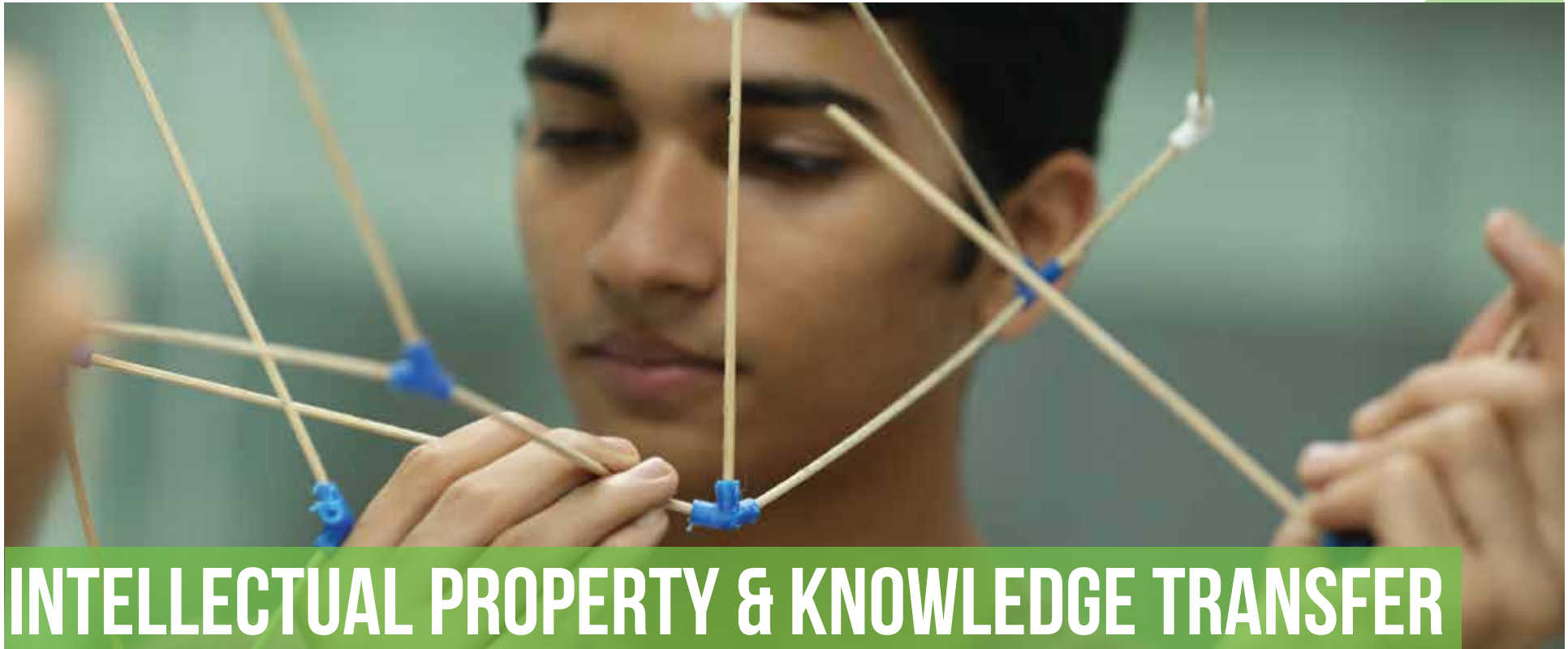# DICE Ecosystem

## Design Innovation Creativity Entrepreneurship



## INTELLECTUAL PROPERTY & KNOWLEDGE TRANSFER
## PATENT & RESEARCH IMPACT

# OUR CORE VALUES

**I** — **INTEGRITY**
Advocate fairness and transparency in all practices and interactions, with highest standards of professionalism and ethics.

**M** — **MOTIVATION**
Extend active encouragement and create an energizing work environment to support consistent performance and growth in the organization.

**P** — **PASSION**
Foster creativity and take pride in organizational endeavors with a compelling desire for achievement of shared goals.

**A** — **AGILITY**
Learn quickly and effectively from experiences, embrace change and adapt to the evolving needs of the organization.

**C** — **COMMUNITY**
Practice empathy and generate value through sustainable development and empowerment of individuals & communities for the betterment of society.

**T** — **TEAMWORK**
Promote collaboration with all stakeholders for achievement of common goals through shared responsibility and support.
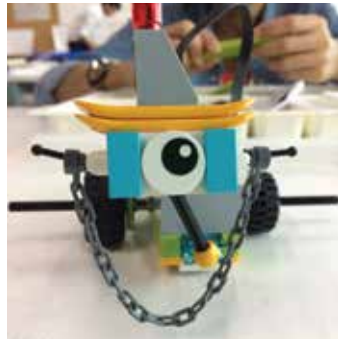
# PATENT IMPACT

## DICE Ecosystem
### Our Environment
Innovation cannot happen in isolation without the support of the LPID surrounding.

**Innovation, is like leaves.**

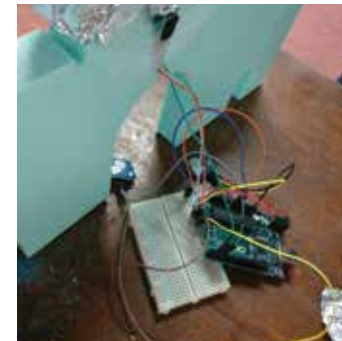Every year new technologies make way for new perspectives that fosters new innovations.



Developing new technologies for a greater social impact and social inclusion.

**For Greater Social Impact.**





**For Technology and Human Health.**

New Methods, New Metrics, New Models helps to build new connections between human needs and technology.

**For Better Eco Life.**



Innovate to reduce carbon footprint and for sustainable living.

# SEHAT

## A Tele-Medical Communication Device Used Primarily To Conduct Video Conference Consulting With Doctors In Major Hospitals.



Sehat is a telemedical device that is specifically designed to bridge the gap between the villages to the medical institutions in cities. This product connects any village to any doctor through the Asha Worker.

It helps in validaton of primary diagnosis and communicating expert advice directly given by the doctor through video conferencing. Data about the vitals and symptoms will be available through the software both to the Asha worker and the Doctor. The data is synced with the aadhar card database, hence the information and history can be acessed by doctors in the future.

APPLIED FOR PATENT APPLIED FOR

Patent Application No. 300848
Student Name: Nilay Kachalia
Course: School of Design | Product Design | Batch of 2019

# khaād

**A semi-automatic device that is designed to help turn food waste to compost conveniently and effectively especially for nuclear families living in apartments with limited space.**

Nearly 80% of the kitchen waste that we throw away is biodegradable. It is an unappreciated resource that can be utilised for another purpose.

Khaad is a semi-automatic device for urban apartments to help compost food waste. It is designed for modularity as the device merges seamlessly with the kitchen platform.

