



**Design  
Innovation  
Centre,**  
University of Delhi

**Information Brochure**

## About DIC

Design-centred innovation is a force multiplier that can help the country move up the value chain, making Indian industry globally competitive. In this context, Ministry of Human Resource Development proposed to launch a National Initiative for Design Innovation in the Twelfth Plan. Under this initiative, 20 new Design Innovation Centers (DIC), one Open Design School (ODS) and a National Design Innovation Network (NDIN), linking together all these schools, would be set up.

University of Delhi was one of the 5 institutions that were granted the DIC project on the first round on a Hub and Spoke model, with the following partnership.

- University of Delhi (Hub)
- Jamia Millia Islamia, New Delhi (Spoke 1)
- Islamic University of Science and Technology, J&K (Spoke 2)
- NIFT, New Delhi (Spoke 3)

## Mandate

1. Promote a culture of innovation and creative problem solving
2. Promote knowledge sharing and collaboration amongst industry, academia, Government Institutions, research laboratories, etc;
3. To serve as a location for the industrial collaborators to encourage their new Product Development in the campus using in-house facilities.
4. To serve as a place that imparts design based education and practice systematic design through projects.
5. To enhance interdisciplinary design-focused innovation and creativity.

Total Funding provided

Rs. 10 Crores (Hub: 7 crores, Spoke: 1 crore each)

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## Deliverables

Projects

Courses

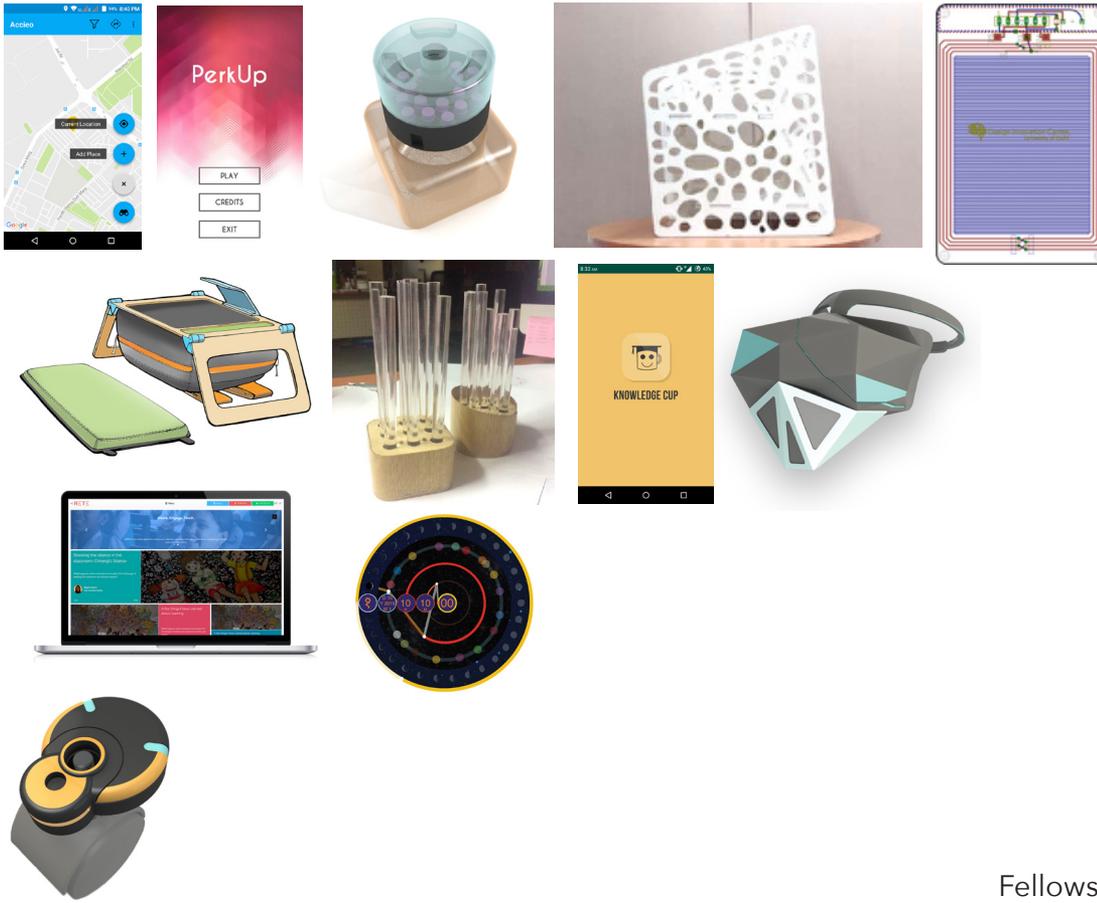
Workshops

Establishing Design Facilities

Fellowships and Internships

Industry Linkage Program

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## Projects

### Products and Processes

Fellows at DUDIC are engaged in bringing new innovative products and processes for the society. Our aim is to bring these products to the market and to the users. We are working in the area of physical products, softwares, services etc.

Project Status Bar

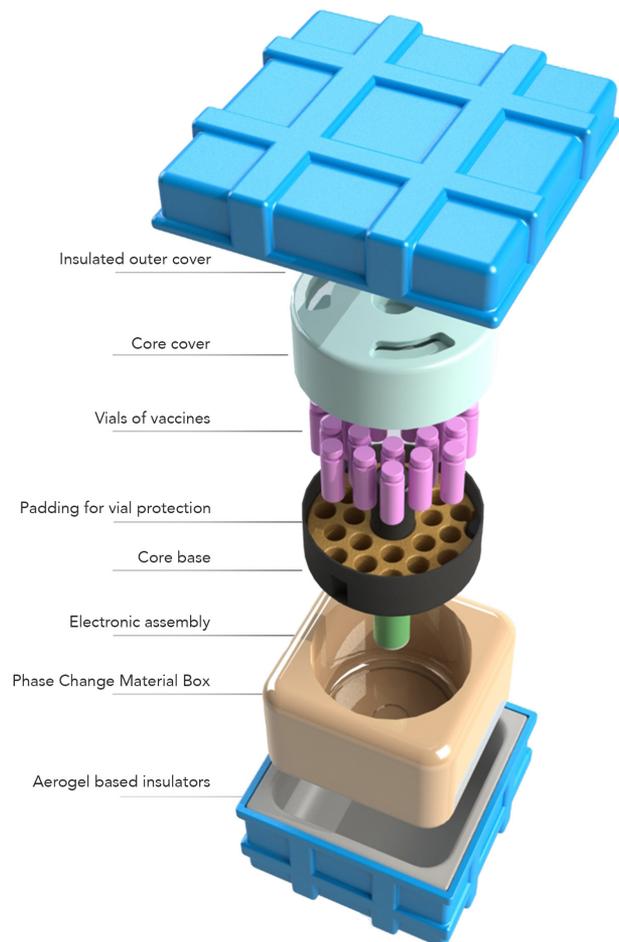
- DONE
- IN PROGRESS
- PENDING



# VaccSure,

● Kulbhushan Singh, Vishal Sengar, Tarun Khajuria

Vaccines are fragile commodity, needed to be stored between specific temperature ranges. Due to lack of proper monitoring, handling and electricity shortage in rural areas many time the temperature of vaccines crosses storage temperature ranges. Vaccine wastage in India, according to studies by WHO are as high as 60%. To avoid the usage of damage vaccines, heat sensitive stickers are used, but it is very difficult to pin point the bottle neck in the supply chain.



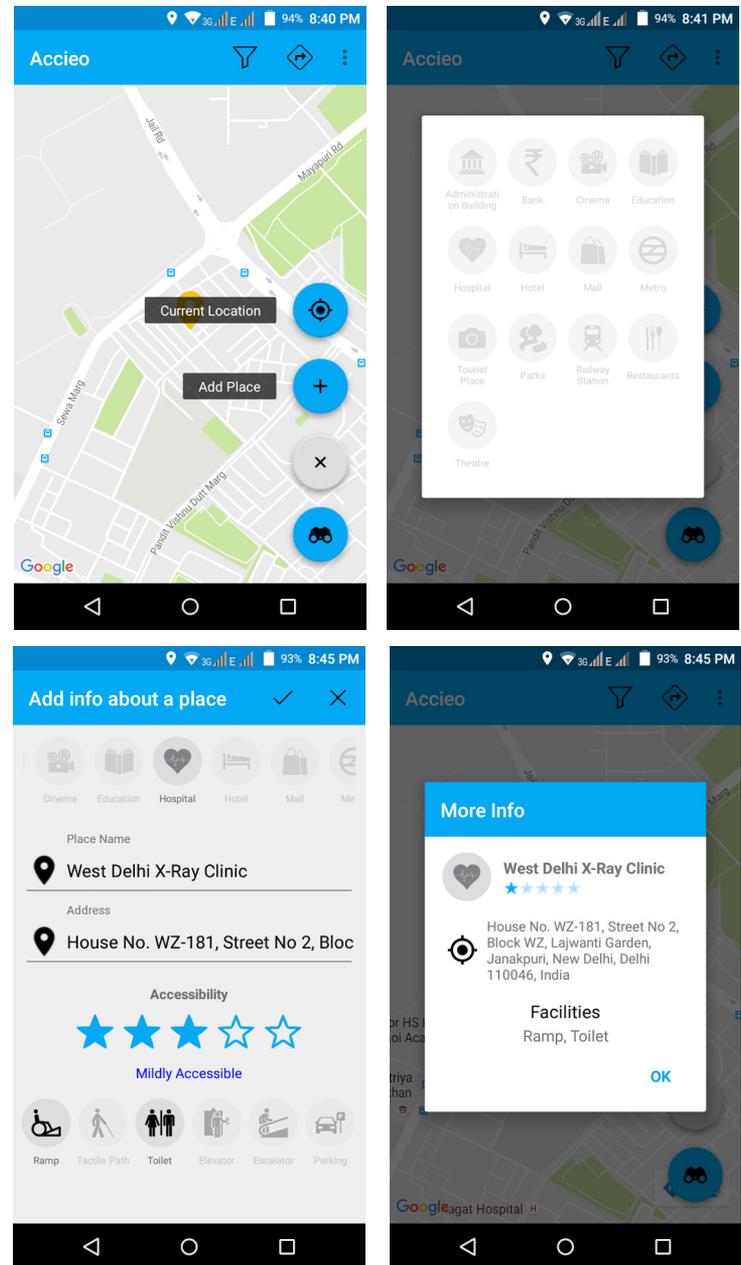
VaccSure is a low cost vaccination packaging solution for use in rural setup which ensures the temperature range of the vaccines to be maintained. Heart of the VaccSure system is the device which senses internal temperature of the packaging and sends this data to the central server for monitoring.

