



GETA  
YOUNG  
SCIENTIST  
PROGRAM  
Grooming Student Innovators for the Nation

# GYS *Avishkar* AWARDS 2025

A National Innovations Projects Competition Online



**Awardees Booklet**  
3rd Edition  
October 2025



[www.YoungScientistIndia.org](http://www.YoungScientistIndia.org)



## Celebrating Student Innovations...

Dear Young Scientists,

Heartiest congratulations to the winners of the **GYS Avishkar Awards 2025**, and cheers to all participants! Curiosity, creativity and the courage to try are the first steps to becoming a true Innovator. I also acknowledge the invaluable support of **Guide Teachers** and **Parents** whose mentorship and encouragement help students dream big, explore boldly, and bring ideas to life. Teachers are the true enablers of Innovation, guiding students through challenges, fostering critical thinking, and nurturing the creativity that can transform the world.

Innovation in India has never been more exciting. Government initiatives such as **Atal Innovation Mission, Anusandhan National Research Foundation** and **Startup India** are providing resources, mentorship, and funding to nurture creative solutions. Private patrons and organizations supporting programs like GYS further amplify these opportunities, enabling students to showcase their innovations, gain recognition, and scale their ideas for real-world impact.

The GETA Young Scientist (GYS) Program, since its launch in 2022, has grown into a vibrant platform for nurturing Student Innovation. This year, the Avishkar Awards received over **1,000 Innovations from 26 States**, thanks to the collaboration with **Andhra Pradesh State Council of Science & Technology (APCOST)** and **Arunachal Pradesh State Council for Science and Technology (APSCS&T)**.

The winning projects reflected how young minds can turn simple ideas into powerful solutions across themes such as safety, sustainability, health, technology, and community well-being. Projects like the **Seat Belt School Bag for Two Wheelers** stood out for their clarity, detailed presentation and practical usefulness. Another Project **To Prevent Accident in Sharp Turn** impressed with a strong understanding of road safety and confident explanation. Yet another remarkable idea providing **Electricity in Railway Break Vans** addressed a hidden problem many never noticed. These innovations capture the true essence of the GYS Program – finding meaning at grassroot level and proving that innovation begins with observation, curiosity, and purpose.

A key strength of the GYS Program is our **expert panel of evaluators**, whose diverse experience from academia, research, and industry ensured every project received thorough feedback. Equally important is the tireless dedication of the GYS Team, the backbone of the Program's success. This year is even more special as we celebrate **20 years of GETA**, guided by **our Chairman, Mr. Murali Valiveti**, whose vision and commitment have shaped GYS into a platform fostering innovation, education and student creativity. I also sincerely thank **Mr. Amit Rastogi, CMD, NRDC**, for gracing GYS Avishkar Awards 2025 Ceremony in New Delhi as the Chief Guest. Our gratitude extends to everyone that helped make this Awards Ceremony possible, along with the Advisory Panel Members and Patrons for their constant support.

To all students, winners or participants, keep dreaming big, experiment boldly and nurture your curiosity. Your creativity, perseverance and determination are the sparks that will light India's path towards Atmanirbhar Bharat.



Bharath Valiveti, BA, PGDM,  
Trustee, GYS Program.

15 October 2025



# GETA YOUNG SCIENTIST PROGRAM

Grooming Student Innovators for the Nation

India's vision for Viksit Bharat 2047 rests on becoming Atmanirbhar Bharat – a self-reliant nation built on indigenous products and solutions. Research and innovation are the foundations of this journey, and schools play a vital role in nurturing this spirit among young minds.

The GETA Young Scientist Program (GYS), launched by GETA Service Trust under the leadership of Mr. Murali Valiveti, aims to inspire innovation at grassroot level among high school students.



GYS Program itself innovates on ways and means of achieving this mission. Works on raising Science Temper among students. Promotes awareness on Innovation concepts, approaches, training programs, competitions, and events. Builds platforms for Knowledge sharing. Conducts National Contests & Awards for High School Students as well as Teachers on Problem Identification, Solution Design, Articulation, and Project Presentation.

Since its launch in January 2022, the program has conducted 630+ events across 26 states, engaging over 63,000 students. Through awareness, contests, and training, GYS continues to strengthen India's innovation ecosystem.

## GYS Wednesday Online Science Quizzes

To spark scientific curiosity, Online Science Quizzes are held every Wednesday at 7 PM. Each quiz features 25 multiple-choice questions from grades 6-10, answered in 20 minutes. Since its launch on 26 January 2022, 50,000+ quizzes have been taken and 16,000+ digital certificates issued nation-wide.



## GYS CHARAKA SCIENCE MEDAL 2025 A National Online Quiz Contest

Every 50 weeks, there is a Mega Science Quiz to win the GYS Charaka Science Medal. Conducted in two phases where the preliminary round is an online multiple choice quiz of up to 100 questions followed by a Live Quiz for the Finalists. It is a great fun to watch the fumes, anxiety, and close contests among the students. Winners are felicitated with Trophies, Certificates, and Cash Awards.

Many students are intelligent, but with poor articulation. To succeed in life, presentation is an important skill to acquire.



GYS Talks is a platform similar to the popular TED Talks, but for Indian High School Students on topics related to Science, Innovation, and Aspirations. Regular National Contests are conducted online as Elocution or Video submissions. They are published on the GYS Talks YouTube Channel. GYS Talks platform is also open to Teachers and Educators.

## GYS Swaminadhan Science Day Talent Test

Celebrated annually on 28 February, GYS Swaminadhan Science Day Talent Test honors Science Day through national contests for students and teachers. Each year features a unique STEM or innovation-related theme, with winners receiving trophies, certificates, and cash awards.

