

MAKER BHAVAN FOUNDATION

# INVENTION FACTORY

Since 2018

## INVENTIONS | 2018

*IIT GANDHINAGAR*

### WINNERS

#### Irrigation, Weeding And Pest Control Device

Haque Farazul and Yash Sharma, IIT Kharagpur

Inexpensive and simple irrigation, weeding and pest control device to aid the farming process.

#### Manual CPR device

Karthik Karvaje and Kratika Bhagtani, IIT Gandhinagar

The Manual CPR device is compact, portable and affordable, having the potential to save lives in public spaces.

#### Sleep Easy

Anshuman Dhar and Agrata Patel, IIT Guwahati

Sleep Easy is an easy-to-install blanket that can prevent injuries encountered by Parkinson's patients by restricting violent thrashing.

### OTHER INVENTIONS

#### Adaptable Load Carrier

Chekkala Sai Srishal and Chavali Bharath Chandra, IIT Gandhinagar

The adaptable load carrier for laborers can reduce injuries incurred from heavy loads carried on the back.

#### Protect-X

Shubham Nandeshwar, IIT Madras and Tanmaey Gupta, IIT Gandhinagar Protect-X is an improved vehicle protection device that can reduce the number of deaths from collisions with heavy load vehicles.

\*Click on the underlined titles to view full video!



### Fire Free

Tejas Patil, IIT Guwahati and Rohit Kumar Singh, IIT Gandhinagar

The electrical fire-prevention adapter called Fire Free pops out the plug in case of a temperature rise at the socket junction.

### Portable And Foldable Toilet

Akshat Bansal and Suyash Patidar, IIT Gandhinagar

The portable and foldable toilet reduces water usage and converts from a fixed toilet to a detachable moving toilet for the infirm.

### Weeding And Seeding Machine

Kuldeep Kumar, IIT Jammu and Vedanta Bhutani, IIT Gandhinagar

The weeding and seeding machine performs intra-row and Inter-row weeding and seeding for small in a time and cost-effective manner.

### Indoor Navigation System

Khyati Priya, IIT Guwahati and Birendra Prajapati, IIT Madras

The indoor navigation system for the visually impaired is an add-on to a walking cane in conjunction with easy-to-install floor patterns that guide the user through a smartphone application.

### Paper Pop

Devang Singhi, IIT Kharagpur and Udit Relan, IIT Gandhinagar

Paper Pop is a low-cost paper bag making machine attached to an existing manual sewing machine stand that can be used with minimal training.



## INVENTIONS | 2019

*IIT GANDHINAGAR*

### WINNERS

#### Household Mechanical Solar Tracker

Prabal Vashisht and Parul Sangwan, IIT Palakkad and

The household mechanical solar tracker uses a purely mechanical method to rotate rooftop solar panels to follow the sun, increasing efficiency without the need for motors or batteries.

#### Leak Proof Eco-Friendly Take Away Container

Prathmesh Deshmukh, IIT Kharagpur and R. Nambalakshmi, IIT Bombay

The leak-proof eco-friendly takeaway container works for each stage of the food delivery process, reducing storage in restaurants, providing leak-proof delivery and being fully recyclable after use.

#### Spout It

Samruddhi Pataskar and Kalash Nibjiya, IIT Kharagpur

Spout it is a system to attach a temporary spout to a plastic packet that is filled with a liquid, allowing for easy pour and storage.

### OTHER INVENTIONS

#### Vacuum storage device

Ritesh Ranjan and Saptarshi Sadhu, IIT Kharagpur

The Vacuum storage device for farmers' carts increases the shelf life of vegetables and fruits without the use of refrigeration.

#### Diabeto-Care

Yash Raj, IIT Dhanbad and Govind V. B., IIT Madras Diabeto-Care is an automatic machine that monitors glucose levels and ensures the proper dosage of insulin.

#### Transfer Tool

Aman Singhal, IIT Dharwad and Dinesh Jangid, IIT Bombay

Transfer Tool is a wheelchair add-on that can help patients transfer themselves from a wheelchair to a toilet or a bed.