VaccSure also contains a Phase Change Material in the outer casing which ensures the temperature range of vaccine to be maintained for up to 36 hours in case of electricity failures. If internal temperature crosses the desired temperature range, the device locks itself to eliminate the accidental usage of damaged vaccines. The outer insulation cover provide safety from the mechanical impacts while transportation.



A disability of the body can pose many challenges to an individual which involve barriers of access and utility for particular disabilities. There are hardly any app available which addresses the basic needs of a Person with Disability. Accieo is meant as a navigation act focusing on the accessibility of buildings and areas that are negotiable by a specially-abled person. It is a comprehensive database of the places in the city that offer disabled-friendly services and the public buildings which boast of a 'universal' design environment. The app has been conceptualized to help people with disability or mobility issues and their carers access venues.

Built on a crowd-sourcing platform the data is built and reserved by the users themselves



PerkUp aids in improving your cognitive functions through use of games, especially designed to boost the cognitive functions of the brain that suffers or get impaired due to mental disorders

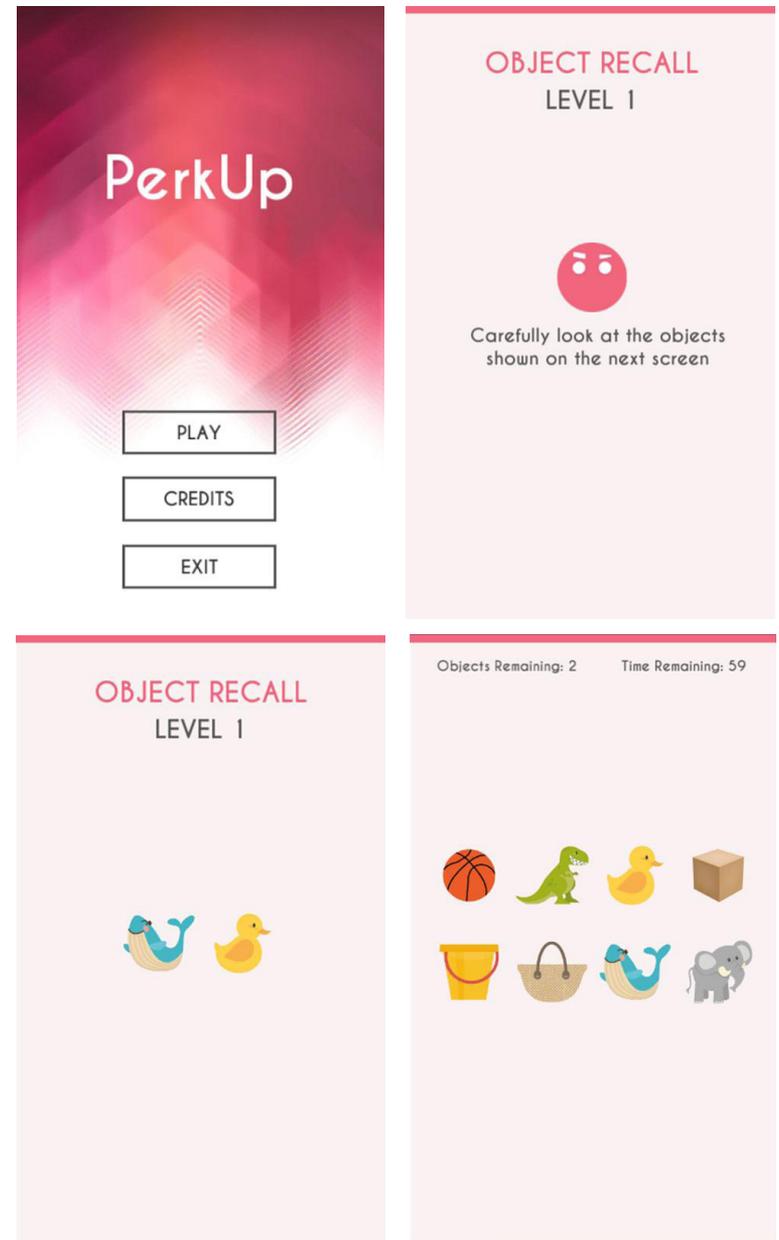
Paces the learning by being relatable and fun to play

Our only aim is to contribute in quick recovery of people who undergo such reduction in mental ability.

Project is to be used for retraining schizophrenics suffering from cognitive impairment at an Indian NGO SCARF, focusing mainly to improve their memory and executive functioning.

Training paradigm for improving cognition of people suffering from disorders is being developed and tested at NBRC

Will be extended to other ailments, age groups as well as SES in future

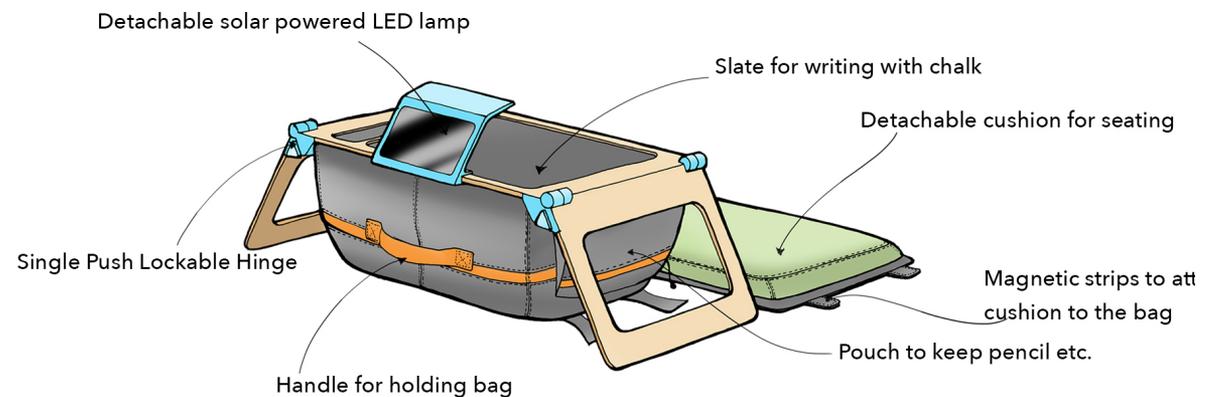
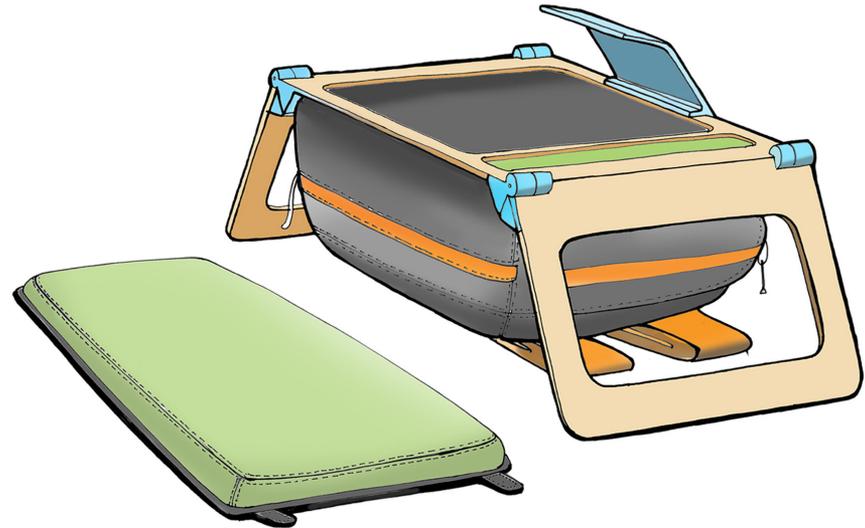


# Takhti

Takhti provides an efficient infrastructural support solution for rural schools in India where we generally find kids either seating on broken furniture or on ground because the furniture is either vandalized or not available at all.

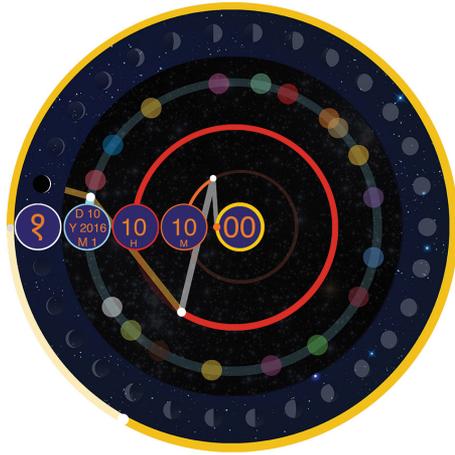
Takhti includes a foldable low height desk for reading and writing, it also includes detachable cushion to seat on and also contains a solar powered lamp for helping study in low light conditions or during night.

Takhti is designed in a way to fulfill the most basic need of studying, a seating place and source of light when needed. When kids leave for school, they can keep the solar lamp in sunlight for charging. The top surface can be used as slate to write or place books and notebooks while reading and writing. The folding and unfolding of the Takhti is made simple by Single Push Lockable Hinge mechanism. The provided solar lamp can be automatically turned on when attached to the desk.