To speed up the composting process the waste is automatically shredded into smaller pieces and mixed twice a day. It keeps a check on moisture content and air flow to prevent odour. The compost is ready within just 21 days.

APPLIED FOR PATENT APPLIED FOR

Student Name: Zainab & Arohi
Course: School of Design | Product Design | Batch of 2018

# THE TALKING TREE

"The project attempts to track & monitor parameters associated with trees contributing to sustainable ecological developement"

In India, trees Have been planted under various activities such as:

- CSR Activities
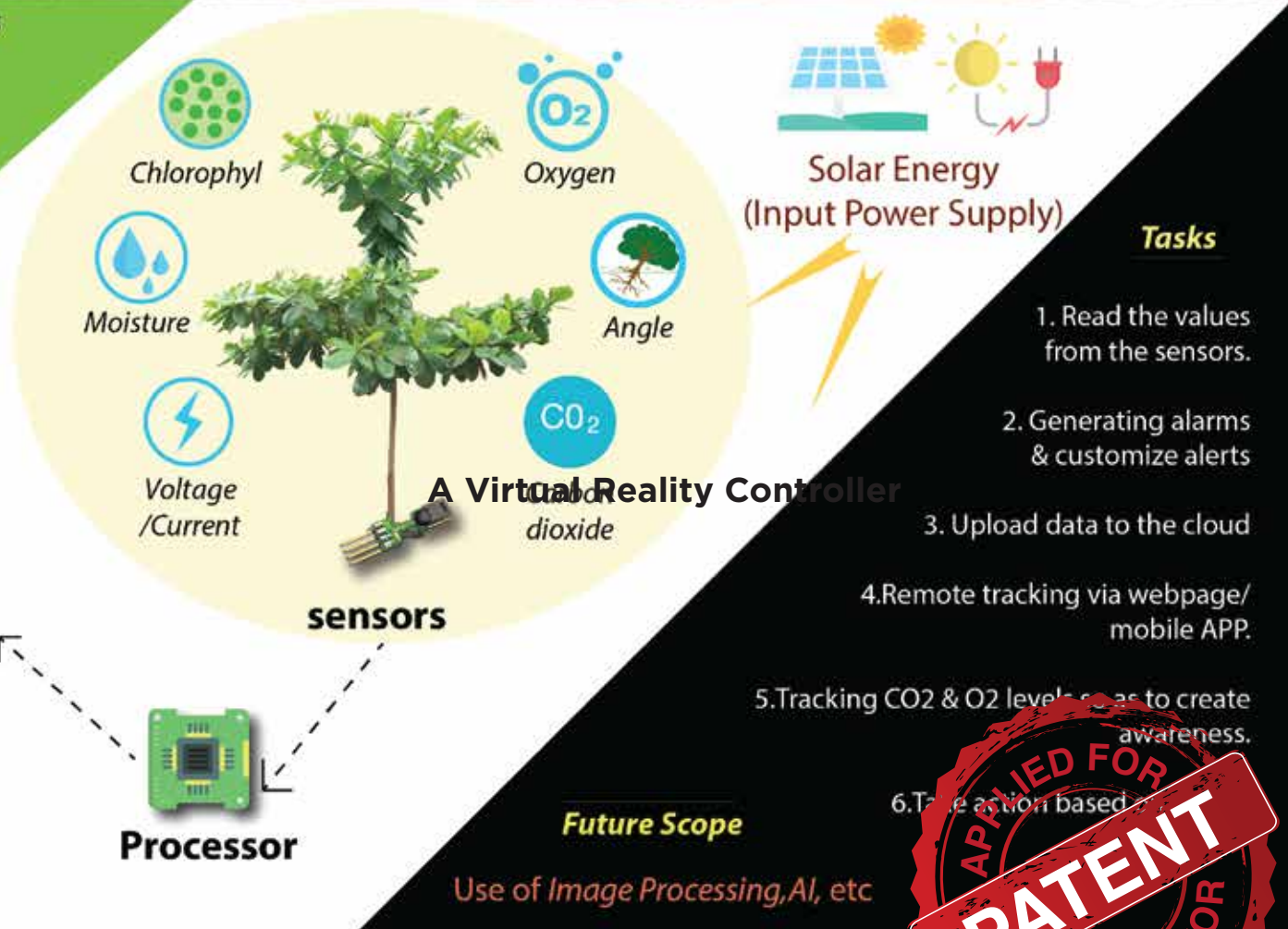- School Activities
- NGO

**Problems after plantation:**

- MONITORING
- TRACKING
- MAINTAINANCE

## sensors

- Chlorophyl
- Oxygen
- Moisture
- Angle
- Voltage /Current
- $CO_2$ Carbon dioxide

A Virtual Reality Controller

**Solar Energy (Input Power Supply)**

### Tasks

1. Read the values from the sensors.
2. Generating alarms & customize alerts
3. Upload data to the cloud
4. Remote tracking via webpage/ mobile APP.
5. Tracking CO2 & O2 levels so as to create awareness.
6. Take action based