### Sun Protect

Souritra Garai and Jay Shah, IIT Gandhinagar

Sun Protect is a smart sun visor that can improve driving comfort on sunny days, by automatically tracking and blocking the point of brightest glare.

### Med Mind

Arpita Kabra, IIT Gandhinagar and Lipika Gupta, IIT Guwahati

Med Mind is an automatic pill dispenser and cognitive monitoring device for patients who may be developing dementia.

### Hydrocheck

Priyanka Arora, IIT Goa and Gitika Sonker, IIT Guwahati

Hydrocheck is a smartwatch that monitors dehydration and advises the user to drink water.

### Easy carry

Anuj Singdi, IIT Madra and Jainam Shah, IIT Gandhinagar

Easy carry is a detachable and foldable basket for bicycles. This basket stays in a compact state when not in use and expands to a full-size basket whenever in need.

### Cleanseright

Devyani Maladkar, IIT Goa and Aishwarya Agarwal, IIT Bombay

Cleanseright is an inexpensive device that can be used to clean reusable sanitary pads.

### Heal It

Neha Priolkar, IIT Gandhinagar and Mann Goel, IIT Kharagpur

Heal It is a handheld device that cleans and seals minor cuts and scratches with the press of a button.

### Green Aid

Megha Agrawal, IIT Guwahati and Shikhar Prakash, IIT Madras

Green Aid is an emergency ration for disaster relief that contains a mix of dried porridge, seeds, yoghurt culture and a packet of clean water.

### Food buddy

Praveen Venkatesh and Chris Francis, IIT Gandhinagar

Food Buddy is a voice control system that lifts food from the tray to the user's mouth to help people with non-operable arms.



## INVENTIONS | 2022

*IIT GANDHINAGAR*

### WINNERS

#### Child Safety Seat

Sai Gowtham Tamminaina and Easwar Veeragandham from IIT Madras

A Child Safety Seat for motorcycles with a harness for the baby that protects the child's head and torso even when a motorcycle falls on the road. When the seat is not in use, it can be folded and converted into a box and used as a storage compartment.

#### Cool-o-Sapiens

Sagar Chavan and Pahul Singh from IIT Gandhinagar

The fans are arranged in a grid structure and have a control system that can control the speed and direction of rotation of each fan to obtain the desired pattern of airflow which includes the splitting of the airflow in different directions.

#### Device to unclog Sewage lines

Samarth Sachan and Rahul Kumar from IIT Kanpur

A device that unclogs sewage lines. This device will be useful for the sewage operators to drill through the clog and transport debris up to the manhole which can be collected in a container attached at the top and then disposed off.

### OTHER INVENTIONS

#### Sit Right Be Alright

Tarika Gupta, IIT Goa and Deepika Putta, IIT Madras

Seat cushion which gives feedback on posture through pressure measurements are obtained over an extended period from the four pressure sensors embedded into the cushion to detect poor posture.

#### Avakarika

Keerthi Sree Marrapu, IIT Kharagpur and Aditya Kumar, IIT Bombay  
Self-sealing biomedical trash can

#### GIaid

Daksh Adhar, IIT Guwahati and Aishwarya Omar, IIT Gandhinagar  
Direction of arrival aid for hearing aid users



### Carr-y-ease

Meet Thummar, IIT Gandhinagar and Pratik Raj, IIT (ISM) Dhanbad

Carry case for e-commerce deliveries on a motorcycle, with easy loading and unloading

### Liftsafe

Ekansh Somani and Yash Kokane, IIT Gandhinagar

Device to prevent injuries due to accidents during weightlifting

### Eco-friendly Safe to Use Stapler

Amitendra Singh and Ram Munde, IIT Delhi

Cardboard stapler pin and binding device

### Time It

Aditya Sugriv Kendre, IIT Bombay and Atul Kumar, IIT

Goa Device to avoid accidental medicine overdose



## INVENTIONS | 2022

*IIT BOMBAY*

### WINNERS

#### Smart Clubfoot Brace

Sripriya Konda and Shaan Sapru, IIT Kharagpur

A smart corrective brace for kids that will ensure a higher compliance rate, enabling every baby with clubfoot to sleep comfortably.