# Pradakshin

● Pushpendar Kumar, Abhijeet Kumar Parmar



## PRADAKSHIN tracks

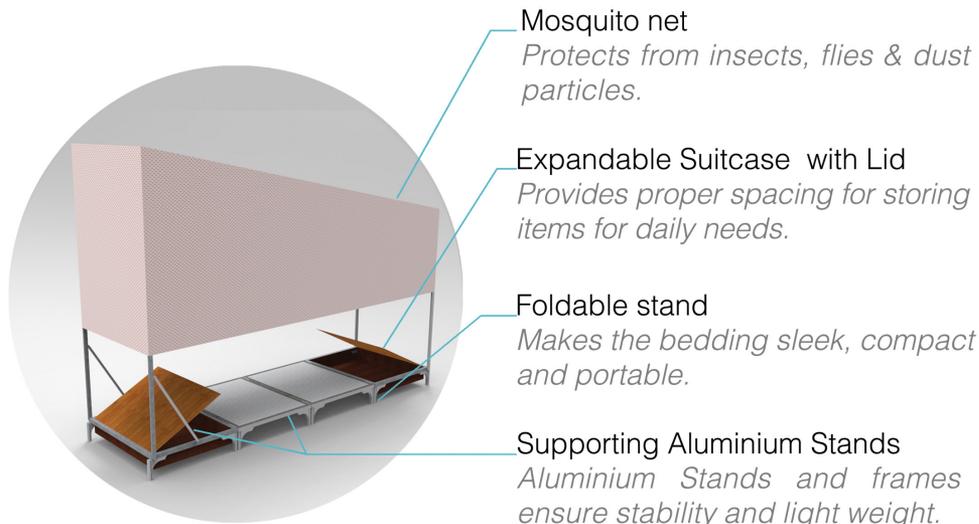
Moon Position  
Festival  
Tithi(Hindi Calender Date)  
Date, Month, Year  
Hour, Minute, Second

Pradakshin aimed to introduce a new and different experience to an observer of the time with respect to the movement of the Sun, the Moon & the Earth, which stands as an incorporation of both the Georgian and the Lunar calendars. It will indicate the Moon's position for all the festivals as well as translate them on the scale of the Georgian calendar. This will explain the Hindi calendar date and the specific time when the Lunar day is starting on the scale of Solar calendar. It will give a whole new understanding to the experience of observing and measuring time in which we can understand the movement of the Sun, and the Moon together in a single design approach.



It is a "Time Measuring Device" that changes the experience of measuring time & finding a new dimension relative to the nearest mass from the Earth i.e. Moon. As we know, our clock time, comprising of seconds, minutes & hours, is relative to the "position & movement" of "the Sun & the Earth".





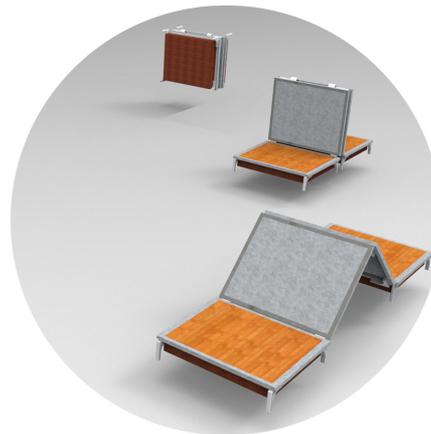
## Three Stage Fold:

### 1st stage : Suitcase Form

One can easily carry along with himself with their household items in it.

### 2nd stage : Semi Folded

One can access the stored item easily and can also be use for sitting purpose.



### 3rd stage : Un-folded form

Use for sleeping purpose

People sleeping in open is a phenomenon arising out of the migration of people from small cities to large metropolitans in search for jobs. These people are daily wage workers or rickshaw pullers , who at the end of the day sleep under flyovers or in rickshaw garages itself. In summer they have to face the pollution of city along with dust and smog while in winters and rains the condition worsens. And extreme hot and cold weather takes toll on their life expectancy and sometimes life itself.

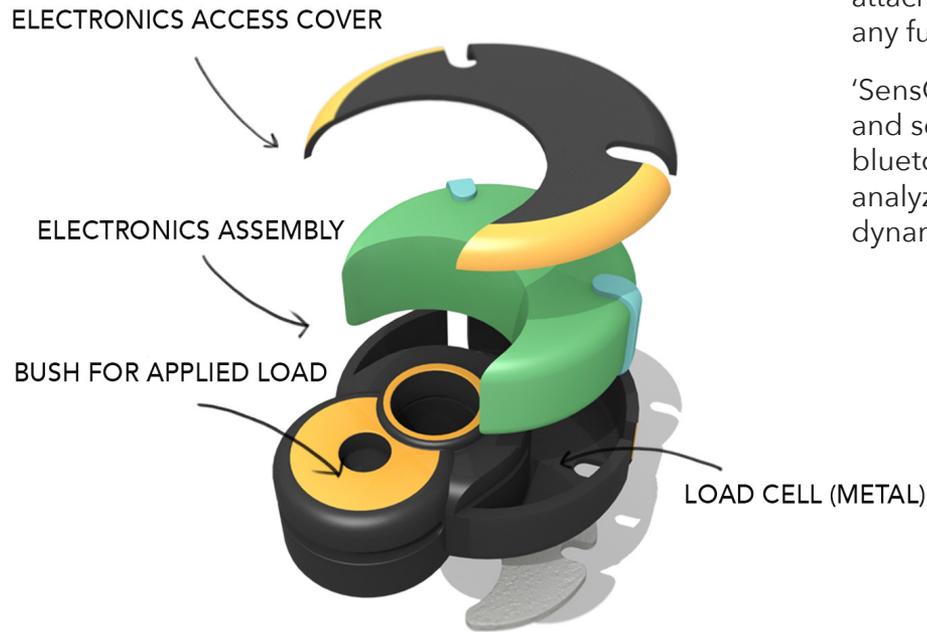
The proposed portable bed is targeted as mean to provide a shelter bed and carry case for their belonging in one package which is affordable. The compact frame which unfolds to become a bed, and a stretchable roof for protection from elements and storage compartment at both end of bed makes this bed a minimalistic portable home which can be used by travelers and campers too. Inner frame can be used to hang light and even portable fans to aid for comfort.

# SensOn

● Vishal Sengar, Tarun Khajuria, Dipankar, Chaitanya

'SensOn' detects if a furniture is in use or not. It senses the vibration when somebody uses the furniture. 'SensOn' can be attached to any normal furniture and by doing so we can convert any furniture to a smart furniture.

'SensOn' once attached to base of the object, starts recording and sending the occupancy and weight data over wifi or bluetooth to the designated device, where it will be further analyzed for detecting usage pattern and other related dynamics.



Attaching 'SensOn' on tables and chairs of a office, gives us the data of the usage pattern of the furniture and the interior space. This data can be utilized to modify the environment and to optimize other resources like space, furniture, electricity, air-conditioning etc. for more efficiency.

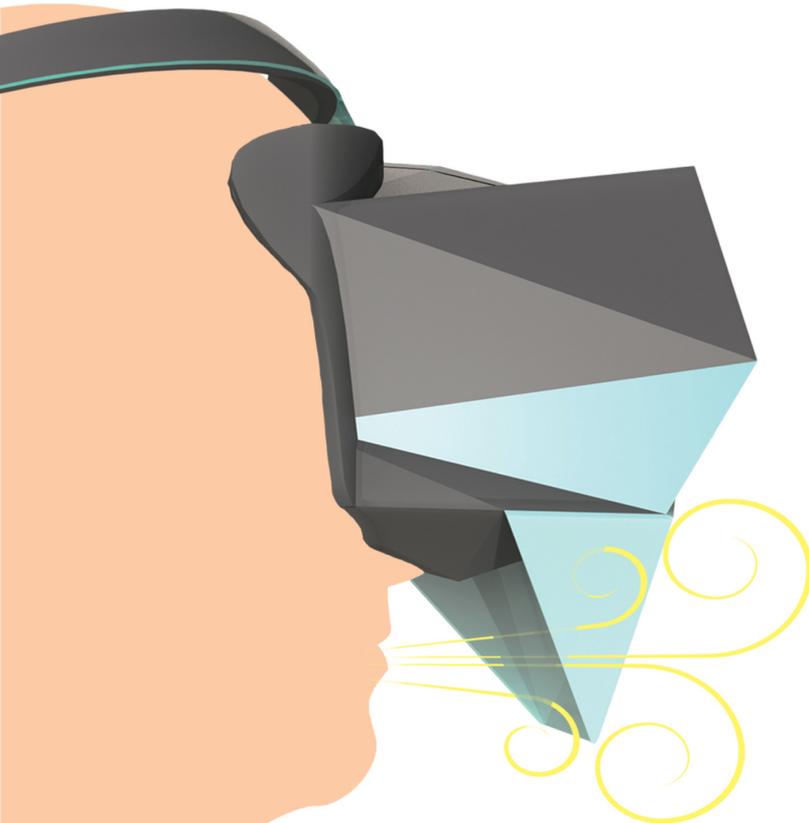
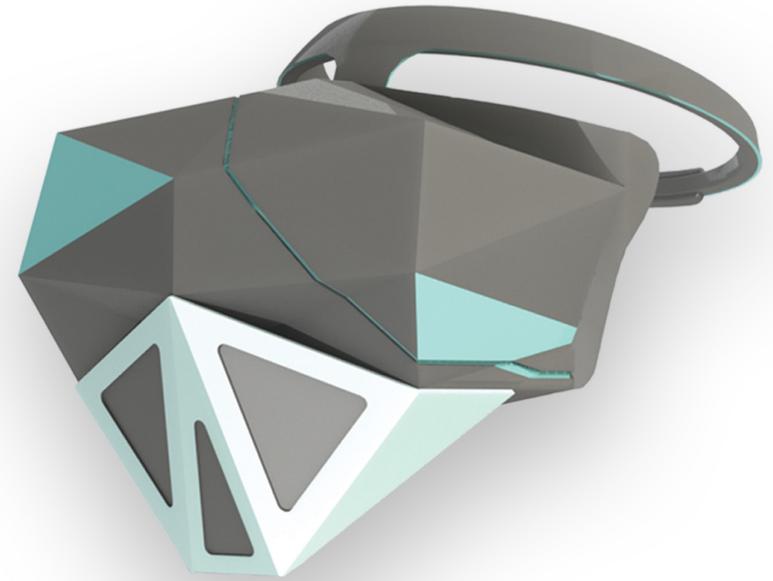


# bloVR

● Vishal Sengar, Tarun Khajuria, Abhijeet Kumar Parmar

With bloVR, one can use the breath as input for interacting with the virtual world. bloVR contains a thin membrane which changes its dimension when air is blown on the surface, which then converted to a digital input signal. Current virtual reality systems are depend on the push of a button or other limb movements, but with bloVR you can use a blow of air from mouth as a input.

Users can also change the direction and intensity of air blow to give different inputs. With bloVR we are adding one more dimension to the virtual reality interaction.



The bloVR can be used to create graffiti and air painting in a virtual world. Games can be designed to help user in doing breathing exercises to reduce stress.