# GYS Avishkar AWARDS 2025

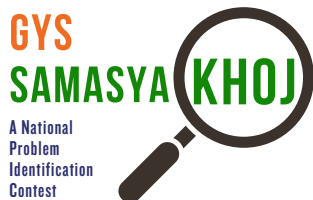
Grooming Student Innovators for the Nation

The pinnacle of all efforts of GETA Young Scientist Program is GYS Avishkar Awards where we bring out Innovations themselves. Students from 6th to 12th standards take part in this National Online Innovation Projects Competition every year. Since the inception, **100 Innovations** have been recognized and dedicated to the nation.



GYS Avishkar Awards Ceremony

While entries are submitted from all over the country, experienced Panelists from Academia & Industry evaluate these Ideas & Innovations on parameters like genuineness, newness, marketability, and submission quality. Trophies, Certificates, and lucrative Cash Awards are handed-over in an Annual Event. Guide Teachers of winning projects are also rewarded in Avishkar. An Awards Booklet is published each year presenting successful Innovations.



To innovate, a problem or need must be clearly understood.

Samasya Khoj is

a national contest that builds observation and problem-definition skills. Participants describe issues - where they occur, how often, who is affected, and possible risks - without solving them. Regular participation in Samasya Khoj sharpens innovation thinking. Outstanding entries are honored with Mementos, Certificates, and Cash Awards inspiring students to identify real-world challenges.

Teachers are the Nation Builders. Student Innovation is possible only under the Guidance of Teachers. So, it is vital to recognize and motivate



Teachers that go beyond books and encourage Students to Innovate. GYS Guru Puraskar Awards competition is organized around the Teacher's Day in September every year felicitating talent and initiative among Teachers. Written Essays, Video Essays, Online Debates are a few methods adopted. Recognitions include Trophies, Certificates, and Cash Awards.



GYS Guru Puraskar Awards Ceremony



Science Clubs in Educational Institutions have been a practice for ages. GETA Young Scientist

Talent Clubs, in short, GYST Clubs are yet another platform in High Schools where students get information to their fingertips. Announcements on Science & Innovation Competitions, Events, Study Materials, and Reference Projects are shared with GYST Club Members regularly. Seminars, Workshops, Science Exhibitions, STEM Lab Visits, Industrial Visits, Inter-Club Contests are facilitated for GYST Club members.



GYST Club Workshop

## GYS Innovation Knowledge Base

To promote idea exchange, the GYS Innovation Knowledge Base compiled 8,000+ student projects so far from national contests like GYS Avishkar, INSPIRE MANAK, NCSC, IGNITE, NIF Grassroots Innovation Fests, etc. Available on Telegram, it helps teachers and students explore past innovations and get inspired to create new ones.



Library is a place of knowledge and wisdom. The GYS Digital Library offers

free access to relevant science and innovation resources in one place – articles, infographics, books, and magazines. It allows students and teachers to search, read, and download educational materials (available in public domain) with ease via a Telegram Channel.

## The Great Indian Scientists Series

Bharat is a country of ancient wisdom, a land of Great Rishis, Gurus, Mathematicians, and Scientists. Celebrating India's scientific legacy, The Great Indian Scientists Series features age-old gurus from Charaka, Bhaskara, Agastya, Aryabhatta to modern day scientists like CV Raman, M Visvesvarayya, and Vikram Sarabhai. Through infographics, flyers, playlists, and quizzes, the series highlights their work as an inspiration for future innovators.

## GETA Young Scientist Youtube Channel

The GYS YouTube Channel is a digital home for all program activities – Avishkar, GYS Talks, Guru Puraskar and more. It features a comprehensive coverage of videos on Innovation and Science Projects. There are 20+ playlists that guide students through competitions like VVM, INSPIRE MANAK, and NCSC. Regular updates and live event streams make it a one-stop hub for science and innovation content.

## Young Scientist India Magazine

Young Scientist India is a monthly magazine dedicated to sparking curiosity and nurturing innovation among high school students. Published in English, it is a treasure trove for Teachers and Students alike aiding their journey of Innovation.



Young Scientist India Magazine Covers

Each edition features a wide range of Articles, Innovation Training Modules, Profiles of Indian Scientists, Indian Inventions & Innovations, and stories from the past breakthroughs to spark creativity. Students can stay updated with Science & Innovation Calendars, S&I days, Competitions, Contests and GYST Club events. Interactive sections like quizzes, brain teasers, puzzles, and Sudoku challenge young minds, while guidance on various awards highlight opportunities for talent recognition. With this rich mix, Young Scientist India empowers students to learn, experiment, and innovate.

## GYS Social Media Channels

Reaching students across India, GYS connects through Facebook, Instagram, X, YouTube and WhatsApp, ensuring timely updates and engagement. In just four years, over 90 lakh messages have been shared, spreading news about contests, events and innovation opportunities. This active digital presence keeps students and teachers informed and inspired.



# INNOVATION INDEX

## 1st Prize

**To Prevent Accident in Sharp Turn** ..... Page 07

## 2nd Prize

**Provided Light and Fan in Goods Train  
Break Van in Indian Railways** ..... Page 08

## 3rd Prize

**Carry Comfort Belt** ..... Page 09

## Consolation Prizes

1. **Seat Belt School Bag for Two Wheelers**  
2. **Gynora** ..... Page 10

3. **Pine Needles Fire Starter Bricks**  
4. **Eco Friendly Time Saving White Packaging Helper** ..... Page 11

5. **UV Dry Boost**  
6. **MediBridge** ..... Page 12

7. **Jeevan Rakshak**  
8. **R-Brush** ..... Page 13

9. **Dadi Nani 2.0**  
10. **Beej Rakshak Yantra** ..... Page 14

11. **Atal Swachham**  
12. **VisionAir: Purifying Air the Natural Way** ..... Page 15

13. **Smart Parking**  
14. **MFTM – Multi Functional Trap Machine** ..... Page 16

15. **Ambin Chaka**  
16. **Zenair Air Purifier** ..... Page 17

17. **Robo Rail**  
18. **Traditional Monpa House with Thermal Insulation** ..... Page 18

19. **She Eye**  
20. **Women Safety Device in Two Wheeler Bikes** ..... Page 19

21. **Smokeless Nest**  
22. **Floating Bricks by Polythene Covers** ..... Page 20

# TO PREVENT ACCIDENT IN SHARP TURN

Guide Teacher  
**Mebian Gam**

School  
**Govt Higher Sec School,  
Hawai, Arunachal Pradesh**



**Jiwaaiso Bellai**  
11th Class



**Vivek Chowpranglum**  
**Khamblai**  
11th Class

## Project Synopsis

Sharp turns and hairpin bends often limit drivers' visibility, leading to dangerous head-on collisions. To reduce this risk, the project uses a simple, low-cost mechanism based on water pressure. A magnet inside a pipe activates a magnetic switch when a vehicle passes over it, automatically turning on an indicator light to alert oncoming traffic.