### Future Scope
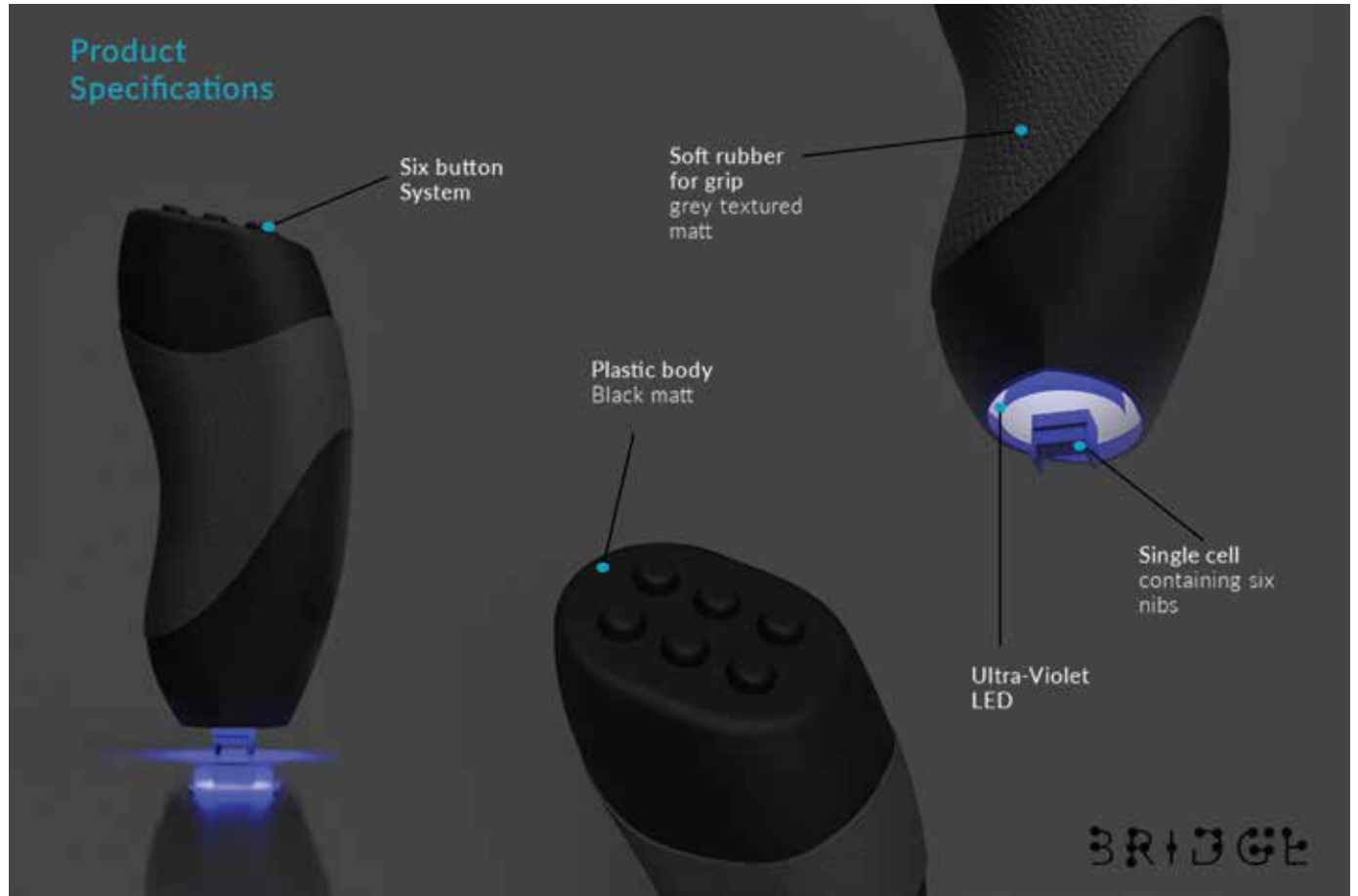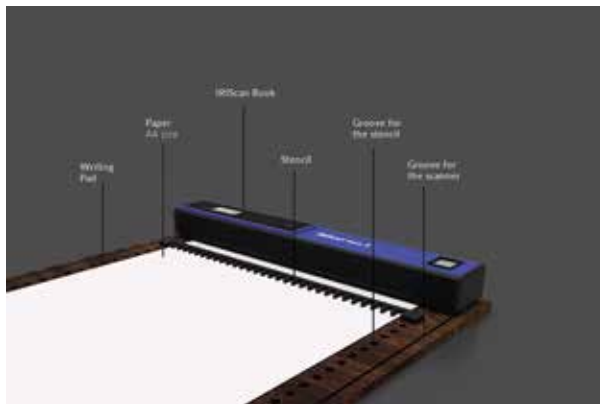
Use of Image Processing, AI, etc

**Wireless Module**

**Processor**

**Server**

APPLIED FOR PATENT APPLIED FOR

Patent Application No. 201721046394
Student Name: Radhika Girish Kolhatkar
Course: School of Design | Product Design | Batch of 2019

# BRIDGE

## An Opti-writing device



BRIDGE
AN OPTI-WRITER



Writing Pad | Paper A4 size | IRIScan Book | Stencil | Groove for the stencil | Groove for the scanner

## Product Specifications



Six button System

Soft rubber for grip
grey textured matt

Plastic body
Black matt

Single cell
containing six nibs

Ultra-Violet LED

BRIDGE



### INNOVATION

The innovation is a compact pen like device with which they can write in braille and the scanner with inbuilt software will decode the braille into any desired language, making it a printable document.

APPLIED FOR
PATENT
APPLIED FOR

Patent Application No. 201721046396
Student Name: Shrishti Sirsalewala | Riddhi Mehta | Pallavi Patnaik | Ramya Satish
Course: School of Design | Product Design | Batch of 2019

# NIDRA

The contemporary anti-stress, sleep inducing eye mask

**A sleep aiding device that detects stress, massages your pressure points and plays appropriate relaxing music to calm your mind, body and soul.**

## PRODUCT FEATURES

**FOREHEAD MASSAGER**
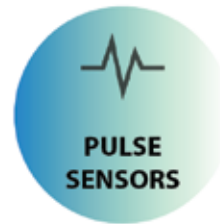Inspired from Shirodhara, pressure at forehead to relieve stress

**INBUILT EARPHONES**
Plays night Ragas inspired from Raga

**EYE PATCH**
Aloe vera fillings (Temperature controlled)

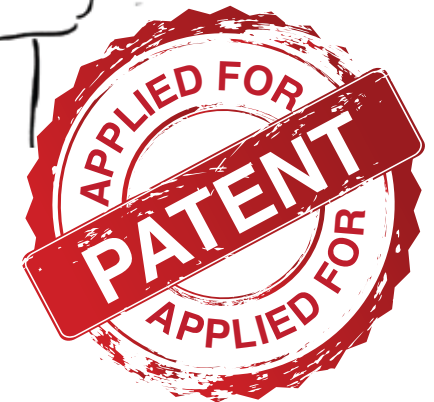**PULSE SENSORS**
Inspired from Ayurvedic practice of Naadi pariksha

## SUPPORTING APP SCREENS

Massager at pressure point

Ear phones with control buttons

Adjustable strap which connects at back for comfort

APPLIED FOR PATENT APPLIED FOR
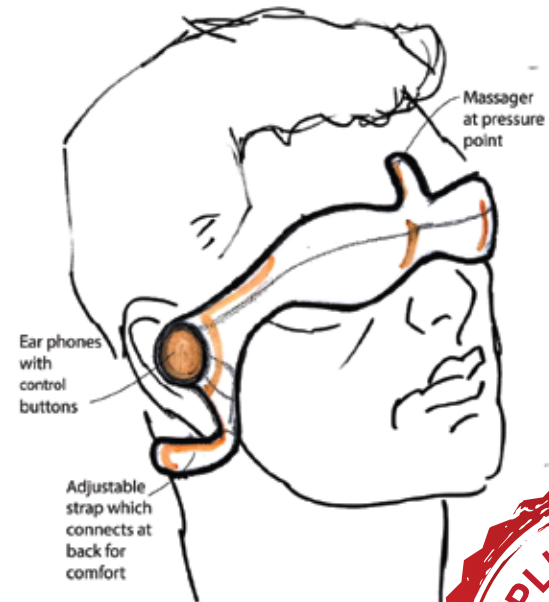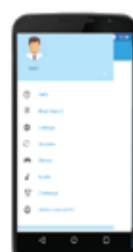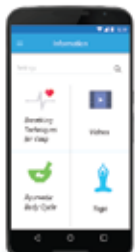
Patent Application No. 201721044184
Student Name: Anjani Soni | Radhika Girish Kolhatkar
Course: School of Design | Product Design | Batch of 2019