#### A Handpump with Integrated Reverse Osmosis Purification System

Arpit Upadhyay and Mohit Jajoriya, IIT Bombay

A device that can provide citizens with easy access to clean drinking water, especially those in rural areas as it is a solution which performs reverse osmosis without electricity.

#### Active Thermoregulatory Garment

Rahul Bansal, IIT Ropar, and Phalgun Vyas, IIT Madras

A lightweight, power-efficient, and user-friendly vest that allows the consumer to set the temperature of the vest as per their comfort.

### OTHER INVENTIONS

#### Temperature Regulating Outdoor Water Tank

Cover Anavart Pandya, IIT Gandhinagar

A multi-layered apparatus for rooftop water tanks designed to cool them in summer through evaporative cooling and warm them in winter with an additional insulating layer.

#### Bandage Application Device

Arya, IIT Gandhinagar and Som Vishwas Tambe

A dispensing device that offers two modes for dispensing either surgical tape alone or cotton strips with a surgical tape substrate, featuring a flow control mechanism and easy-to-tear cotton rolls.

#### Light Directing Tube

Varun Jillela, IIT Madras and Pranoti Pravin More, IIT Bombay

A tube light designed with motorized, highly reflective cylindrical shells that can be remotely controlled to adjust the direction of the light. It allows users to redirect the light emission to specific regions of a room, providing targeted illumination as needed.



### Manually Operated Vacuum Broom

MD Shahreyar Hannan, IIT Kharagpur and Saurabh Kandpal, IIT Patna

A broom with an integrated dustpan mechanism, using a pump-activated suction system near the bristles to directly collect debris into an internal chamber.

### Device for Locating People Using Advanced Navigation and Communication

Interface Sharad Vishwakarma, IIT Bombay and Darshan Sinnarkar

A compact communication device for hikers, featuring a screen that displays locations, distances, and walked pathways, aiding in reuniting separated hikers even without cellphone coverage, and it can interface with cell phones for text messaging.

### Method and Apparatus for Tamper Proofing Pilfer Proof Cap

Sameer Khan Mehar, IIT Gandhinagar and Girish kishore k, IIT Bombay

A protective ring designed to sit on the neck bead of standard bottle caps, covering the tamper-evident collar and deterring repackaging or tampering, with its design making it visibly damaged if tampered with.

### Mechanical Dog Feeder

Aditya Agarwal, IIT Delhi

A passive community dog feeder with a foot pedal and timer mechanism, allowing dogs to self-dispense kibbles and preventing overfeeding by reactivating the pedal every 20 minutes.





## INVENTIONS | 2023

*IIT BOMBAY*

### WINNERS

#### Automatic Gas Shut Off Knob

Chirag Satpathy, NIT Trichy and Rahul Singh, IIT Gandhinagar

A device that can be attached to the knob of a gas stove. This innovative device serves two primary functions: detecting gas leaks and providing remote control over the knob.

#### Evaporative Cooling Apparatus

Bhavana Moningi, IIT Bombay and Akanksha Saini, IIT Jammu

A prototype that has the remarkable ability to extend the shelf life of perishable food items through evaporative cooling, all without relying on electricity, while simultaneously purifying water.

#### Induction Stove Adapter

Roshni S and Anika Thayyil, IIT Madras

A support device for induction stove tops to addresses the incompatibility of traditional Indian cookware with induction stoves, particularly those with curved bases.

### OTHER INVENTIONS

#### Detachable Shoe Extension

Manas Agrawal, IIT Gandhinagar and Yuvraj Chugh, IIT Jammu

An extension designed to convert regular sports shoes into gum sole shoes, making them suitable for indoor games.

#### Pill Swallowing Device

Asfaq Jalal and Chinmay Thool, IIT Madras

A bottle that delivers a pill while the user is drinking water. It is aimed at easing swallowing, making it more comfortable and accessible for users. Additionally, the bottle serves as a practical storage solution for pills.

#### Urine Analyzer

Sharanya Garg, IIT Madras and Pratham Mishra, IIT Kharagpur

A strip dispenser and detector that can be easily attached to a toilet pot. This apparatus for analysing urine utilizes off-the-shelf urine strips to automatically calculate and display the test results.