## Problem Narration

In hilly or narrow roads, drivers often cannot see vehicles approaching from the opposite direction, especially around blind curves. These spots frequently cause serious accidents. The problem is worse for students and daily commuters on bikes or scooters. The project aims to provide a simple, low-maintenance safety system to prevent collisions on such dangerous turns.

## Solution Description

The device works through a pressure-based magnetic signaling system. A flexible pipe is placed on the road before the curve, containing water and a small magnet. When a vehicle runs over the pipe, the pressure forces the magnet upward, activating a nearby magnetic switch connected to an indicator light placed at the curve. The light instantly turns on, warning vehicles approaching from the opposite direction that traffic is coming from the other side. A similar setup on the opposite lane provides two-way signaling. This system does not require complex electronics or power sources, making it easy to install and maintain in remote or hilly areas. It provides a practical, low-cost way to enhance road safety where visibility is poor.



## Solution Marketability

The project is highly cost-effective and easy to replicate using locally available materials. The estimated prototype cost is ₹10,000, and a set of four units can be produced for about ₹40,000. Its simplicity and affordability make it ideal for deployment by local administrations in hilly regions to prevent accidents at sharp turns.

Video Link  [ [CLICK HERE](#) ]

# PROVIDED LIGHT AND FAN IN GOODS TRAIN BREAK VAN IN INDIAN RAILWAYS

Guide Teacher  
**Jayee Sreekanth**

School  
**Railway High School,  
Guntakal, Andhra Pradesh**



**Jayee Lalith Siva Sai**  
9th Class

## Project Synopsis

Goods train brake vans in Indian Railways lack basic facilities like lighting and fans, forcing guards to work in darkness and discomfort. This project introduces a simple, sustainable system that generates electricity through a dynamo connected to the train's wheels. The energy powers lights, a fan, and charging ports, ensuring better working conditions for guards.

## Problem Narration

Goods train guards face severe challenges while monitoring train movements at night. The brake van lacks lighting and ventilation, especially when the train halts far from stations. During stops, there is no airflow or visibility, making it difficult for guards to record train data safely. A self-sufficient system was needed to provide light and fan power.

## Solution Description

The project uses a dynamo-based energy generation system to power lights and fans in goods train brake vans. A small dynamo motor is connected to the van's wheel through a gear mechanism. As the train moves, the wheel's rotation drives the dynamo, converting mechanical energy into electrical energy through electromagnetic induction. This energy is stored in a battery for later use. When the train halts, the stored power supplies electricity to LED lights, a fan, and USB charging ports via switches. A diode ensures unidirectional current flow, protecting the system, while a USB charging module regulates output voltage. The setup is built using simple materials—cardboard, switches, dynamo motor, diode, LED bulbs, fan, and battery—to create a working model. This innovative, eco-friendly design offers a reliable and cost-effective solution to improve the working environment for railway guards.



## Solution Marketability

The system is cost-effective, requiring only ₹800–₹1,000 for materials. It produces free, renewable electricity through motion, reducing energy dependency. The model can be easily replicated across goods trains to improve guard safety and comfort. Its simplicity, low maintenance, and sustainable design make it a practical solution for Indian Railways' brake vans nationwide.



## CARRY COMFORT BELT

Guide Teacher  
**Shivang Mandvia**

School  
**Vidya Varidhi Vidhyalaya EM  
High School, Nallasopara,  
Mumbai, Maharashtra**



**Mansi Chaurasiya**  
7th Class



**Anjali Yadav**  
7th Class

### Project Synopsis

“Carry Comfort” is an ergonomic belt that redistributes the weight of heavy school bags from the shoulders to the back and hips, reducing strain and improving posture. Built using sunboard, wooden support, and nylon straps, the design showed a 75% reduction in shoulder load in tests. It promotes comfort, focus, and better spinal health for students and travelers.

### Problem Narration

Many students carry school bags far heavier than recommended, leading to back pain, shoulder strain, and posture problems. Traditional backpacks place excessive pressure on the shoulders, affecting concentration and long-term health. With no affordable ergonomic options available, there is a pressing need for a simple, universal product that reduces strain and improves comfort while carrying heavy loads.

### Solution Description

“Carry Comfort” is a wearable belt system designed to shift the load of a school or travel bag from the shoulders to the hips and back. It uses a 10 mm thick sunboard panel supported by a perpendicular wooden brace to distribute weight evenly. Adjustable nylon straps connect the bag to the user’s waist, maintaining balance and stability while walking. A pressure-sensor test using Arduino showed a 75% reduction in shoulder strain compared to conventional bags. The design was developed through CAD modeling in Onshape for precision and scalability. It is compatible with most existing backpacks, lightweight, and easy to wear. The belt provides comfort and support for students, workers, and travelers alike. Minor discomfort during running is being addressed in future versions. Overall, it’s a low-cost, effective solution that promotes better posture, reduces fatigue, and enhances daily well-being.



### Solution Marketability

Carry Comfort is affordable and easy to mass-produce using locally available materials like sunboard, wood, and nylon. The prototype cost is low, and small workshops or vocational centers can manufacture it without advanced machinery. At an estimated ₹250–₹300 per unit, it offers wide market potential among students, delivery workers, and travelers, creating both health benefits and livelihood opportunities.