# Connecting dots

Connecting dots is an ongoing project to build smart connected 3D Models for the visually impaired to make their experience of viewing a place more delightful & memorable

This project is driven by a series of iterative prototyping & user testing

## Key features

### Navigation
Point of alighting
Imp points like check post, toilets, information desk
Distance & direction
Starting & ending points

### Description of the place
Overview of the place (history & other details)
Form & spatial dimensions.

**An ongoing 3D Model for the visually impaired to make viewing experience memorable.**
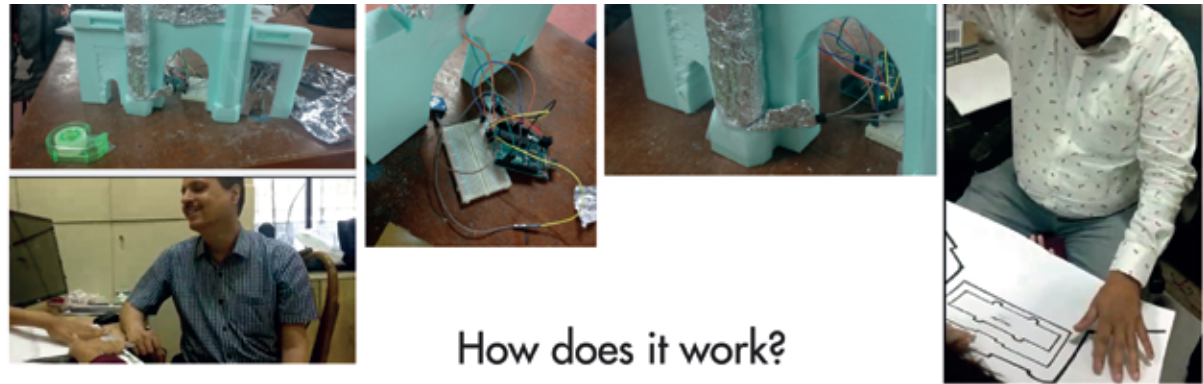


## How does it work?

**Reaching the model**
Through Navigation feature in the app

**Upon Reaching**
Pairing the app with the Smart connected 3D model

**Sound feedback**
Receives sound feedback upon touching different parts of the model

Travel Companion App

Smart 3D model



APPLIED FOR PATENT APPLIED FOR

Patent Application No. 201721046395
Student Name: Disha Shah | Shikha Verma
Course: School of Design | Product Design | Batch of 2019
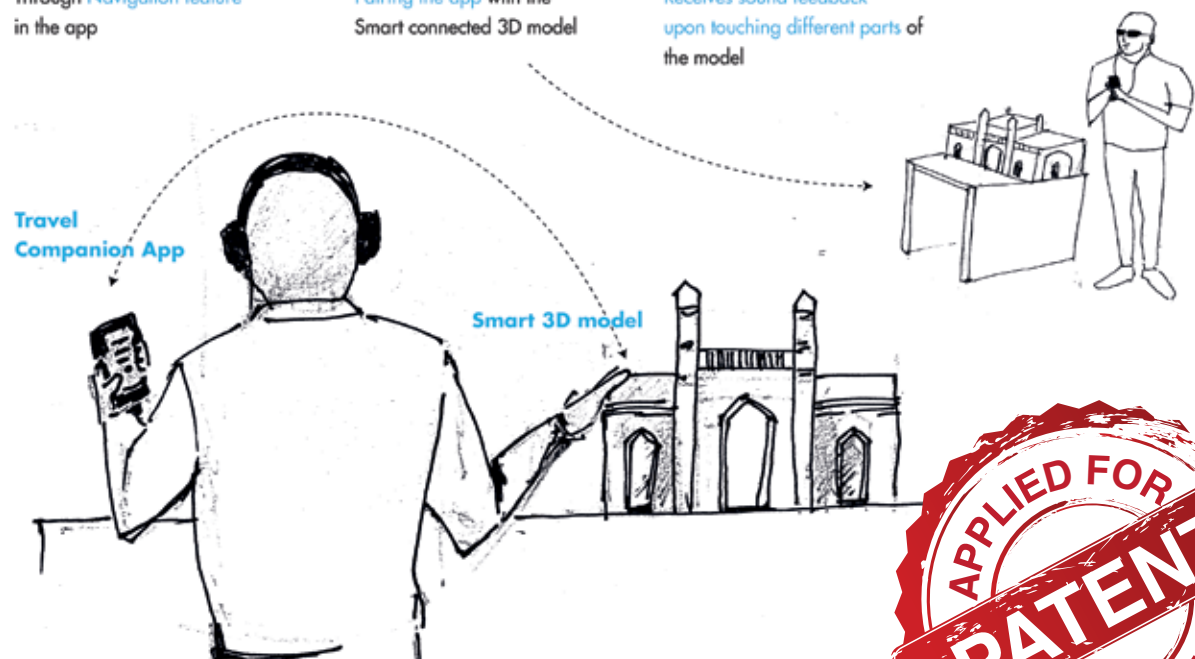
# WEEMO
## WAITING AREA SEATING DESIGN - KIDS

**A child friendly seating design made for waiting areas in public and private spaces**
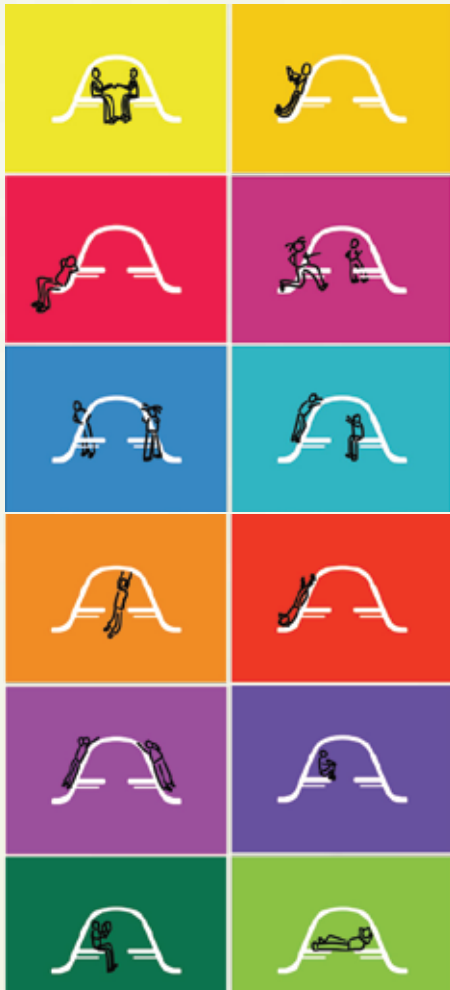