As there in no need of using hand or pressing any button in this stem, many such game and applications can be developed where user don't required to move his/her limbs. It is also helpful for paraplegic people where they can give input to the system by just using air blow.



# Arete

● Madhulika Sonkar, Abhijeet Kumar Parmar



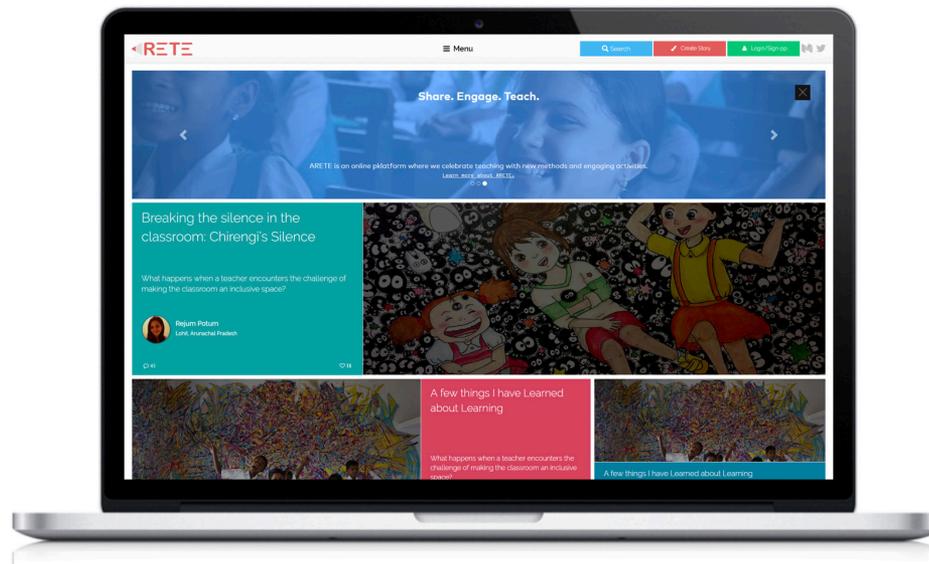
Creative storytelling via texts, visuals, videos about stories that touch teachers and learners in everyday life.



Collaborative Network of teachers: A community that will find solutions for each other



Arete Content Range: Classroom teaching, psychological and behavioural aspects, pedagogy

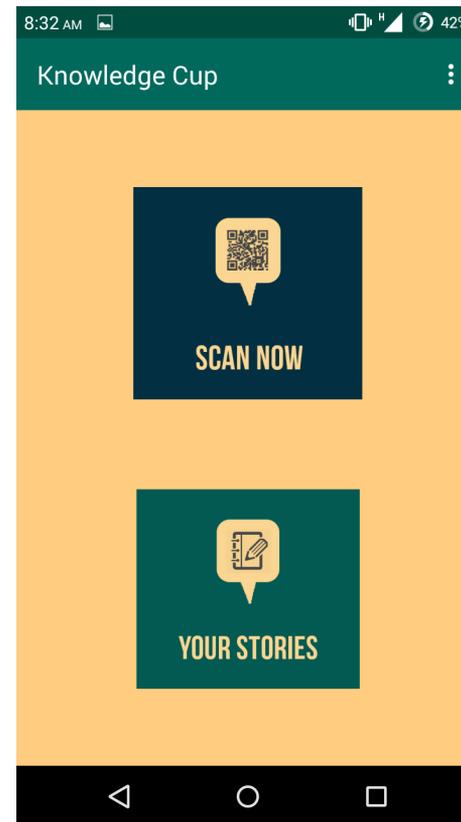


Designing solutions for elementary education teachers

Arete is a digital platform where teachers can share their narratives of educational change. It brings together passionate teachers who are involved with developing fresh educational practices at some point of their lives. Through the platform, the teachers can share, discuss, shape and revive new pedagogic methods—possibly to shift away from rote learning methods.

The platform is an attempt to document the challenges and issues that teachers across the country encounter in their everyday professional practice. These challenges range from the teaching of a particular subject to various psychological and pedagogical issues that are part of professional practice.





Knowledge Cup provides a new and unique publication platform.

Drinking coffee/tea is a part of daily routine work for most of the people. Knowledge Cup, as the name suggests, is a Cup/mug that has a QR code printed on it which can be scanned by an app that would give you one interesting story every day. Anybody who has an account on the Knowledge Cup portal would be able to create his story, to be published and read by the users. Creators would be incentivized based upon the reviews on their stories.

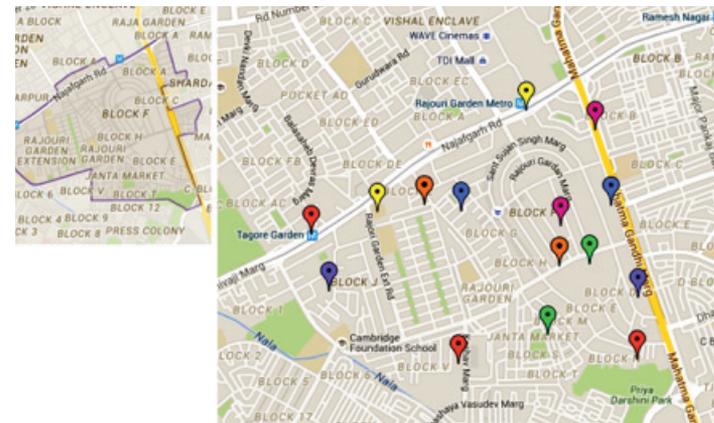
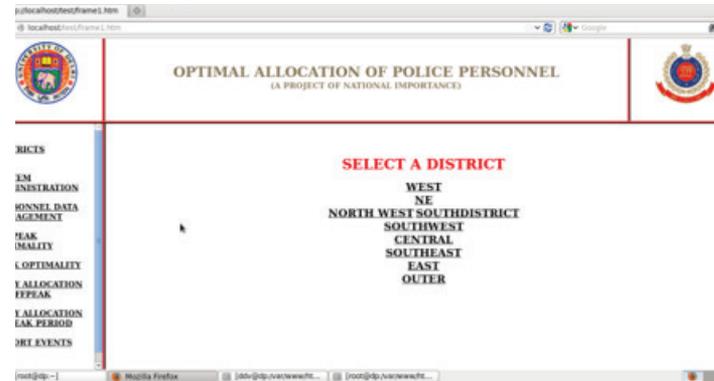
Each cup shall be on a unique theme. Scientist, Birds, Monuments etc.



The aim of the project is to design an optimization model for optimal deployment of police personnel or routine patrolling van so as to enable them reach the place of event in minimum time following the safest route. This ICT framework would guide each police station, according to the hotspots in an area, finding the exact locations of deployment in order to cover the entire area for its maximum observability. The implementation of this project would ease the Ministry of Home Affairs/ Police force to automatically allocate the personnel even in the situations like scarcity of police force, VIP movements, etc. Moreover, the project aims to help the police of the city to predict the crime situation through the analytical study of gathered live data and the MIS would enable them to keep Thana-wise record of the events. The project Watchdog is a move in the direction of smart policing under aegis of Prime Minister's "Make in India" and "Digital India" initiative.

The ICT framework developed so far aims at covering the following points:- District-wise Optimal allocation of Police personal

- Thana-wise setup of the ICT framework
- Thana-wise duty allocation of personnel
- Peak time and off peak time deployment
- Analytical study of gathered data.
- Creation of Management Information System (MIS)



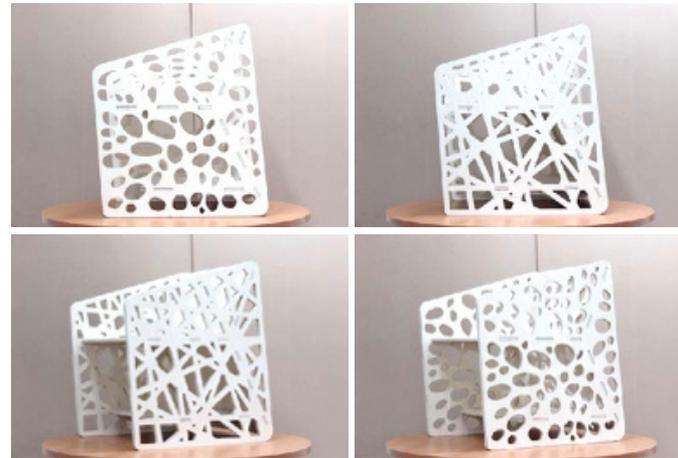
# Nest furniture series

● Vishal Sengar

The project proposes a range of furniture which will have an identity and form inspired by the endangered species of Indian birds. This project intends to spark a dialogue and sensitivity towards their protection in the minds of the observers.

The first thing we selected for the range is chairs due to its demand in the interior element market and versatile usage scope.

Initial ideation was to develop a complete knock down version of chair which can be assembled at the point of usage, by doing so the cost of transportation will be get reduced, cost of storage will also be reduced as the storage volume is much lesser then the actual volume of chair.