### Automatic Switch Control

Pranadipan Sahoo, IIT Hyderabad and Kalipavan Y, NIT Puducherry

A device aimed at automating pre-existing switches in homes, specifically designed to assist individuals with limited mobility.

### Anti-Fogging Mask

Rohan Salunke, IIT Roorkee and Siva K M R, IIT Palakkad

An anti-fogging mask designed to prevent fogging on eyeglasses. This mask features a nose clip and air guide to direct airflow away from the upward direction.

### Twistlock Spanner Enhancer

Shreyansh Saraswat, NIT Hamirpur and Kshitij, IIT Jammu

An attachment that prevents the rotation of both the nut and bolt in the same direction, thereby solving the problem with just one hand and one tool.

### Neurostrength Toy

Samyukta Kagdelwar, IIT Kharagpur and Kushagra Chindak, IIT Bombay

A toy that measures children's muscle strength when pressure is applied to provide accurate measurement and tracking of muscle strength.



## INVENTIONS | 2023

*IIT JAMMU*

### WINNERS

#### Asthma Inhaler

Arvind P, IIT Madras and Muhammed Aslam S, NIT Calicut

A passive asthma inhaler that synchronizes the airflow with the release of medication, thereby increasing the efficacy of the medicine.

#### Vibration Damping Gloves

Nivedita Jha and Aditya Vikram Singh, IIT Jammu

A pair of gloves with a tuned system of integrated mass and gel on the dorsal side of the hand to address the issue of hand-arm related syndromes caused by vibrations from power tools and driving motorcycles.

#### Steam Operated Boil Inhibitor

Rishika Ranyal and Sanskar Purwar, IIT Jammu

A device that utilizes the steam generated from boiling milk to power a stirrer to break the surface tension of the milk's top layer, preventing spills and overflow.

### OTHER INVENTIONS

#### Breathable Cast Maker

Harshit and Ankit Datika, IIT Jammu

A prototype that creates channels parallel to the limb within the cast to improve ventilation.

#### Automatic Eyeglass Cleaner

Saattvik Thourwal, IIT Indore and Ashutosh Rath, NIT Rourkela

A practical device that serves two purposes: keeping glasses clean and providing a designated storage place for them.

#### Automatic Odour Eliminating Shoe Rack

Ashutosh Choudhary, IIT Gandhinagar and Diksha Kumari, NIT Rourkela

A shoe rack effectively eliminates odour-causing bacteria, leaving the shoes feeling fresh.

#### Flexi Safe Ear Wax Remover

Shah Harsh Alpeshbhai, IIT Bhubaneswar and Vishnu Vardhan, IIT Madras

An Improved Ear Wax Cleaner that ensures both safety and effectiveness in ear wax removal.



### Dry Bath for Dogs

Samyak Kumar, IIT Jammu and Kuril Sushmendra, IIT Jammu

A device that effectively cleans the feet of pets by wetting (brushing) and then drying them.

### Top Shelves Easy Access Cabinet

Patel Vraj Kanubhai, IIT Bombay and Dhyan Naik IIT Jodhpur

A device that enables users to retrieve items from high shelves using a stick and a conveyor belt system installed in the door.

### Cranked Adjustable Vegetable Chopper

Priyanshu Sahu, IIT Kharagpur and Kartheek Valeti, IIT Kharagpur

A device that utilizes a rotating crank to evenly cut vegetables into adjustable sizes in all three dimensions.



## INVENTIONS | 2023

*IIT GANDHINAGAR*

### WINNERS

#### [Wearable Breast Pump With A Cold Container](#)

Ishika Raj from IIT Gandhinagar and Madhvi Dubey from IIT Kharagpur

A device that can be attached to a bra and also serves as a storage device for breast milk.

#### [Take-Away Bag Transforming Into Platform](#)

Trishul from IIT Madras and Priyam Bhavsar from IIT Guwahati

A storage bag that can be converted into a flat surface, providing a convenient and stable platform for consuming meals.