Student Name: Manuhita Gupta
Course: School of Design | Product Design | Batch of 2019

# Swivel

**A device that aids and quickens the process of rehabilitation from different kinds of injuries sustained in the lower body.**



Piezo plates

Velcro on the border to attach neoprene

Vibration motors

3D printed Ninjaflex stretch pattern

Gap to keep the knee flexible

Neoprene cloth on top and bottom of base

Patent Application No. 300785
Student Name: Prathik Prabhakaran
Course: School of Design | Product Design | Batch of 2019

APPLIED FOR PATENT APPLIED FOR
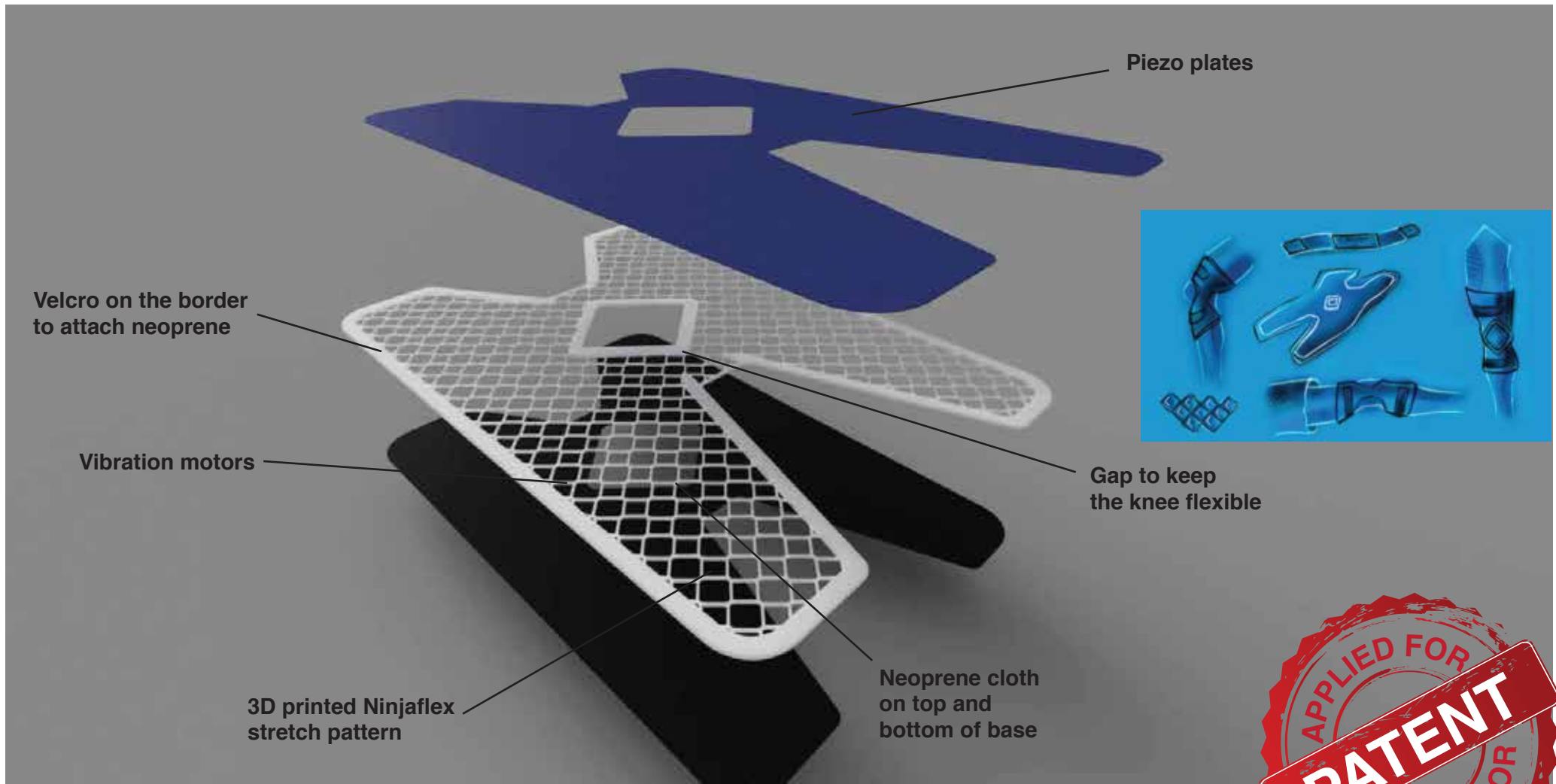
# Colostomy Bag



A leak proof mechanism that fits onto any plastic bag

A wholesome kit with the mechanism and a comfortable bag
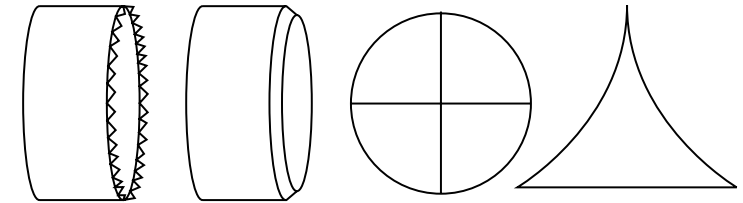
**Low cost excretion bag for colon surgery patients. Cost reduced to one - fourth of market price. design to be leak proof and odour free, reducing stigma, increased patient comfort**
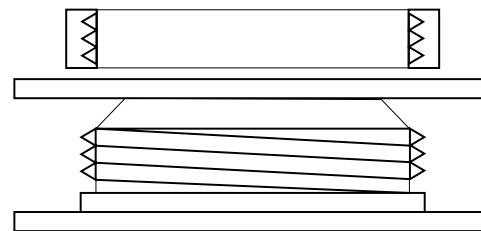
Patent Application No. 300845
Student Name: Manvi Poddar
Course: School of Design | Product Design | Batch of 2019

PATENT APPLIED FOR APPLIED FOR

# City Bull

## is an Urban e_bike

**A sustainable urban e-bike for the youth**



**City bull is an e_bike concept focusing towards the Indian market and catering to the current youth generation keeping their daily requirements and needs in mind. City bull specifically solves the daily hassle of storage, time and energy encouraging sustainability and satisfied user experience.**

Student Name: Tausif Manjothi
Course: School of Design | Product Design | Batch of 2017

# An interactive learning kit to make molecular chemistry more fun and easier to understand through a variety of handbooks and play pieces.