# CONSOLATION WINNERS

## SEAT BELT SCHOOL BAG FOR TWO WHEELERS

Guide Teacher  
**SU Kenny Hokom**

School  
**Vivekananda Kendra Vidyalaya,  
Basar, Arunachal Pradesh**



**KM Pia Basar**  
8th Class

### Project Synopsis

The Seat Belt School Bag integrates a safety harness directly into a child's school bag to protect pillion riders on two-wheelers. Lightweight and ergonomic, it secures children during sudden brakes or sharp turns, includes reflective strips for visibility, and can be adapted to most bikes using a simple, community-friendly modification.

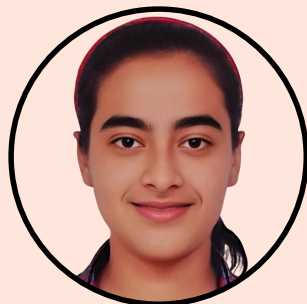
### Problem Narration

Many children travel unsecured on two-wheelers, increasing the risk of falls or injuries. Parents often rely on makeshift methods, while affordable, child-specific restraint solutions are unavailable. Daily commutes pose significant safety hazards, especially in rural and urban areas with heavy two-wheeler use.

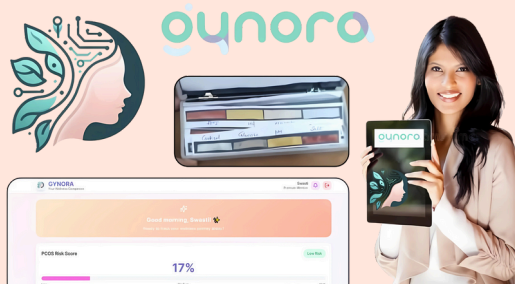
### Solution Description

The bag's built-in seat belt fastens to the rider's waist or vehicle frame, preventing sudden falls. It is ergonomic, adjustable, and uses durable, child-safe materials. Reflective strips enhance night visibility, and the DIY design allows easy modification of existing school bags at minimal cost, making safety accessible for all families.

Video Link  [ [CLICK HERE](#) ]



**Swasti Sharma**  
11th Class



## GYNORA

Guide Teacher  
**Charu Dhodi**

School  
**Darbari Lal DAV Model  
School, Pitampura,  
Delhi**

### Project Synopsis

Gynora is an AI-powered hormonal health platform paired with a 4-in-1 home testing kit, designed for early detection of PCOS in young women. It combines facial scanning, symptom tracking, and sweat/saliva-based hormone analysis. The app calculates a personalized PCOS risk score and provides AI-driven coaching, wellness tips, and downloadable health reports.

### Problem Narration

PCOS causes irregular periods, acne, fatigue, and weight issues, but symptoms are often overlooked. Clinical detection is costly and inaccessible for many, delaying diagnosis and worsening long-term health. Early identification and personalized guidance are critical for young women's hormonal health.

### Solution Description

Gynora integrates a mobile app with facial scan analysis and a 4-in-1 sweat/saliva test strip measuring cortisol, glucose, salt, and pH. Users input results into the app, which merges data to calculate a dynamic PCOS risk score. The AI coach provides diet, fitness, wellness advice, reminders, and shareable health reports.

# CONSOLATION WINNERS

## PINE NEEDLES FIRE STARTER BRICKS

Guide Teacher  
**Indra Kumar**

School  
**Govt Sec School, Tawang,  
Arunachal Pradesh**



**Tenzin Yangzom**  
9th Class

### Project Synopsis

This project converts dry pine needles in Tawang into eco-friendly fire starter bricks. Shredded needles are mixed with natural or recycled wax and molded into compact, lightweight bricks. They are easy to ignite, smokeless, non-toxic, and provide a low-cost, sustainable alternative to LPG and kerosene, particularly in high-altitude areas.

### Problem Narration

Accumulated dry pine needles pose a serious forest fire hazard in Tawang. Meanwhile, communities struggle to access affordable, sustainable energy for cooking and heating. Lack of livelihood opportunities worsens poverty, especially among women and youth. A simple, eco-friendly energy solution is needed.

### Solution Description

Collected pine needles are cleaned, shredded, and combined with wax to form bricks. Optional binders improve texture and ignition. The compact bricks burn efficiently, are easy to handle, and can be produced by local SHGs, women's cooperatives, and unemployed youth, providing both environmental and economic benefits.

Video Link  [ [CLICK HERE](#) ]



**Tachok Nayam**  
10th Class

## ECO-FRIENDLY TIME-SAVING WHITE PACKAGING HELPER



Guide Teacher  
**Hage Yamang**

School  
**PM Shri Govt Higher Sec School,  
Itanagar, Arunachal Pradesh**

### Project Synopsis

This manually operated device simplifies packaging of white grains like dal and rice. Made from recycled materials such as toy wheels, waste wood, rice bags, and metal sheets, it is eco-friendly, low-cost, and allows one person to complete tasks that previously required multiple workers, saving both time and labor.

### Problem Narration

Traditional packaging of white grains is labor-intensive, often needing 3–6 people, increasing costs and slowing productivity. Small-scale farmers and producers struggle to efficiently package products, limiting output and profitability. A simple, low-cost, and efficient solution is needed.

### Solution Description

The device uses a manually operated mechanism with recycled materials to streamline packaging. One person can operate it efficiently, reducing labor and time. Its low-cost construction (₹20) and simplicity make it accessible for small-scale producers, enhancing productivity while promoting eco-friendly reuse of waste materials.



# CONSOLATION WINNERS

## UV DRY BOOST

Guide Teacher  
**Narendra Singh Rawat**

School  
**Bharatiya Vidya Mandir  
Sr Sec School, Udham  
Singh Nagar, Punjab**



**Yatharth**  
9th Class

### Project Synopsis

UV Dry Boost is a dual-action shoe drying and sanitizing device designed for wet footwear during rainy seasons. A rotating plate exposes shoes to UV rays, killing fungi, bacteria, and viruses, while a hot air dryer at 35–40°C accelerates drying without damaging materials. It is safe, effective, and ensures hygienic, dry shoes for daily use.

