the user will be sketching and provide feedback through text-to-speech



SHAPE DETECTION

Use of Arduino to activate the Force Resistive Sensor, the vital part that goes inside the pen to determine the pressure and depth of the lines

DETECTION OF PRESSURE WHILE SKETCHING



REAL-TIME CAMERA

Use of camera to detect real-time object detection via live video monitoring and giving feedback accordingly



MENTOR

Ergonomically designed pen keeping in mind the comfort factor of user along with the consideration of space occupancy inside the pen for force resistive sensor. The tip of the pen is kept at a tolerance so as to detect the force when in contact with FRS.

03

PRODUCT DESIGN NYWEAR

Spectacles with a different perspective, redesigning frame for the elderly which increases the stability, takes care of the skin and stimulates acupressure points.

A team of three including footwear designer, electronics and telecom engineer and myself a mechanical engineer worked on user research, market requirements, part product design, 3D Printing of final product as prototype and testing.



Orthostatic Hypertension



Unstable Eyewear



Communication



Feet Aches



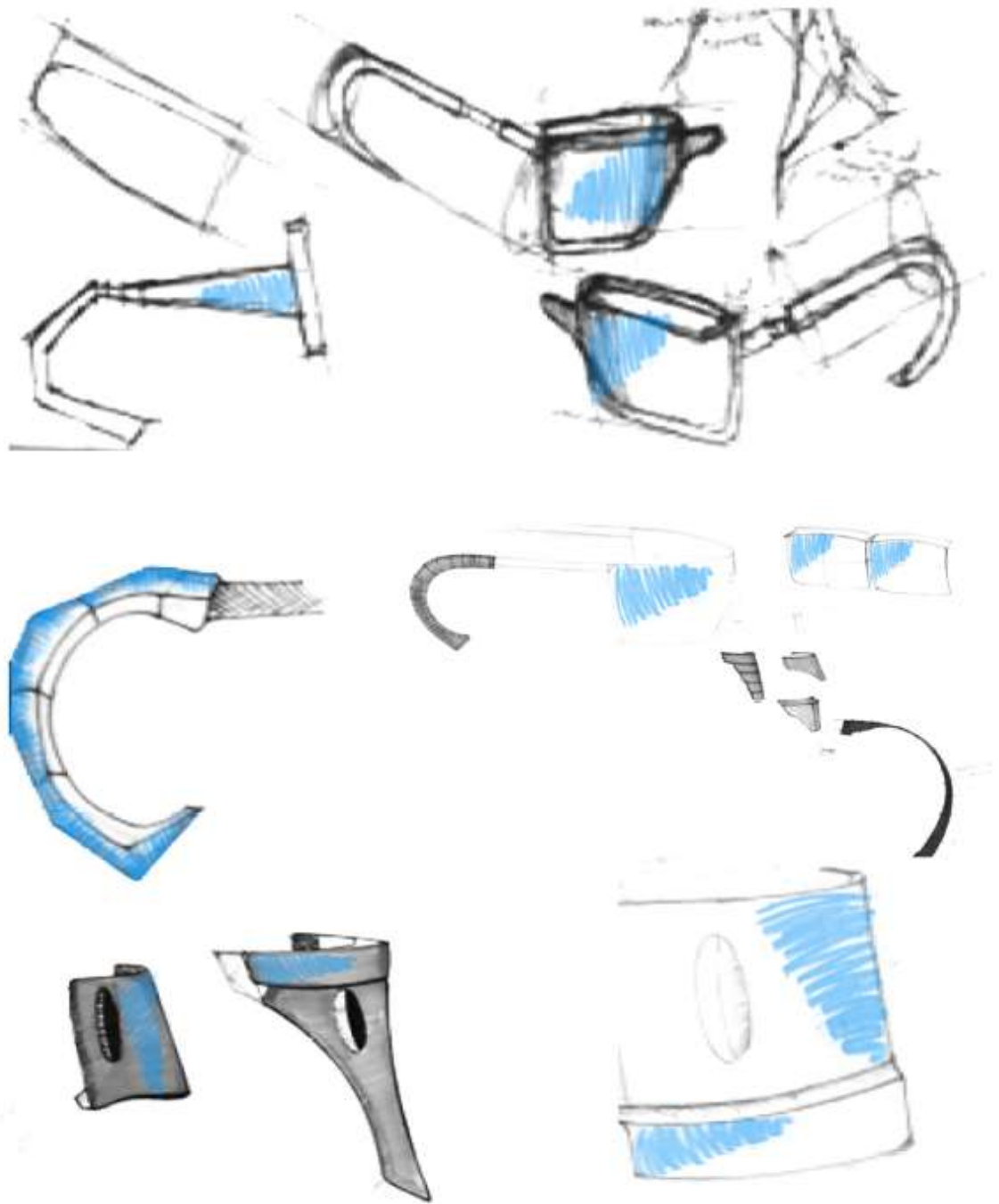
Apportion



Nose Pad -
for skin rashes



3D PROTOTYPE

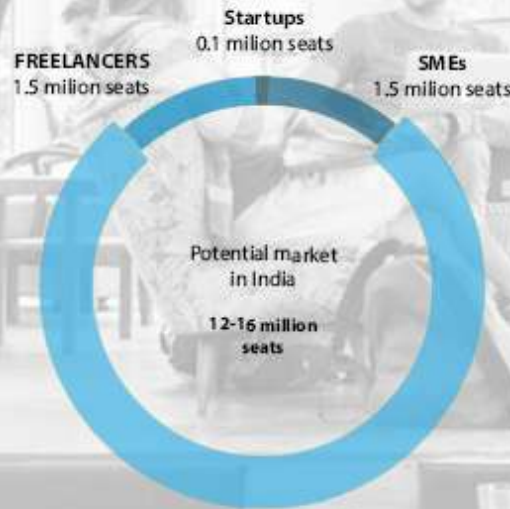


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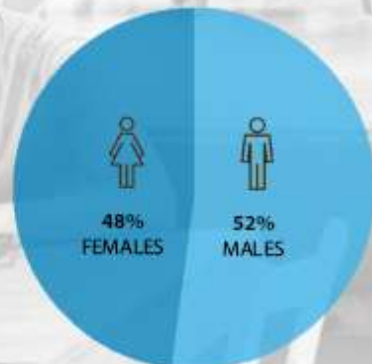
BUSINESS DESIGN COWORKING SPACES

Co-working spaces allow entrepreneurs and their teams to sign short-term lease, begin working without worrying about owning any office furniture and equipment, use only the space they need, attract a new type of talent pool, and surround themselves with other like-minded entrepreneurs.