## CHEM-MATE LEARNING KIT

**Chem mate** is an interactive learning kit that attempts to make molecular Chemistry more fun, visual and engaging. It consists of a handbook that guides the children through concepts of molecular Chemistry, play pieces of chemical elements and a supporting AR app. It helps children understand the configuration and properties of elements in the periodic table as well as the formation of compunds based on their valencies.

Chem-mate consists of 118 play pieces of the periodic table elements

It consists of a hand book that guides children through different learning phases and gives brief summary about elements and compunds.

**CHEM-MATE LEARNING KIT**

**CHEM-MATE AR APP**

These elements can be viewed in Chem-mate AR app to understand the molecular breakdown of each elements

These magnetic element pieces can be attached together as well to understand the formation of various compounds from them.

### PAINPOINTS

**DIFFICULT TO REMEMBER PROPERTIES OF ELEMENTS AND COMPOUNDS**
What does becl3 looks like? Where is it used?

**REMEMBERING CHEMICAL FORMUALE**
Route learning of chemical formulae instead of understanding it

**DIFFICULT TO UNDERSTAND HOW ELEMENTS COMBINE WITH EACH OTHER**
WhY 2 atoms of chloride with one atom of calcium?

**DIFFICULT TO VISUALIZE AND INTERPRET COMPOSITION OF ELEMENTS**
Atomic number is 13, how many shells, how many electrons?

### THE IDEA

**CAN WE MAKE ATOMS AND MOLECULES TANGIBLE?**
To make molecular chemistry more fun, visual and engaging so it is easily understood by students and they don't rely on route learning for the same.

### FUNCTIONAL DIAGRAM

Processing unit

Physical targets

Camera

Physical targets

Video in

Object overlayed over target image

Video out

Detects image target

Fetches matching object

Target Object library

Mix realities

Video out with mixed worlds

Powered by

Interface

unity
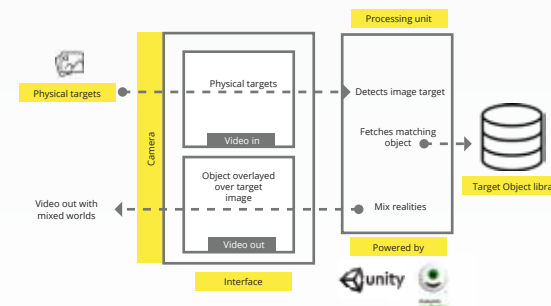
**USING AUGMENTED REALITY TO BRING MOLECULES TO LIFE**

Student Name: Shikha Verma
Course: School of Design | Design & Innovation | Batch of 2018

# Bozo

To redesign an asthma inhaler for kids which is easier to use, suits their ergonomics and tackles the social acceptability of the inhaler.

**Kid's Asthma Inhaler**



**Shell**

**Counter**

**Mouthpiece**

**Glow in the dark**
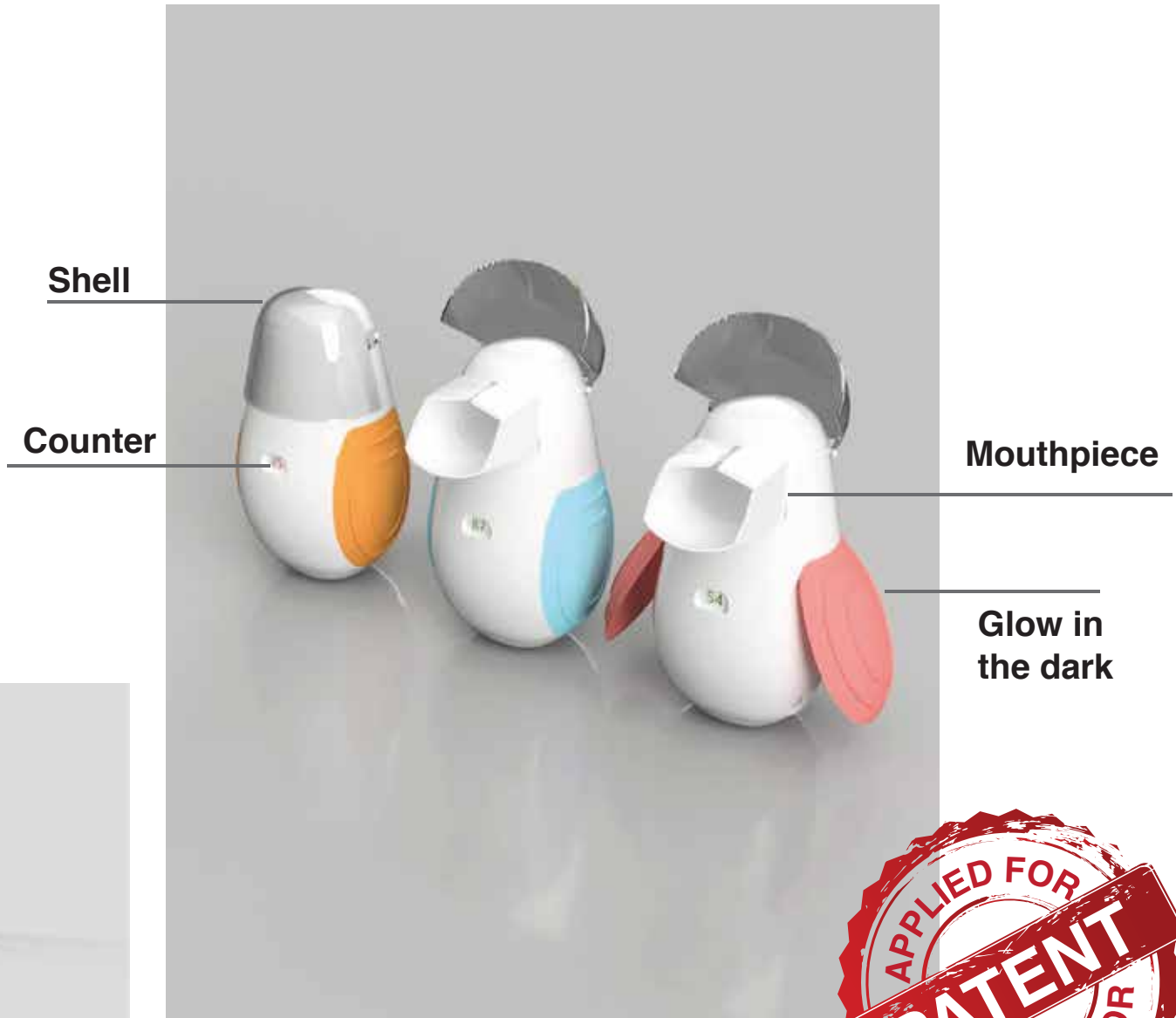
Patent Application No. 303914
Student Name: Sanya Shah
Course: School of Design | Product Design | Batch of 2019

PATENT APPLIED FOR

# Ferris

**is an innovative bike parking solution aimed to eliminate the problem of limited parking space using vertical structures.**

Ferris is an innovative bike parking solution that has been engineered to the last detail. the structure allows eight bikes to be parked in the space occupied by three bikes. the structure is conceived to be installed in congested cities such as Mumbai, under flyovers and in between buildings.