Great Hornbill



Saras Crane



Woolly Necked Stork

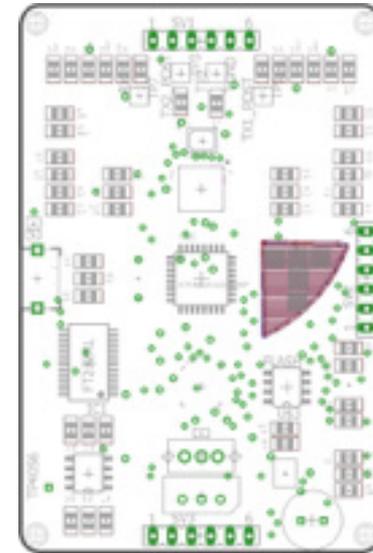


Egyptian Vulture



# TaggerBits

● Vishal Sengar, Tarun Khajuria



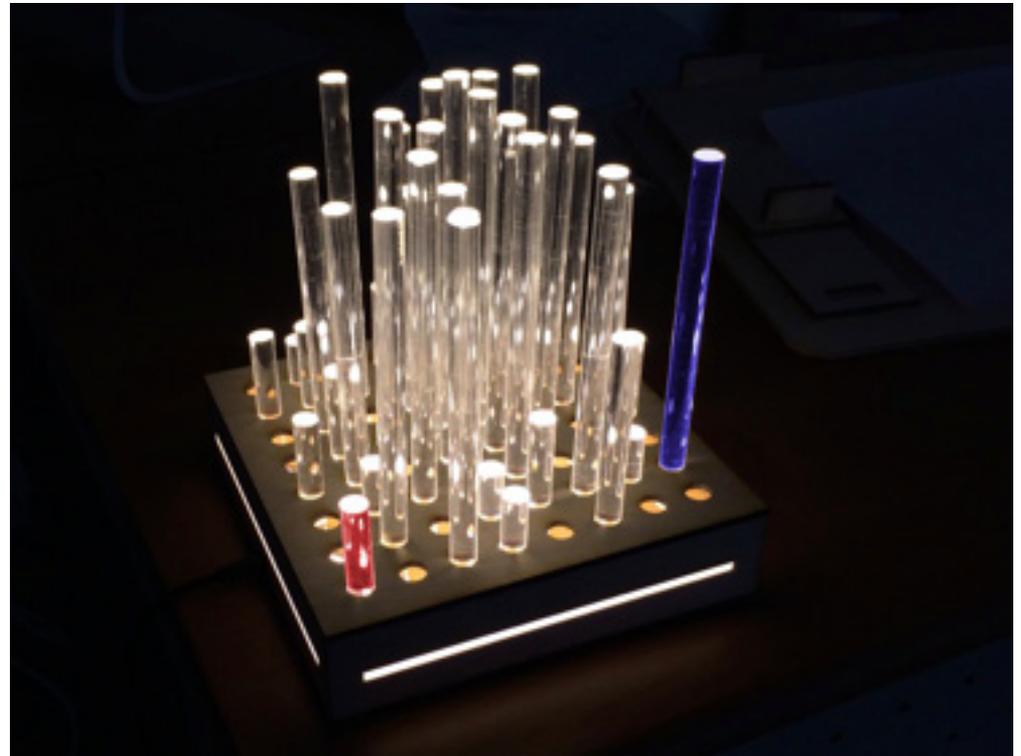
While working with the development boards like Arduino and Raspberry pi we found out that the end product looks like an unfinished project. We see wires hanging around, many module attached to each other with different kind of jacks and in totality they look incomplete. As the purpose of an engineer or a student is just to make things and present its functionality we want to take this making experience to the next level. In this project we researched many of such open source hardware and we decided to work on RFID modules and NFC. As these modules are being used extensively in many engineering projects and the form factor available to the user in market is very unpleasing aesthetically,so in this project we have come up with the design of an integrated RFID, NFC, Atmega 328 and Wifi chip mounted on the same board along with a small battery backup. All this shall fit inside a case with a small form factor which shall allow the student to focus on their codes and functionality rather than the physical arrangements of their board.



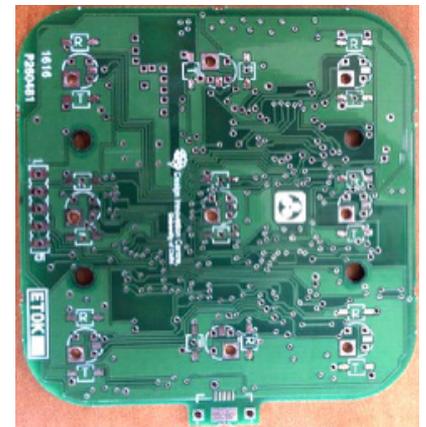
# OpenCandle

● Vishal Sengar, Tarun Khajuria

Due to the rise of smartphones and the shrinkage of communication of every kind of voice call, social media notification, emails etc. to this small device, that we carry in our pocket has made our life very convenient. But this convenience comes with the cost of distraction. People tend to get distracted by the sound of a notification which starts a continuous looking for the next notifications. There is one solution that allows you to keep your smartphone on silent mode and only look for notification when you have time but you might miss an urgent notification. So in this project we decided to make a silent object which can notify but not distract a person.

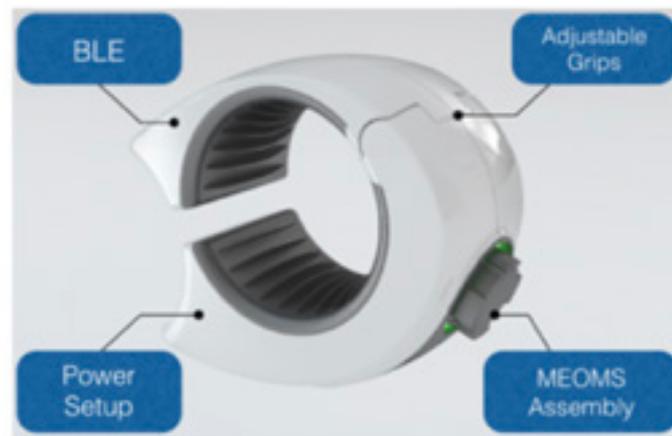


As the human can sense changes in environment through 5 senses we tried to use light as a form of communicating a notification to the user. We designed a light which can be kept on the office table, bed side stand, dining table, in living space or anywhere, It will show you the notification by colour change and intensity of the light. The light is interactive in way that you can change the place of the lighting rods to get different forms of lighting. It is a interactive light which can be customised according to the user.



# Project Q

Project Q is aimed at development of Micro Electro Opto Mechanical System) MEOMS based wearable device for monitoring estrogen and testosterone levels. It's disconcerting to think that a natural hormone circulating in significant amounts through the bodies of female is a carcinogen. In December the National Institute of Environmental Health Sciences (NIEHS) added estrogen to its list of known cancer-causing agents. Similarly testosterone has profound effect in male health status. The proposed device is based on non invasive spectral signature identification of target molecules present in the body fluids using infrared radiation.



*Proposed device*

The form factor of the device has to be in the form of popular wearable products like watch, wrist bands, rings, ear rings or pendants. With continued innovation and attention to key challenges, such non-invasive sensors are expected to open up new exciting avenues in the field of wearable wireless sensing devices and body-sensor networks, and thus find likely to considerable use in a wide range of personal health-care monitoring applications, as well as in sport and military applications.



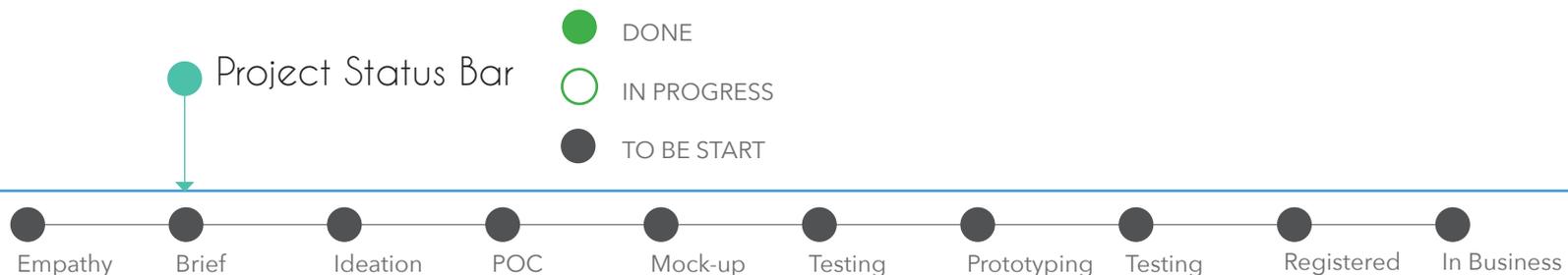
## Technology Business Incubator

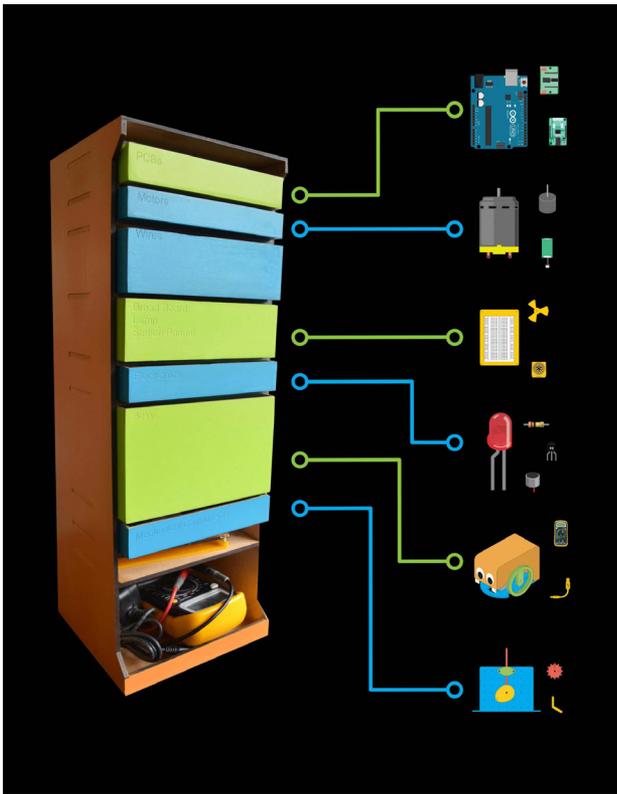
The DUCIC Technology Business Incubator (MSME) was established with MoMSME Support Grant for Technology Entrepreneurship in 2014 to encourage Entrepreneurs/Incubatees to try out their innovative ideas (processes and/or products) at the laboratory or workshop stage and beyond, to carry forward the idea from its mere conception to know-how and then to do how stage.

DUCIC Technology Business Incubator (MSME) will provide laboratory/workshop facilities and other infrastructural as well as mentorship assistances to the selected incubates in a PPP mode with the incubatee committing 15% of the cost of incubation for leading to a micro scale start-up or 25% of the cost of incubation for leading to a small scale start-up. Funding may range between Rs.4 lakh and Rs. 8 lakh.

Seven projects are funded by MSME and Co-Working Space has been provided to three projects by TBI.