### Problem Narration

Wet shoes during rain create discomfort and promote fungal and bacterial growth, leading to athlete's foot, odors, skin irritations, and reduced productivity. Traditional drying methods are slow, uneven, and do not sanitize, leaving users exposed to health risks and inconvenience.

### Solution Description

UV Dry Boost combines 360-degree shoe rotation, UV sterilization, and controlled hot air drying to quickly dry and sanitize footwear. The device accommodates various shoe types, prevents microbial infections, and ensures comfortable, hygienic use during rainy and damp conditions.

Video Link  [ [CLICK HERE](#) ]



**Yogesh Prasad**  
9th Class



## MEDIBRIDGE

Guide Teacher  
**Sunny Yadav**

School  
**Kendriya Vidyalaya  
No 3, New Delhi**

### Project Synopsis

MediBridge is a technology-driven platform that safely collects, verifies, and redistributes unused medicines to underprivileged communities. Donors upload medicine details via a user-friendly interface, while the system tracks demand, matches recipients, and provides real-time notifications. By reducing waste, improving access, and promoting transparency, it bridges the gap between surplus and scarcity sustainably.

### Problem Narration

Millions of usable medicines go to waste annually, while low-income communities lack access to essential drugs. Improper disposal harms the environment, and no centralized, trusted system exists to collect, verify, and redistribute surplus medicines efficiently and safely.

### Solution Description

MediBridge enables donors to safely contribute unused medicines through a web portal, while automated checks and matching algorithms ensure proper allocation to verified recipients. Real-time tracking and notifications maintain transparency, reducing wastage, enhancing healthcare access, and supporting responsible medicine consumption.

# CONSOLATION WINNERS

## JEEVAN RAKSHAK DIRECTION-CONTROLLED VEHICLE

Guide Teacher  
**Rumeet Bhatnagar**

School  
**Sunbeam Suncity  
School, Varanasi,  
Uttar Pradesh**



**Eashan Maurya**  
10th Class

### Project Synopsis

Jeevan Rakshak is a low-cost, sensor-based safety device designed to prevent wrong-way driving on highways and one-way roads. Using a reflective photoelectric sensor and roadside reflector, the system detects vehicles moving in restricted directions and cuts off ignition instantly. It is practical, cost-effective, and can be implemented in cars, buses, and trucks, enhancing road safety.

### Problem Narration

Wrong-way driving causes thousands of road fatalities in India annually. Traditional measures like signboards, rumble strips, and policing are often ineffective, especially at night or in low visibility. There is no automated, reliable system to prevent vehicles from entering restricted directions.

### Solution Description

Jeevan Rakshak uses a reflective photoelectric sensor and roadside reflector to detect wrong-way driving. When a vehicle is moving incorrectly, the system instantly cuts off the ignition. This affordable, tamper-proof device can be integrated into any vehicle to prevent accidents effectively.

Video Link  [ [CLICK HERE](#) ]



**Alok Kushwaha**  
8th Class

## R-BRUSH (REUSABLE BRUSH)

Guide Teacher  
**Indra Chandra Kalindi**

School  
**SMS Dutta Memorial  
Nosegay Public School,  
Khatimai, Uttarakhand**



### Project Synopsis

R-Brush is an eco-friendly toothbrush designed to reduce plastic waste. Its reusable body allows only the bristle head to be replaced, minimizing material use, lowering manufacturing and transport emissions, and reducing landfill waste. This sustainable innovation promotes environmental responsibility while maintaining affordable daily oral care.

### Problem Narration

Toothbrushes are made of nearly 99% plastic, replaced every 3–4 months, generating billions of units annually. Most are discarded after short use, contributing to massive plastic waste, carbon emissions, and environmental pollution, highlighting the need for a sustainable, reusable solution.

### Solution Description

R-Brush separates the bristle head from the reusable body. Users rotate to remove the old head and attach a new one, similar to a nut and screw. The body can be reused multiple times, cutting plastic usage, lowering costs (~₹20 per replacement) and enabling carbon savings.

# CONSOLATION WINNERS

## DADI NANI 2.0

Guide Teacher  
**Charu Dhodi**

School  
**Darbari Lal DAV Model  
School, Pitampura,  
New Delhi**



**Nitye Bansal**  
8th Class

### Project Synopsis

Dadi Nani 2.0 is an interactive puzzle game using voice technology to revive India's folk tales and cultural heritage. Players solve puzzles, unlock stories, and experience a "virtual grandmother" narrating customs, festivals, and moral lessons, making cultural learning immersive, fun, and intergenerational.

### Problem Narration

Modern children are increasingly disconnected from traditional stories and intergenerational learning. Over 50% of cultural knowledge is lost in some communities, and 220+ languages are endangered. Conventional games and storytelling fail to engage youth effectively.

### Solution Description

The game integrates an AI voice companion that narrates folk tales, explains customs and shares moral lessons. Players interact via smart speakers or mobile devices, choose alternate endings and unlock stories through gameplay, bridging generations while preserving heritage in an engaging, gamified format.

Video Link  [ [CLICK HERE](#) ]



**Aayush Jain**  
11th Class



## BEEJ RAKSHAK YANTRA

Guide Teacher  
**MS Sejal Gogia**

School  
**The SD Vidya School,  
Ambala Cantt, Haryana**

### Project Synopsis

Beej Rakshak Yantra is a low-cost, solar-powered seed preservation device for rural farmers. Using a DHT11 sensor and Arduino UNO, it detects humidity and activates a fan to reduce moisture. LED alerts indicate unsafe conditions. Compact and off-grid capable, the system preserves seed quality, improves germination, and reduces crop loss efficiently and sustainably.