**Student Name: Roshan Nair**
**Course: School of Design | Product Design | Batch of 2017**

# ⌁HRIDHAAN⌁
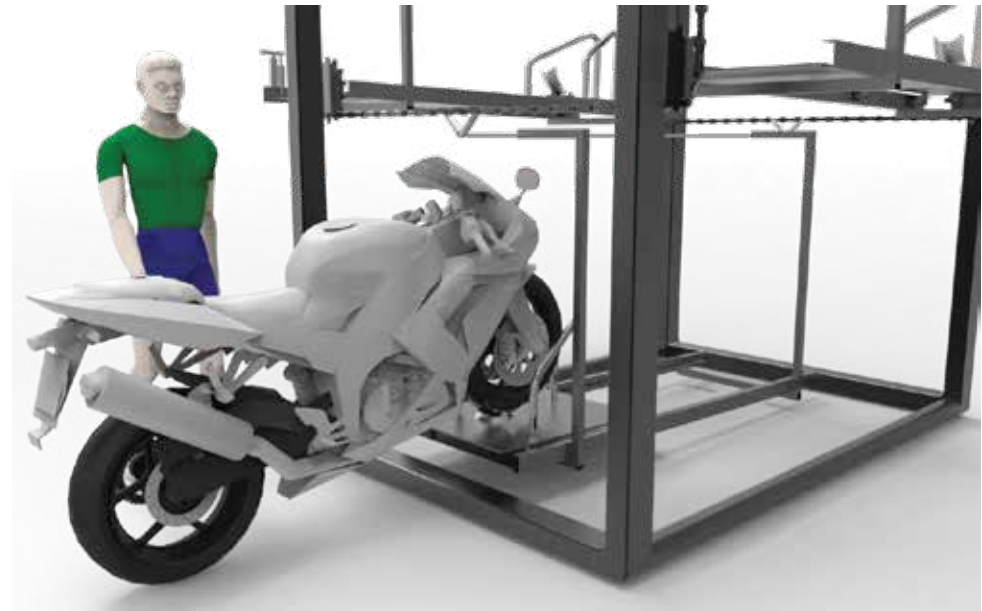
**A contemporary application to provide healthy food and medical advice to middle aged males for the betterment of their heart.**

Husband checks his pulse



Wife prepares the diet plan as per the VPK levels & the taste palette of the husband



Taste Palette match matrix
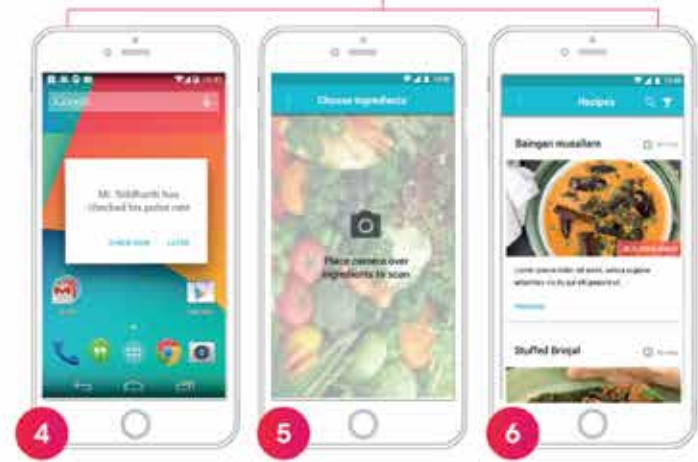
Feedback given by the husband, on what was his best meal of the day

Makes the diet plan for the day

Measurement of success every quaterly

Student Name: Disha Shah | Shikha Verma | Saranya Banarjee
Course: School of Design | Design & Innovation | Batch of 2018

## Color Blindness

Failing to see colors clearly -
distinguishing between Greens (Deuteranopia) & Reds (Protanopia)

Normal          Deutan          Protan

## Population

1 in 12 Males

Trouble in identifying
Reds, Greens & Blues

4.5% of Total
Population

1 in 200 Females

Trouble in identifying
only Blues

## Challenges faced by Color Blinds

**Buying**
Vegetables
Fruits
Packaged Food
Clothes
Art Supplies
Online Shopping

**Missing Opportunities**
Armed Forces
Engineers
Pilots
Chefs
Artist/
Art Curators

**Interacting**
Screens
Websites & Links
Infographics
Maps
Games
Online Shopping

# SPECTRA

## A mobile application targeted to overcome the challenges faced by people who are colour blind.

Situations in which colors are the **key deciding factors**, user **knows** the **significance** of each color but he/she can't identify the color

"I want an eggless cake.. I know green is the one.. but which of these is green?"

Cake          Cake

**Spectra**
Reveals the true colors

Scan

Download & install the app from Play store or App store

Aim the pointer on the object, hold for a while and get the color!

Green

Red

Spectra is an interface - an App for mobiles, which **scans the color** with the help of camera, processes it and gives **text and/or audio output**

"Thanks to Spectra! Now I know which is the veg one!"

Cake
Green

Student Name: Anuradha Patil
Course: School of Design | Design & Innovation | Batch of 2018

**Aarogya is a tele-medical station which connects doctors and patients across states for checkups using a video display, microphone and vitals measurement tools with the aid of a mediator (nurse) to handle, maintain and secure the device. Patients receive health advice and prescriptions from doctors using this device. Health history is stored on the cloud using aadhar card identification, and information can be accessed online through an information portal.**

Blood Pressure Monitor

Infrared Theremometer

Digital Stethoscope

Student Name: Mihika Mehta
Course: School of Design | Product Design | Batch of 2018

# Knowledge Transfer Partnerships

The Knowledge Transfer Partnership (KTP) is the formation of a 3-way partnership between a 'Business' Partner, a 'Knowledge' Partner and a 'Graduate' Partner which through research helps to improve the competitiveness of a business by drawing on the expertise of universities, colleges and other knowledge providers.

| Partner | Objective |
| --- | --- |
| EUREKA FORBES | To improve access to potable water for urban slum dwellers |
| SANITATION IMPACT SOLUTIONS | To improve access to sanitation services for low income communities |
| Whirlpool CORPORATION | To gain consumers insights and build new products for urban living |
| PHILIPS Healthcare | To improve compliance of medication in chronic diseases |
| | To conduct ethnographic research on impact of cultural beliefs on cardiac health |
| GREY group | To evaluate and understand parenting style in urban India |
| DIGITAL IMPACT SQ ENHANCING LIVES | To enhance local ethnic communities to improve menstrual health & reduce electronic waste |
| | To enable self-help groups of Nasik become self reliant |
| DAIFUKU Always an Edge Ahead | To increase the market penetration for automated products in India |