DIC provided the ecosystem and mentoring in the completion of these projects



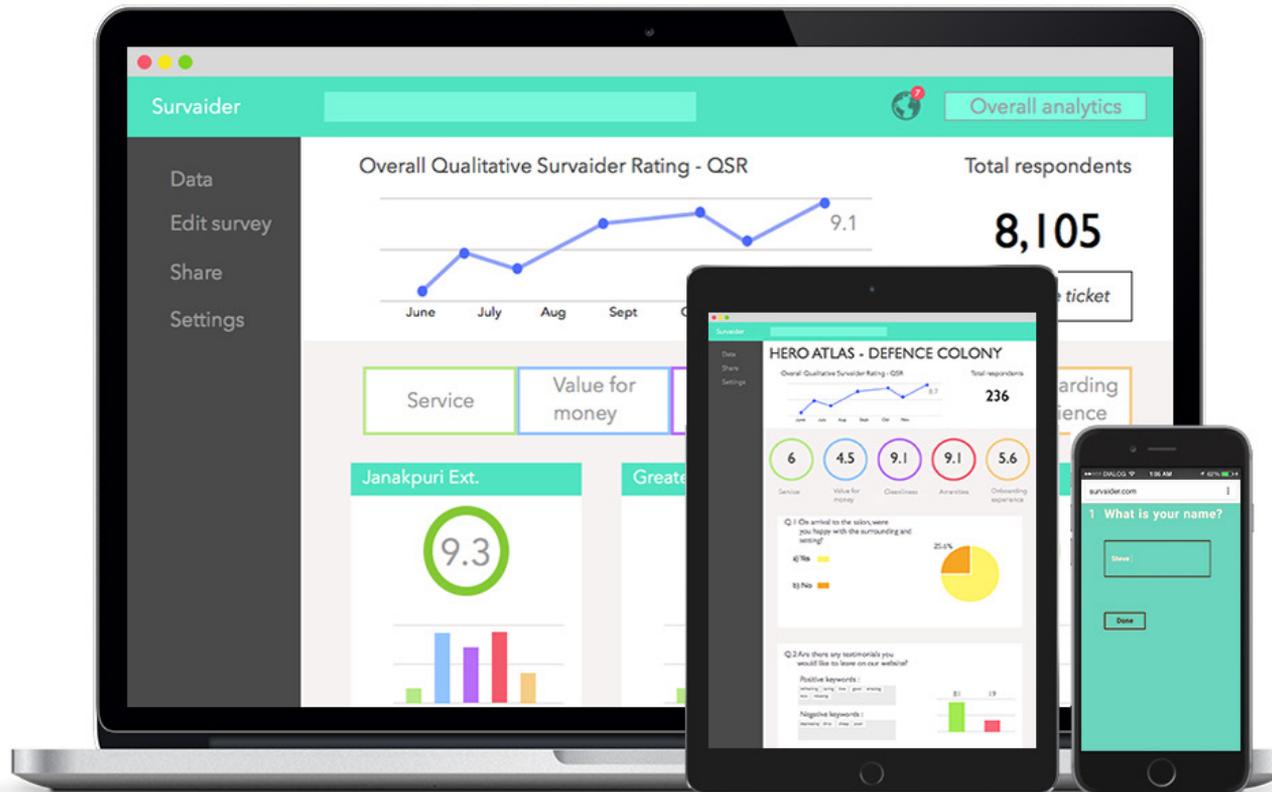


imfundo   
[www.imfundo.io](http://www.imfundo.io)

Blackbox is a kit containing all the tools and equipments required to initiate a kid into maker's world. We use it to make makers out of school kids. It enables them to make useful gadgets and devices on their own using concepts from mechanics, electronics and computing.

Imfundo currently offers its services in schools through a club model or a Lab model.

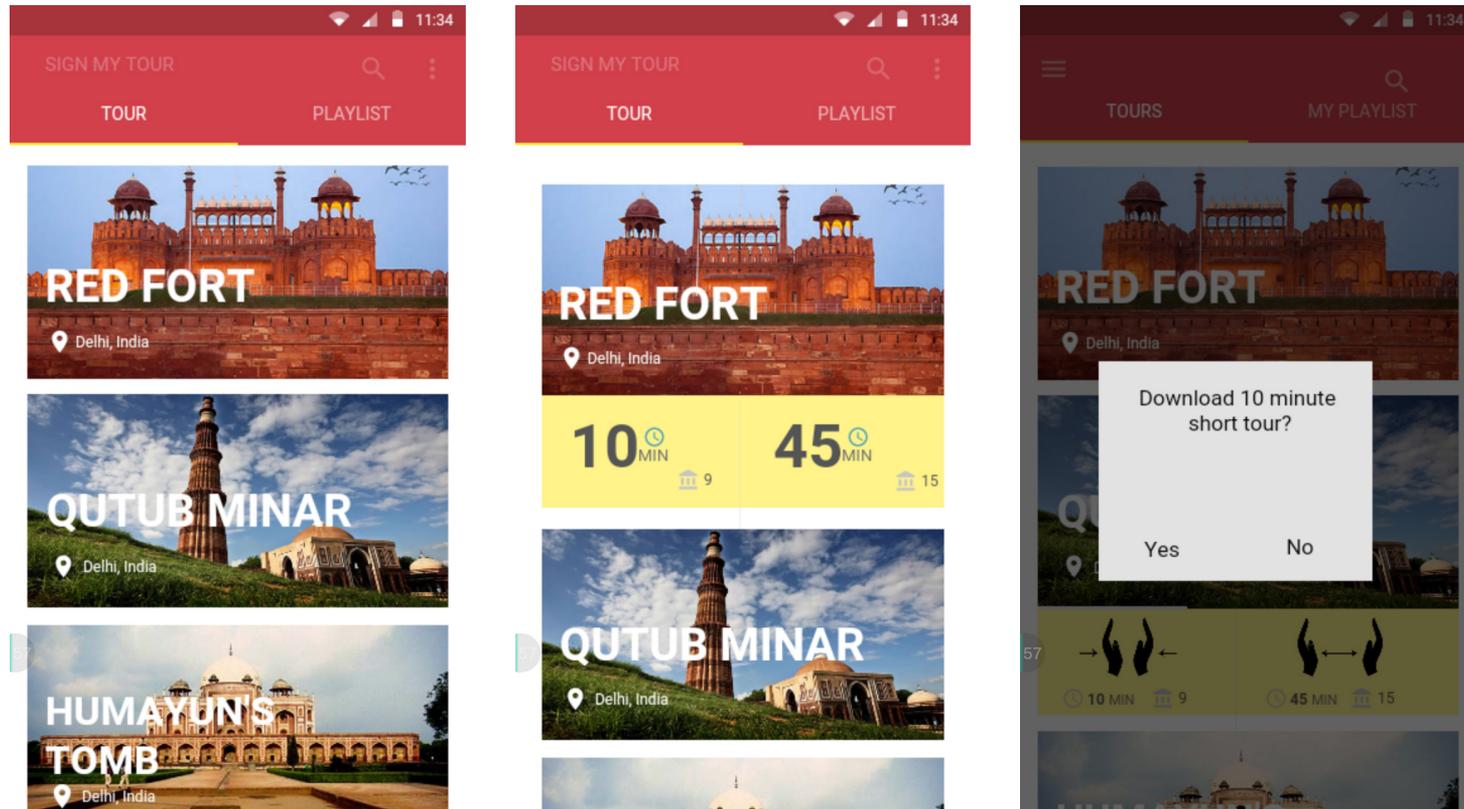




Survaider is an online SaaS CEM platform which lets enterprises understand voice of customers and act on it, across all their business locations in real time. Understanding customer feedback from all channels and acting on it in real time is hard. Survaider applies machine learning and NLP techniques to let our customers unlock huge stores of unstructured natural language information currently trapped in different mediums like social conversations, review websites and feedback forms.

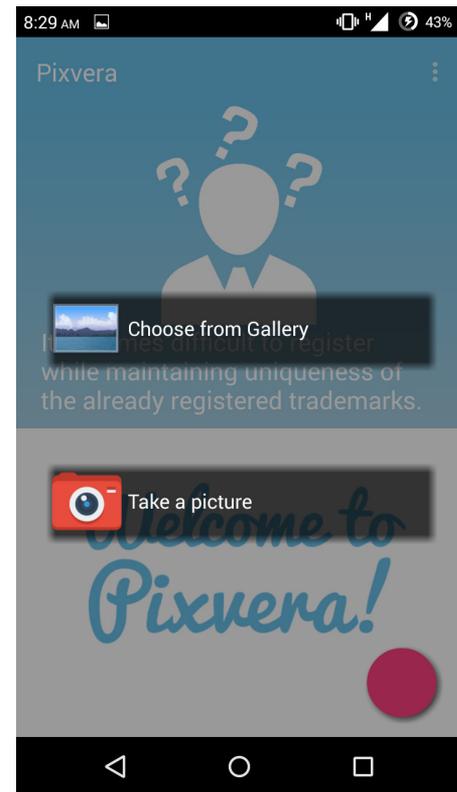
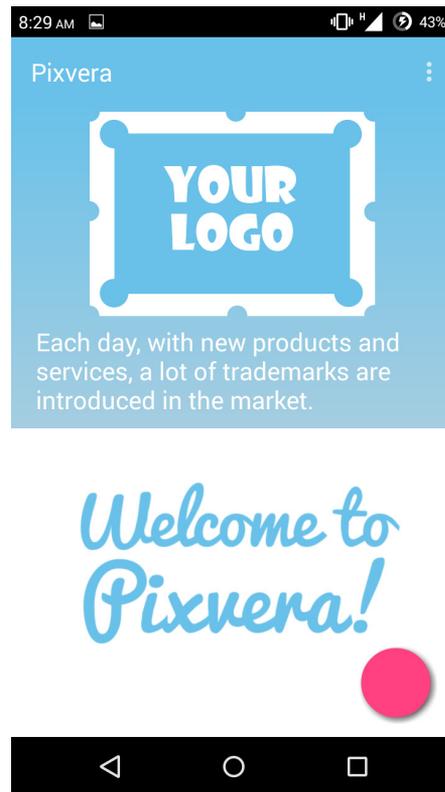
Survaider has received an accelerator funding of Rs 25 Lakhs and currently operates from Bangalore.