### Problem Narration

Rural farmers face significant seed loss due to high humidity, temperature fluctuations, and poor storage practices. Spoilage, fungal growth, and reduced germination force farmers to buy new seeds, causing economic loss and threatening indigenous seed preservation.

### Solution Description

Beej Rakshak Yantra automatically monitors and regulates seed storage humidity using a DHT11 sensor and Arduino-controlled fan. Solar-powered and off-grid capable, it preserves seeds, reduces spoilage, improves germination, and provides visual alerts, offering an affordable, sustainable, and farmer-friendly solution.



# CONSOLATION WINNERS

## ATAL SWACHHAM

Guide Teacher  
**Pramod Kishor Patil**

School  
**RC Patel Sec School &  
JR College, Shirpur,  
Maharashtra**



**Tushar Nimab Suryavanshi**

12th Class

### Project Synopsis

Atal Swachham is an affordable, eco-friendly, all-in-one cleaning tool for rural India. Combining sweeping, scrubbing and water dispensing in a lightweight, modular broom made of bamboo and recycled plastic, it reduces cleaning effort by 50%, saves water, eliminates multiple tools, and empowers sanitation workers and homemakers, promoting efficiency, dignity, and sustainable grassroots innovation.

### Problem Narration

Sanitation workers and rural households often carry 3–5 plastic tools and heavy water buckets, causing fatigue, back strain and wasted time. Low-quality tools break easily, require extra water, and clutter small homes, making cleaning inefficient, physically taxing, and inconvenient.

### Solution Description

Atal Swachham integrates sweeping, scrubbing, and water dispensing into a single smart broom. Lightweight, modular and low-cost, it reduces effort, saves water, replaces multiple tools and is easy to store, providing an eco-friendly, practical and empowering cleaning solution for rural households and sanitation workers.

Video Link  [ [CLICK HERE](#) ]



**Bhumi**  
10th Class



## VISIONAIR: PURIFYING AIR THE NATURAL WAY

Guide Teacher  
**Sudesh Ahlawat**

School  
**DBRA SOSE, Dwarka,  
New Delhi**

### Project Synopsis

VisionAir introduces a Natural Smog Tower using eco-friendly, sustainable materials to purify air. A brushless DC fan draws polluted air through layered filters including activated charcoal, biochar, red soil, chalk powder, coconut husk, and cotton fiber. The purified air is released back, making the system low-cost, modular, and suitable for homes, schools, and small public spaces.

### Problem Narration

Air pollution in Delhi and other cities causes asthma, lung, and heart problems. Large smog towers are expensive, while conventional air purifiers consume high energy and cost too much, leaving smaller communities and households without affordable, sustainable air-cleaning solutions.

### Solution Description

The Natural Smog Tower filters air through sequential eco-friendly layers, removing gases, dust, and allergens. Modular design allows easy cleaning and replacement. Powered by a low-voltage fan, it is safe, cost-effective and maintainable. Future upgrades may include solar panels and air-quality sensors.

# CONSOLATION WINNERS

## SMART PARKING

Guide Teacher  
**Satish Vashisht**

School  
**Bharatiya Vidya Mandir Sr  
Sec School, Kitchlu Nagar,  
Punjab**



**Anant Parkash**  
10th Class

### Project Synopsis

Smart Parking is an AI-powered system that monitors parking slots in real-time using a USB webcam, OpenCV, and Arduino-controlled LEDs. A Flask web app shows slot availability, enables remote booking with QR code payments, and sends confirmations. This cost-effective, scalable solution reduces search time, minimizes congestion, and improves convenience for urban drivers.

### Problem Narration

Finding parking in urban areas is time-consuming due to growing vehicles and unorganized spaces. Drivers waste fuel and time, causing congestion and pollution. Traditional systems lack real-time updates or remote booking, leading to inefficiency and frustration for users.

### Solution Description

Smart Parking uses AI and computer vision to detect slot occupancy via a webcam. Arduino-controlled LEDs indicate availability, and a Flask web app allows users to view slots, book remotely, and pay via QR code. The system reduces congestion and improves user convenience.

Video Link  [ [CLICK HERE](#) ]



**Ishwarya Pandey**  
7th Class

## MFTM – MULTI FUNCTIONAL TRAP MACHINE



Guide Teacher  
**Mamta Singh**

School  
**Sunbeam Suncity  
School, Varanasi,  
Uttar Pradesh**

### Project Synopsis

MFTM, the Multi-Functional Trap Machine, is an eco-friendly device that safely traps rats and insects without harming them. Using a see-saw mechanism for rats and LED-attracted orange wax for insects, it prevents disease spread while preserving ecological balance. This innovative solution is safe, humane, and supports both public health and environmental sustainability.

### Problem Narration

Rats and insects spread diseases such as plague, malaria, and dengue. Conventional traps harm or kill these creatures, disrupting ecosystems and food chains. There is a need for a solution that controls pests without ecological damage or unnecessary cruelty.

### Solution Description

MFTM traps rats using a see-saw pipe mechanism and insects with LED-lit orange wax, capturing them safely without killing. This humane approach reduces disease transmission while preserving their role in ecosystems, ensuring an eco-friendly and sustainable method for pest management.

# CONSOLATION WINNERS

## AMBIN CHAKA

Guide Teacher  
**Juhi Gupta**

School  
**Vivekananda Kendra  
Vidyalaya, Balijan,  
Arunachal Pradesh**



**Rebecca Mosing**  
12th Class

### Project Synopsis

Ambin Chaka is a manual, user-friendly grain cleaning machine designed for rice, wheat, corn, millet, and other staples in Northeast India. It eliminates the need for electricity or specialized skills, reduces physical strain, and preserves cultural practices. The machine efficiently separates grains using three layers and interchangeable sieves, empowering housewives and older adults with a safer, sustainable solution.