# KEY BENEFITS FOR STAKEHOLDERS

**The KTP benefits are for both stakeholders – commercial businesses and academia**

## BUSINESS PARTNERS

• Businesses acquire new knowledge and expertise relating to ground level impact of their projects
• Companies can explore a prospective segment with minimal risk, acquire deep insights and benefit from research & the innovative ideas proposed
• Companies get a bouquet of design, innovation and business-based opportunities
  In-depth ethnographic research into the human behaviour and sanitation & disease ecosystem
• Mapping of burden on services such as health and civic
• Systems model mapping all stakeholder relationships, causal loops and possible intervention points
• Project report on possible innovation opportunities in the chosen landscape such as diabetes and sanitation

## DICE KNOWLEDGE FOUNDATION

• Universities, colleges or research organisations bring their experience to enhance the business relevance of their research and teaching
• Research collaboration support for the Center For Global Health Innovation & Research and Center for Water, Sanitation & Hygiene at DICE Ecosystem
• Institutional MOU for further projects
• Exposure of students to complex socio-cultural ecosystems
• Enhanced relationship with experts from Philips Healthcare and patent possibility for the insulin cooler for product innovation

## STUDENT

• Students gain an in-depth understanding from the field and deal with actual real-life case studies
• Opportunity for students to be mentored by experts from TATA DISQ, Sanitation Impact Solutions and Philips Healthcare
• Enhanced learning with practical industry driven pedagogy and interaction with people in the field
• Internships for four product design students in 2018
• Students gain business based experience as well as personal and professional development opportunities

# Knowledge Transfer Partnerships

**EUREKA FORBES**

**DICE**



## About the Project

Eureka Forbes was looking to improve access to potable water for urban slum dwellers. To this end the company installed a water generation plant at Rafiq Nagar, an urban slum in Maharashtra. Working with the Indian School of Management and Entrepreneurship, this Knowledge Transfer Partnership (KTP) aimed to study the impact of the water plant in the following areas viz. access to good quality water and its impact on health, income and saving of time.

## Benefits

» An accurate and robust data collection regime

» Helped in their advocacy programs by providing unique ideas for spreading awareness about clean drinking water

» The findings of the report highlighted the implementation gaps in the process of setting up, maintaining and successfully running a water ATM

# Knowledge Transfer Partnerships

**SANITATION IMPACT SOLUTIONS**

**DICE**



## About the Project

Understanding human behaviour of compliance, cleaning, maintenance and costs of running community toilets, the outcome is to design a economically sustainable toilet management solution that encompasses refurbishment of toilets, process flow, quality control parameters and economic model for maintenance.

## Benefits

» Helped in advocacy of health and sanitation

» Developed research and project management skills

» Generated curiosity in the area of social impact and visibility for the institution

# Knowledge Transfer Partnerships

**Whirlpool** CORPORATION

**DICE**

## About the Project

Whirlpool was looking to enhance the sensorial quality of their products and meet their current customer needs. Whirlpool proposed a workshop on improving and enhancing the aesthetics of their products .ISDI and ISDI WPP in collaboration with SJS were invited to present concepts / ideas that would assist Whirlpool to offer products with bling to its consumers. The aim of this project was to conduct primary research to substantiate concepts proposed by SJS and find relevant consumer insights to find trends that could to extrapolated into design concepts.

## Benefits

» A comprehensive study of the consumer profile that is relevant and relatable to their target market.

» The Company gained valuable insight about consumer behaviour, motivation to purchase and relevant market trends.

» Proposed a further course of action for Whirlpool to implement this design strategy forward into a communication and technology led strategy.

# Knowledge Transfer Partnerships

**PHILIPS**
Healthcare

DICE



## About the Project

The design brief was to apply the traditional Indian Wisdom on health in a modern context. Cardiac health was chosen as the main focus area for the purpose of the project. The ethnographic research was conducted through extensive qualitative interviews over a period of three months and the insights gathered were validated by construction of design artefacts . The inputs were used to design a digital product , "Hridhaan" which is a mobile application that help users to keep track of their cardiac health along with providing them with a guidance on their dietary habits for cardiac well-being.

## Benefits

» Gain improved understanding of commercial realities

» Possibility of publishing high quality journal and conference papers

» Opportunity for early career researchers to gain supervision experience

# Knowledge Transfer Partnerships

**GREY** group

**DICE**

## About the Project

The project brief was to conduct a research on "Decadal change in parenting styles and development of Modern Parenting. To decode the brief the associates classified the existing parenting styles e.g. Helicopter parenting, authoritative parenting etc. using secondary research. Then through snow ball sampling conducted about 40 interviews, with questions aimed at drawing as many insights as possible. These insights were then mapped into parent profiles by way of individual movies.

This research was very well received by Grey. They said that these insights would be further used for their clients

## Benefits

» Insights found enhanced effectiveness of Grey group Marketing Campaigns

» Highly skilled and motivated graduate (associate) to spearhead the project and the opportunity to employ the trained graduate at the end of the project

# Knowledge Transfer Partnerships



## About the Project

The project brief was to aid the Self Help Groups to increase their market visibility through their stories & the products they make. An e-commerce platform was launched, where the products made by these groups would be put for sale. A performance tracking system was designed to keep a check on the status of the Self Help groups by the organisations. Frequent visits were made to the houses of these local groups, to undertake a contextual research.

## Benefits

» Design Interventions helped to enhance the product offering and product presentation on the commercial platform.

» A better understanding of design in general and how it could help to create a value for products

# Knowledge Transfer Partnerships

**DAIFUKU**
Always an Edge Ahead

**DICE**



## About the Project

This project is majorly concerned with Market Penetration for Daifuku India as a business growth strategy. The company wants to expand the customer base for its products and services within the Indian market space. In this context, the first step is to assess the requirement in the Indian industry and then to find out what is the potential to penetrate the market further. The project sought to develope prospective client database for developing a focussed marketing strategy to help the company enhance its market penetration.

## Benefits

» The partnership will provide a high-quality network of contacts with industry and new research opportunities will arise to the benefit of staff and students

» Knowledge gained will be included in course work, with several case studies being generated adding to the library of industry-linked material.

# DICE Ecosystem
## Design Innovation Creativity Entrepreneurship



- Strategic Urban Locations
- Innovation District Catalyst
- Iconic Campuses
- Innovative Experiential Learning
- Uncompromising Research Excellence
- Enabling Entrepreneurial Engine
- Strong International Reputation
- Technology Enhanced Delivery
- High Impact Corporate Networks
- Lasting Social Impact

DICE

# DICE Ecosystem

## Design Innovation Creativity Entrepreneurship

# TRANSFORMING
# India