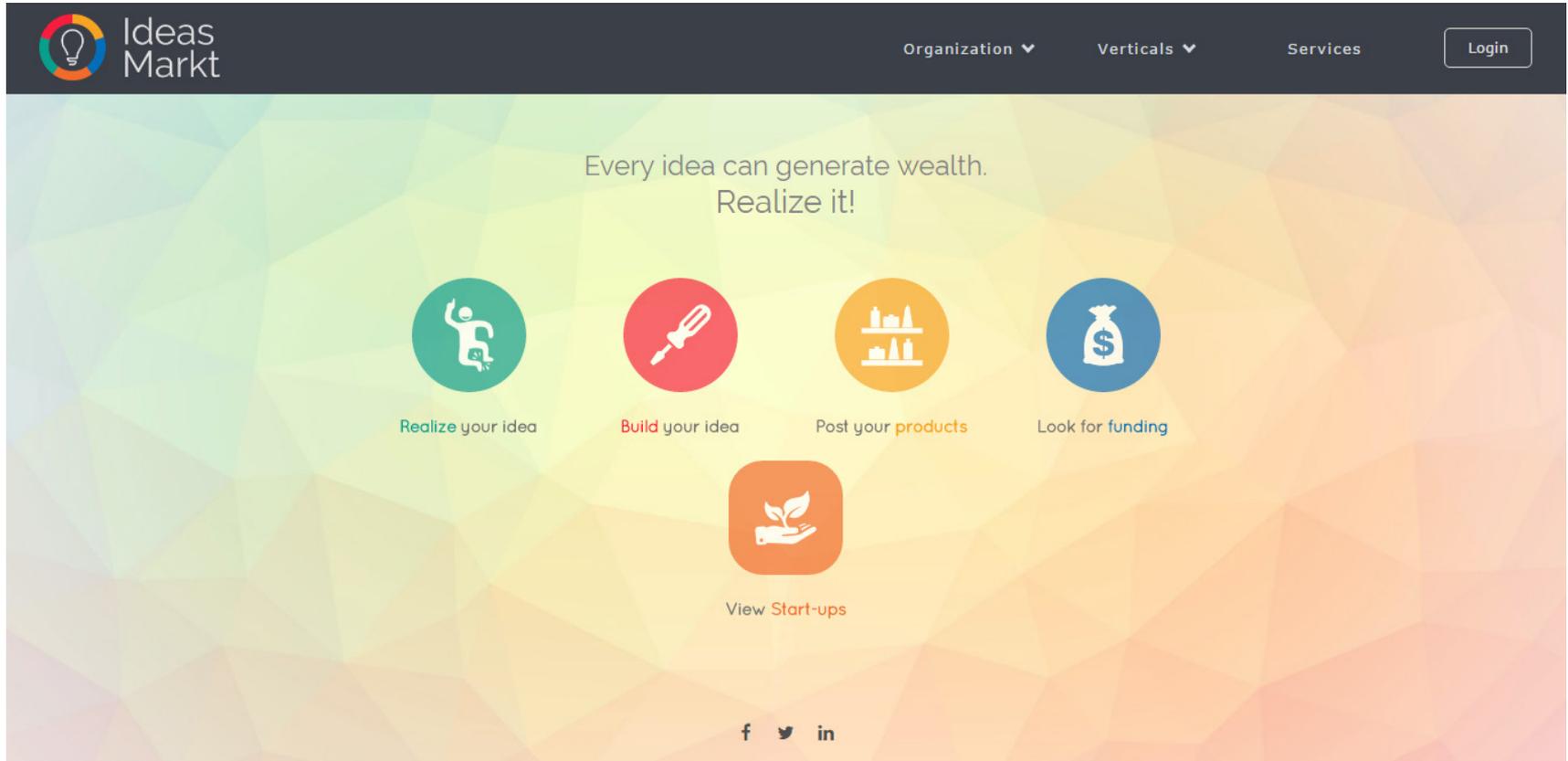
Deafcom India aims to create a series of apps that help differently abled tourists, both local and international visitors to enjoy our culturally rich monuments with ease. Our project deals with four distinct sections. Collection of historical facts, data surveying of monuments and then molding those experiences into stories, translation of these stories into sign language with the help of expert, designing of app and embedding the videos guide and maps into it, marketing and launch of the app.





Using computer vision and data analysis, we have developed a trademark search service that lets one find out the IPR infringement of their designs and logos. Our search service is based upon solving the problem faced during registering a new logo design. It intervenes the process in the initial stage when availability of a logo is being searched such that the time and money invested in application of trademarks can be saved.





A vast amount of innovative ideas of students do not reach the market because of various reasons: unavailability of incubation funds, unavailability of fabrication facilities, inability to visualize commercial potential, lack of IPR, and general lack of entrepreneurship. A portal to help students to incubate their innovative ideas and bring them to market through idea pitching, product development, IPR registration and commercialization, monetization of innovation. In all cases the revenues will be shared with the owner of the idea on legally binding terms. Following verticals are being worked out.

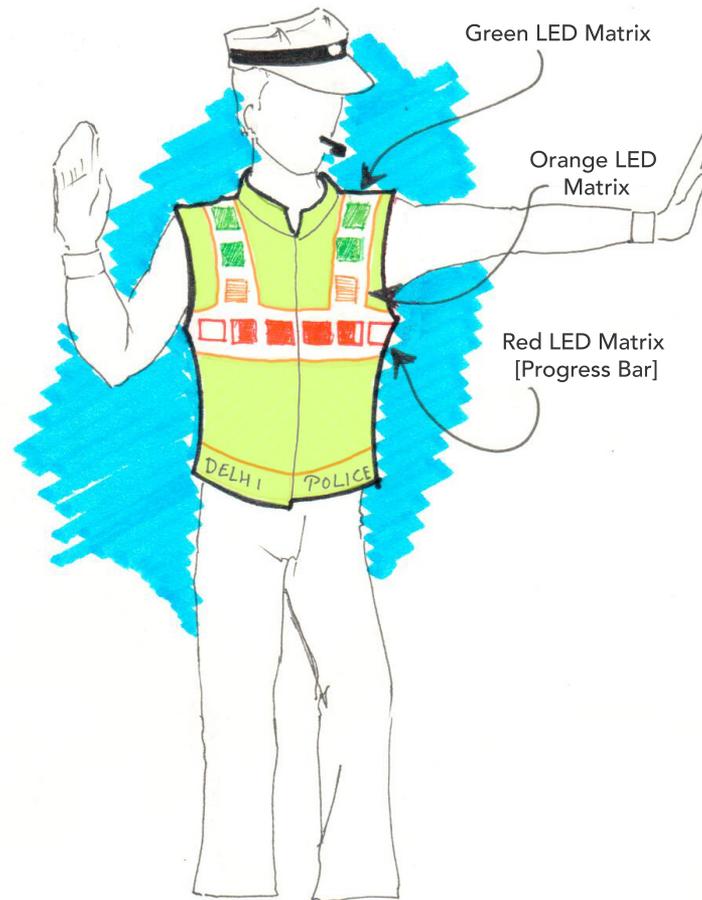




Mathematics has been declared the least favorite subject of students among 6-14 years of age and most feared subject too by ASER. Mathematical Games (MG) comes at the intersection of all these three segments hence solving all three problems and creating immense commercialization potential. In this project we are developing different types of games for mathematics learning. The following three games have been completed, tested and ready for commercialization.

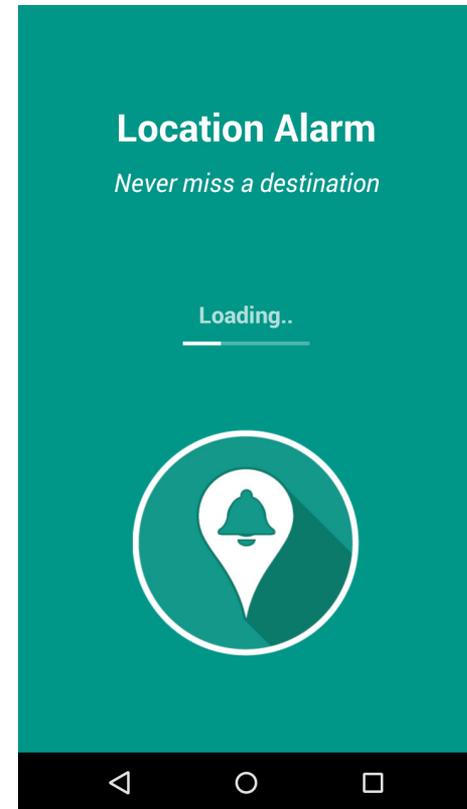
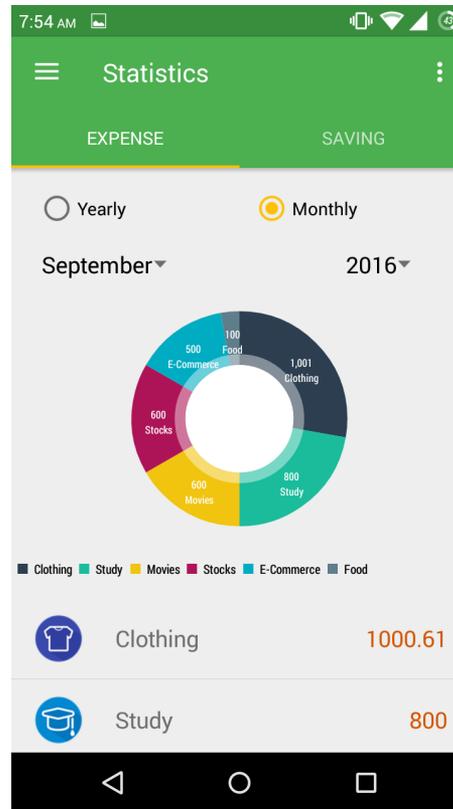
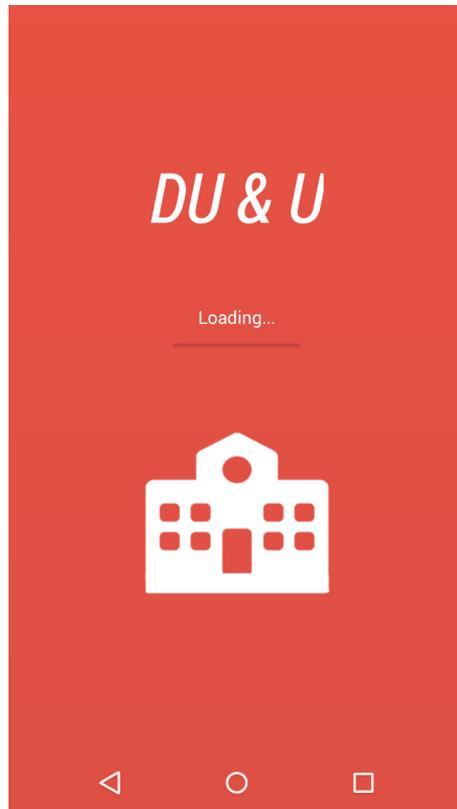
- Shores
- Tum-Yum
- Gem Quest





Apparel Media Project has the basic aim of developing various forms of interactions using clothes and accessories. Apparel form a close part of our everyday life hence we are trying to capitalize this for public communication, advertisements, ticketing and other useful functions that can be put into the clothes or other things a person wears or carries.