### Problem Narration

Traditional grain cleaning in Northeast India is labor-intensive, time-consuming, and physically demanding, especially for housewives and older adults. Manual sieving causes fatigue, back and neck pain, and dust exposure, while commercial machines are expensive, often reliant on electricity, and inaccessible to rural communities.

### Solution Description

Ambin Chaka is a manual, skill-free grain cleaning machine that separates rice, wheat, corn, millet, and other grains efficiently using three layers and interchangeable sieves. It reduces physical strain, avoids electricity use, and provides an affordable, sustainable, and culturally appropriate solution for households.

Video Link  [ [CLICK HERE](#) ]

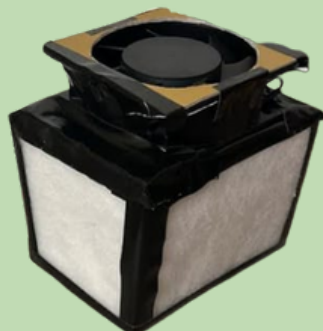


**Chinmayee Gawde**  
10th Class

## ZENAIR AIR PURIFIER

Guide Teacher  
**Geeta Narang**

School  
**JBCN International  
School, Borivali,  
Maharashtra**



### Project Synopsis

ZenAir is a portable, cost-effective air purifier addressing Mumbai's high pollution levels. Using prefilters, carbon filters, and HEPA filters, it effectively removes pollutants of various sizes, including fine dust and allergens. Lightweight, easy to maintain, and efficient, ZenAir ensures cleaner indoor air for homes, offices, and schools, offering a practical solution for daily use.

### Problem Narration

Mumbai, the 4th most polluted megacity, faces severe air pollution from vehicles, construction, and climate change. Nine out of ten people inhale contaminated air, leading to respiratory diseases, asthma, and weakened immunity, while conventional purifiers are costly, heavy, or inefficient.

### Solution Description

ZenAir combines prefilters, carbon filters, and HEPA filters with a central exhaust fan to purify indoor air effectively. Portable, lightweight, and affordable, it removes pollutants, allergens, and fine dust (0.3 microns), providing safer, cleaner air and improving daily living conditions.



# CONSOLATION WINNERS

## ROBO RAIL

Guide Teacher  
**Srinivas Srinu**

School  
**Montessori EM High  
School, Vidya Nagar,,  
Kurnool, Andhra Pradesh**



**M Kundanika**  
9th Class

### Project Synopsis

Robo Rail is a smart, sensor-based accident-prevention system that detects humans, animals, or obstacles on railway tracks in real time. Installed on engines, it uses Arduino UNO, GPS, motion sensors, buzzers, and wireless modules to send automatic alerts and activate train braking systems, preventing collisions even during fog, rain, or night operations.

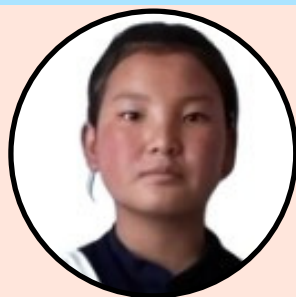
### Problem Narration

Accidents on railway tracks often occur near unmanned crossings or forest routes where drivers cannot detect obstacles early. Limited visibility, high speeds, and absence of real-time warning systems cause fatal collisions involving people, cattle, and wildlife, leading to heavy losses and delays.

### Solution Description

Robo Rail integrates ultrasonic sensors, Driver IC and voltage regulators to detect motion and process data. On identifying obstacles, it transmits GPS-based alerts to nearby stations and train engines, triggering buzzers and automatic braking. Powered by rechargeable batteries, it ensures continuous and autonomous safety monitoring.

Video Link  [ [CLICK HERE](#) ]



**Tenzin Choekyi**  
10th Class

## TRADITIONAL MONPA HOUSE

Guide Teacher  
**Shamsun Ansari**

School  
**Govt Sec School,  
Tawang, Arunachal  
Pradesh**



### Project Synopsis

The Traditional Monpa House uses locally available materials—wood, stone, mud, straw, and yak wool—to provide natural thermal insulation. Thick walls, wooden floors, and flat roofs retain heat, reducing dependence on artificial heating. This eco-friendly model demonstrates sustainable architecture that ensures comfort in harsh cold climates like Tawang while minimizing environmental impact.

### Problem Narration

Tawang experiences extremely cold winters, making daily life challenging. Conventional houses struggle to retain heat, leading to discomfort and heavy reliance on artificial heating. There is a need for housing solutions that naturally maintain warmth while minimizing environmental impact.

### Solution Description

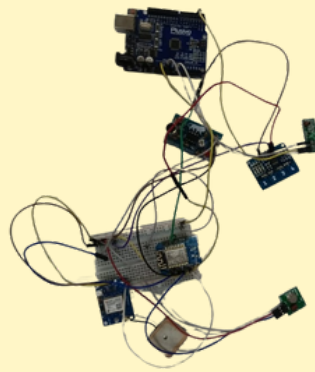
The model uses locally sourced wood, stone, mud, and insulation materials like straw and yak wool. Thick walls, wooden floors, and flat roofs trap heat efficiently, providing warmth naturally. This approach ensures eco-friendly, sustainable housing suited to Tawang's harsh cold climate.

# CONSOLATION WINNERS

## SHE EYE: A MULTI-LAYERED SAFETY NETWORK FOR WOMEN

Guide Teacher  
**Uma Prasad Dey**

School  
**Ramakrishna Mission  
Vidyapith, Purulia,  
West Bengal**



**Aranya Sujato**  
9th Class

### Project Synopsis

SHE-EYE is a real-time safety system for women, combining a wearable device, mobile app and AI-based surveillance. It detects distress through sound, movement and facial expressions, sending instant alerts via Wi-Fi, RF or LoRa. The system is affordable and designed for proactive personal and urban safety monitoring.

### Problem Narration

Women face harassment, stalking, and assault, often unable to manually trigger SOS tools. GPS may fail indoors, and CCTV only records events without reacting. Delayed responses put victims at risk, highlighting the need for a real-time, automatic safety system that works even when action is impossible.