#### [Add On To Helmet With Inflatable Neck Airbags](#)

Priya Sharma and Prabhnoor Singh, both from IIT Jammu

An add-on to a helmet, with inflatable neck airbags, is a solution in the form of a cushioning device designed to reduce the impact on the neck during accidents.

### OTHER INVENTIONS

#### [Inter-Convertible Walking And Seating Aid](#)

Anirvan Krishna and Pratham Vishwakarma, both from IIT Kharagpur

An assistive device that not only monitors their vitals but also provides physical support during emergencies.

#### [Machine Assisted Bricklaying](#)

Kunj Shah from NIT Surat and Manush Patel from NIT Trichy

A device that can hold multiple bricks and mortar to lay them efficiently.

#### [Safety Add-On Device For Sugar Cane Juice Machine](#)

Vikalp Agarwal and Karna Pardheev Sai, both from IIT Gandhinagar

A safety add-on device for sugar cane juice machines, which is a response system that will turn off the machine when a potential risk is detected.

#### [Spherical Roller For Cleaning](#)

Hashil Muhammed from NIT Calicut and Shah Faisal Khan from IIT Gandhinagar

A spherical roller for cleaning that effectively stores the dust while erasing the blackboard.



### [Wheelchair To Car Transfer Seat](#)

Bonkuri Venu from IIT Palakkad and Soumya Ranjan Behra from IIT Madras

A combination seat and board that can be attached to both the wheelchair and the car seat.

### [Cardboard Resizing Device](#)

Srijan Agrawal from IIT Kharagpur and Hrushikesh Joshi from IIT Bhubaneswar

A cardboard resizing device that assists in cutting used cardboard, enabling it to be repurposed.

### [Temperature Regulating Sleep Bag](#)

Arshita Mishra from NIT Rourkela

An innovative bedroll that regulates airflow and temperature, promoting a comfortable and healthy sleep environment.



## INVENTIONS | 2024

IIT GANDHINAGAR

### WINNERS

#### Communication Glove for Deafblind Users

Nageshwar Kumar and Chaitanya Tandon from IIT Jammu

A glove worn by deafblind users for real-time two-way communication with an unimpaired person based on the deafblind manual alphabets.

#### Vibrational Tooth Extraction Device

Kritika Patidar from IIT Jammu and Stavan Mehta from IIT Bombay

A device that facilitates tooth extraction by using vibrations at the natural frequency of the periodontal ligament, selectively breaking it and making the tooth mobile

#### Smart Sock for Peripheral Neuropathy

Krishna Chaitanya Myneni from IIT BHU and Adya Tripathi from Shiv Nadar University

A smart sock with integrated electrostimulation and blood flow monitoring to relieve pain, numbness, and balance issues in peripheral neuropathy patients.

#### RLS Treatment Device

Divya Patel from Karnavati University and Saket Joshi from Nirma University

An automatic device for the personalized treatment of Restless Leg Syndrome (RLS) that gives personalized electrostimulation.

### OTHER INVENTIONS

#### Skateboard Safety Attachment

Riya Jain from IIITDM Jabalpur and Rupak Banerjee from IIT Gandhinagar

An attachment to standard skateboards that reduces the risk of falling by detecting and controlling high acceleration.

### Handheld Device for Easier Band-Aid Application

Ojas Shrikant Madghe from IIT Hyderabad and Sajal Chuttani from BITS Pilani  
A handheld device that makes the process of applying band-aids easier.

### Manual Trash Compactor

Karan Bothra from ICT Mumbai and Naman Govil from NIT Trichy  
A manual trash compactor that compresses dry waste and holds it compressed.

### Collapsible Clean Air Enclosure

Neha Keshri from IIT Bombay and Vikranth Mallru from IIT Bhubaneswar  
A collapsible enclosure that provides clean air and can be placed on a bed or a stroller.

### Posture and Pill Swallowing Trainer

Kanika Gupta from IIT Jammu  
A device that helps people train to maintain correct posture and practice swallowing pills using placebos or medication pills with gentle water supply.

### Mango Plucking and Packing Device

Shruti Ramchandra Dalvi from IIT Kanpur and Om Kulthe from SVNIT Surat  
A device that plucks mangoes without manual tugging and sleeves them with expandable fruit foam simultaneously.