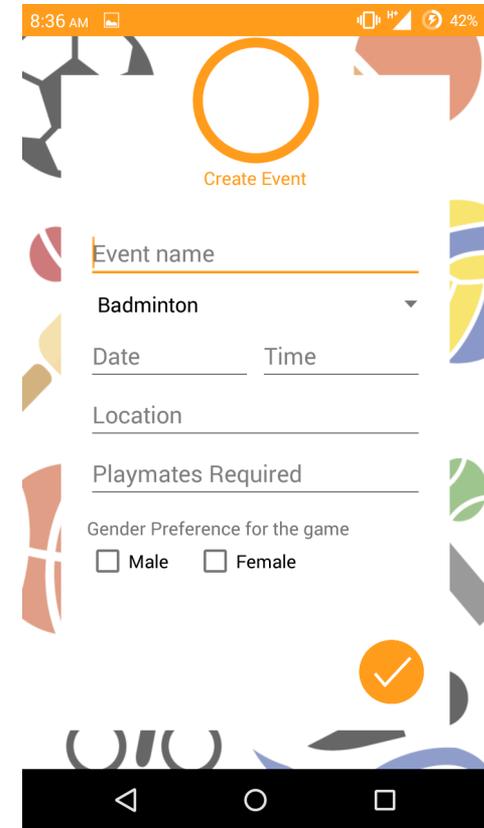
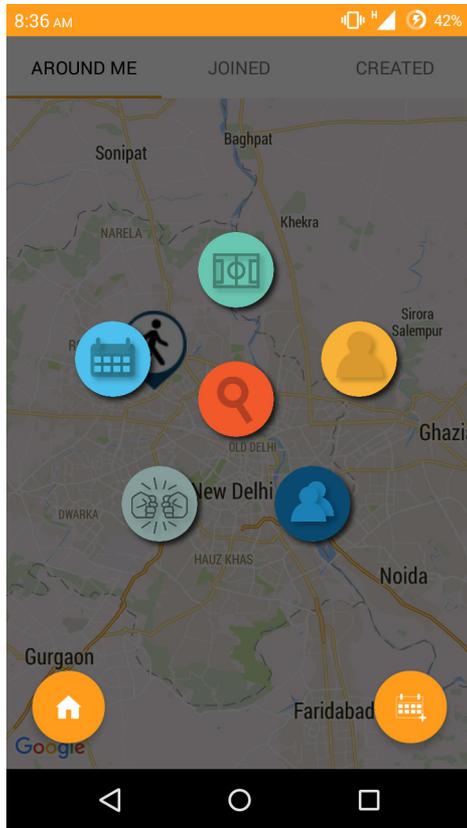


Tnine InfoTech LLP is a start-up based in DUCIC-TBI. We at Tnine provide innovative IT solutions to budding start-ups, industry and academia. Start-ups that have ideas but do not have a tech team to carry them forward, tie-up with us and see their ideas come alive. Tnine works mostly in web and android development and also has a bunch of design experts who create logos and business/event cards. We at Tnine work extensively towards UI(User Interface) design and UX(User Experience).



# Daily at Five

# Co-Working Space



Daily at Five is a platform that helps to connect people with similar sporting interests. Users can host or join matches as and when they wish - be it cricket, football, tennis or any other sport listed on the platform. It encourages the youth to go out, meet new people and be a part of the community they've always belonged to. It is the next level sports entertainment application





Lithics.in is an online store for handcrafted products made by NGOs who work with the differently abled population. Through this innovative aggregator platform, we aim to make online selling easier and profitable for the NGOs. All products will be sold directly by the NGO, Lithics.in will not produce or warehouse any of the products. However, we will keep a close eye on accounting, auditing, logistics, customer care, and marketing - fields that the NGOs cannot operate in. Vocational training, product design and development and quality checks would also be undertaken.



## Art & Design

(Sixth semester paper for B.Tech [IT and Mathematical Innovations] at Cluster Innovation Centre, L-T-P = 0-3-0)

The paper has been introduced by the DIC, University of Delhi. It is comprehensive theory and practice curriculum on art and design operational from January 2016 onwards. The paper explores exercises in design to understand principles of design. It covers various stages and approaches related to design thinking and innovation, touching upon design paradigm in industrial design and social sciences.

## Visual Arts & Aesthetics

(Seventh semester paper for B.Tech [IT and Mathematical Innovations] at Cluster Innovation Centre, L-T-P = 0-3-0)

Introduced by the DIC, it is a practice oriented paper to be offered from July 2016. The paper introduces students to various forms of art: media art, computer art, digital art and interactive art. It covers aesthetics strategies and brings together arts, technology and society

## Design Thinking & Innovation

This course will cover the basics of how to approach design as an organic process and explore a practical methodology of problem-solving to the thinking exercise.

## Human-Centric Design

This course will explore the concept of building empathy for the people design solutions are being developed for. The curriculum will seek to add perspective to design-based thinking with an iterative prototyping process and careful consideration of building the entire product experience.

## World Art/Design Movements

Considering design inspirations are often drawn from history and movements that occurred in eras gone past, this course will cover the major world art movements with an understanding of their defining characteristics. This elective will be designed as a short-term workshop.

## Data Display Designs

Imparting the knowledge of design for display of data and its analysis in various different contexts. Almost all students deal with complicated data and analytics and need useful aesthetic visualization of their final results.

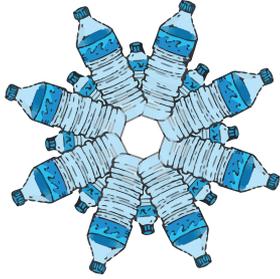
## Human Interaction Design

Designing human interaction in the field works involving research and data collection. The course aims to cover the role of social interventionism and qualitative research in design innovation.

## Work Shops

- Hygieia 1.0
  - Hygieia 2.0
  - Design Thinking, MME
  - Programing 101 for School Kids
  - Design Thinking Workshop by Mr. Raman Saxena
-

# Hygieia 1.0



Hygieia is a series of workshops organized by Design Innovation Centre, University of Delhi to invite concepts, product ideas and proposals for the nation-wide campaign of Swaccha Bharat Abhiyaan. Hygieia 1.0 is for undergraduate students. Students from Design colleges of Delhi NCR, Delhi University, IGNOU, Ambedkar University of Delhi etc. Participated in this one day workshop.



# Hygieia 2.0



Hygieia is a series of workshops organized by Design Innovation Centre, University of Delhi to invite concepts, product ideas and proposals for the nation-wide campaign of Swaccha Bharat Abhiyaan. Hygieia 2.0 is for 6th, 7th & 8th standard school students. Students from 12 schools with their teachers participated in this workshop. They learn the importance of design and they also developed some new ideas for making their surrounding beautiful



# Design Thinking, MME

This workshop is introduced design thinking to the Masters of Mathematical Education student of Cluster Innovation Centre, University of Delhi. They learn how to design the products, how to test them and how to design experience for their user.



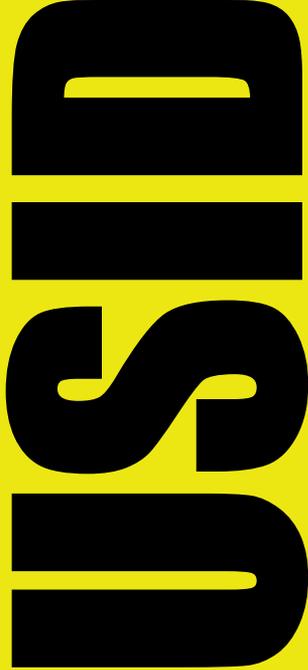
# Programing 101 for school kids



Programing 101 was a two day workshop organized by DUDIC with collaboration with imfunco labs for school students and teacher to introduce them to the domain of electronics, micro-controller programing and robotics.



# Design Thinking Workshop by Mr. Raman Saxena



**A seminar by**  
**Raman Saxena**  
Co-Founder | USID India Foundation  
Universal, Sustainable, Innovative Design for social change  
[www.usidfoundation.org](http://www.usidfoundation.org)

An experienced leader with experience predominantly in design thinking, design strategy, consumer-centric design, innovation, product conceptualization and management, design research, user experience, usability and consumer insight, Raman Saxena has an impressive track record of 20+ years of demonstrated ability of successfully conceptualizing and building products, manage design units and lead teams of professionals in a range of organizations

1. Design Thinking
2. USID Gurukul - Collaborative and Immersive Learning for social innovation

Seminar Hall, Cluster Innovation Centre

**3pm**

**18-19 Nov' 15**

Design thinking workshop on 18th and 19th November 2015

The workshop was centred around design thinking and processes that are necessary to the innovation process. The workshop was undertaken by Mr. Raman Saxena who is a pioneer of innovative design thinking processes who has an impressive track record of 20+ years of demonstrated ability of successfully conceptualising and building products, manage design units and lead teams of professionals in a multitude of organisations.

Over two days of individual as well as group interaction, Mr. Saxena guided the design fellows on their respective projects. He also gave substantial inputs on shaping human-centred design methodologies. The workshop was designed to structure the stages of design innovation across diverse contexts.

## Facilities

- Seminar Hall
  - Library
  - Conference Hall
  - Technology Business Incubator
  - Co-Working Space
  - Data Centre
  - Office for Fellows and Interns
  - Prototyping Workshop
-

Seminar Hall



Library



# Conference Hall



# Technology Business Incubator



# Co-Working Space



# Data Centre



# Office for Fellows and Interns



# Prototyping Workshop





# Design Innovation Centre

Cluster Innovation Centre, University of Delhi)

DREAM Building, Gate No. 4, Chattrra Marg,

University Enclave, Delhi - 110007

[www.dudic.io](http://www.dudic.io)