A team of three worked on this project including an architect, a graphic designer and mechanical engineer.



MARKET OVERVIEW



USER SPLIT IN INDIA

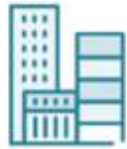
Co-working space provides are expected to lease about 8 to 9 million square feet of workspace by 2020

By the end of 2018, India's co-working market in India increased by more than 50%

MARKET OVERVIEW

In 2017, the size of the co-working market in India increased by more than 50%

Over 1 million square feet of leased areas with a handsome investment of \$400 million



BUSINESS CENTRES



CO-WORKING SPACES

PRIMARY RESEARCH

TYPES OF SHARED OFFICE SPACES



ACCELERATORS



INCUBATORS

HYPOTHESIS 1

EXPLORATION AREAS

How does work environment differ from home, offices, and co-working spaces? Check work performances in different working spaces.

INSIGHT SOURCE

People working at co-working organisation and people (photographer and others) who work both from home and co-working spaces.

HYPOTHESIS 2

EXPLORATION AREAS

How does work environment differ from home, offices, and co-working spaces? Check work performances in different working spaces.

INSIGHT SOURCE

People working at co-working organisation and people (photographer and others) who work both from home and co-working spaces.

HYPOTHESIS 3

EXPLORATION AREAS

How does work environment differ from home, offices, and co-working spaces? Check work performances in different working spaces.

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THE A CLUB

COWRKS