## INVENTIONS | 2024

*IIT BOMBAY*

### WINNERS

#### Muscle Pain and Cramp Relief Device

Ishan from IIT Gandhinagar and Vrushti from Nirma University  
Current solutions for muscle pain and cramps provide only temporary relief and don't address the root causes. A lasting solution is needed to relieve pain and strengthen muscles.

#### Improved Food Delivery Bag

Sheersh from IIT Delhi  
Existing food delivery bags are inefficient and environmentally harmful, often failing to prevent spillage and supporting paper containers.

#### Soldering Aid

Sahil from IIT Jammu and Harshada from IIT Gandhinagar  
Users need both hands and additional support while soldering, causing inefficiency and potential safety issues like burns from the heated iron.

### OTHER INVENTIONS

#### Food Reminder Device

Sarthak from MITID and Vaanee  
People often forget about their food.

#### Coconut Kernel Scraper

Khushi from IIT Jammu and Diya from ADYPSOE Pune  
Obtaining coconut kernel and its scrape is inconvenient and unsafe.

#### Object Locator for Cramped Spaces

Sathyapriya from IIT Madras and Adarsh from IIT (BHU) Varanasi  
Locating and retrieving objects under cramped spaces is difficult.

### Liquid Dispenser

Tanmay from PEC, Chandigarh and Vardhan from IIT Indore  
Inaccuracy, inefficiency, and inconvenience in dispensing liquids.

### Egg Peeler

Nayani Om Swarup from IIT Kanpur and Ananthakrishnan from IIT Palakkad  
Peeling eggs is cumbersome, time-consuming, and frustrating.

### Waste Management Solution

Yash from IIT Jodhpur and Vedant from IIT Hyderabad  
Overflowing garbage and inefficient waste management.

### Muruku and Sev Making Aid

Gowtham from NIT Andhra Pradesh and Shalbonny from NIT Rourkela  
Avoid exposure to hot fumes while making muruku and sev.



## INVENTIONS | 2024

*IIT Jammu*

### WINNERS

#### Multi-Drug Injector

Khushboo Kanwar Rathore from IIT Jammu and Varun Manoj Rawat from NIT Trichy  
A device that mixes and injects two fluids instantly using a double-piston system with chambers. It ensures precise dosing, variable mixing ratios, and effective mixing through built-in channels and a special membrane.

#### Affordable Braille Display Device

Aayush Bhansali from IIT Mandi and Abhishek Kumar from IIT Madras  
A faster, simpler, and affordable Braille display device.

#### Adjustable Ankle Joint

Supragy Mishra from MIT and Keya Shah from GCET  
Ankle joint with adjustable stiffness to overcome rigidity.

#### Crepe Bandage Applicator

Honey Baranwal from JIIT Noida and Mayur Kumar from IITDM Jabalpur  
A crepe bandage applicator with an anchor strap.

### OTHER INVENTIONS

#### Toilet Seat Cleaning Mechanism

Dev Raval from Nirma and Anurag Ninawe from VNIT Nagpur  
A hydraulic push pedal operated wiping mechanism to clean the toilet seat.

#### Improved Knee Brace

Preksha Pandya from NIT Surat and Anirudhan S from IIT Tirupati  
Improved knee brace for patella dislocation with dynamic stiffness.

### Sanitary Pad Disposal Mechanism

Mukesh Dewangan from IIT Gandhinagar and Priyanshi from IIT Bombay  
Integrating the disposal mechanism in conventional sanitary pads.

### Self Lubricating Tampon

Ekta Sachan from NIFT Kangra and Aditya Jaiswal from IIT Delhi  
A self-lubricating tampon.

### Sit-Stand Assist

Naveen Pal from IIT Gandhinagar and Prabhat Kumar from IIT Hyderabad  
A sit-stand assist that is less bulky and easy to use.

### Multi-Directional Flex Sensor

Romit Mohane from IIT Gandhinagar and Vinati Mehta from Nirma University  
A flexible, liquid-based multi-directional flex sensor.