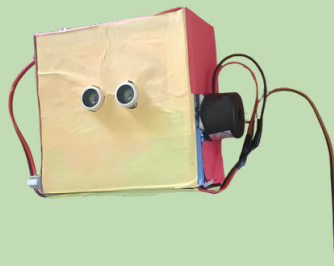
### Solution Description

Module A is a wearable with ESP8266, GPS, and a sound sensor, sending instant alerts with location via Telegram/email or RF/LoRa. Module B is a mobile app for SOS, tracking, and backup alerts. Module C monitors CCTV feeds using ONNX models to detect aggression or distress, generating real-time warnings for authorities.

Video Link  [ [CLICK HERE](#) ]



**M Yasaswini**  
9th Class



## WOMEN SAFETY DEVICE IN TWO WHEELER BIKES

Guide Teacher  
**MG Srinivasan**

School  
**ZPHS Redlapalli, Santhipuram,  
Andhra Pradesh**

### Project Synopsis

This device prevents accidents for women riding a pillion on two-wheelers by detecting loose chunnies or pallus that may get caught in the wheels. An ultrasonic sensor installed beneath the seat triggers a loud alarm and a red warning light on the handle when cloth approaches dangerously, alerting the rider and preventing falls and injuries.

### Problem Narration

Women riding on the back of two-wheelers often let their chunnies or pallus hang freely. These loose cloths can get entangled in the wheels, causing sudden falls, injuries, or even fatalities, creating a serious safety hazard during commutes.

### Solution Description

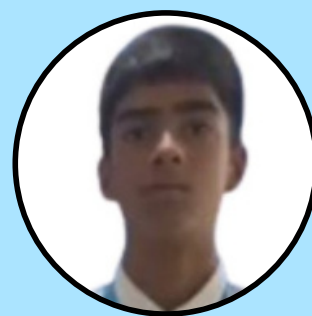
The safety device uses an ultrasonic sensor beneath the seat to detect approaching cloth. When triggered, it activates a loud alarm and a red warning light on the handle, immediately alerting the rider. This proactive system helps prevent accidents, ensuring safer two-wheeler rides for women.

# CONSOLATION WINNERS

## SMOKELESS NEST

Guide Teacher  
**Jyothish Kumar SY**

School  
**The Prodigies  
International School,  
Bangalore, Karnataka**



**Kotamraju Harshith Ram**  
8th Class

### Project Synopsis

Smokeless Nest is an affordable, automatic smoke detection and alert system using Arduino Uno, MQ-2 smoke sensor, buzzer, and email alerts. When smoke levels exceed safety thresholds, it sounds an alarm and sends instant notifications to users, even remotely. This device helps prevent fire accidents in homes, kitchens, hostels, and small spaces.

### Problem Narration

Accidental fires in homes and small spaces often go undetected when no one is present. Causes include electrical faults, gas leaks or unattended appliances. Delays in noticing smoke can lead to property damage, injuries or fatalities, highlighting the need for instant alerts.

### Solution Description

Smokeless Nest automatically detects smoke using an MQ-2 sensor and Arduino Uno. When unsafe levels are detected, it triggers a buzzer and sends instant email alerts to users, enabling rapid response and preventing potential fire hazards in homes and small spaces.

Video Link  [ [CLICK HERE](#) ]



**U Yoshini**  
9th Class

## FLOATING BRICKS BY POLYTHENE COVERS



Guide Teacher  
**M Bhagya Lakshmi**

School  
**LPCT Gujarati Vidhyalaya EM  
High School, Vijayawada,  
Andhra Pradesh**

### Project Synopsis

Floating bricks made from reused polythene covers provide an eco-friendly, cost-effective solution for constructing houses in flood-prone or earthquake-prone areas. Lightweight, buoyant, and durable, these bricks reduce environmental pollution by repurposing waste polythene, simplify transportation, and allow foundations to rise and fall with water levels, creating energy-efficient and sustainable building solutions.

### Problem Narration

Polythene waste is a major environmental pollutant, while building in flood-prone or high water table areas is challenging. Traditional bricks are heavy, non-buoyant, and expensive, making construction in such areas unsafe, labor-intensive, and prone to environmental degradation.

### Solution Description

This project converts discarded polythene covers into floating bricks wrapped around lightweight foam, creating buoyant, durable construction blocks. These bricks reduce waste, enable adaptable foundations for flood-prone regions, minimize CO<sub>2</sub> emissions and simplify transportation, offering an eco-friendly and practical building solution.



# Next 50 Innovative Ideas

1. Automatic Toilet Cleaning System	
2. Manhole Detection and Monitoring System	
3. AI Wildlife Alert System	
.....	Page 22
4. Smart Biodegradable Detector	
5. Introducing Orchidarium in Schools	
6. Powerless Speaker	
.....	Page 23
7. Life Saving Slippers from Snake Bites	
8. Innovative Disinfecting Straw	
9. Agro Electric Nexus	
.....	Page 24
10. Cellovera	
11. Smart Fem Infinity X	
12. Manual Weeding Machine	
.....	Page 25
13. Elderly and Disabled Friendly Wash Basin	
14. Auto Rain Retreat	
15. AI-Based Smart Washroom	
.....	Page 26
16. Farmer-Friendly Battery Operated Tilling and Sowing Machine	
17. Piezoelectric Footstep Power Generator	
18. GestureX	
.....	Page 27
19. Smart Multipurpose Sickle	
20. Poor Man's Car	
21. Eco Air Defender	
.....	Page 28
22. Smart Multipurpose Spinning Wheel	
23. Botanicus: IoT-based Smart Agricultural Robot	
24IoT-based Flood Detection System	
.....	Page 29
25. Water Leaked Detection and Valve Control System	
26. Mat Firefighter Set Temperature Monitoring Device	
27. IoT-enabled Contactless Dustbin with Intelligent Lid Mechanism	
.....	Page 30
28. Biometric Voting Machine	
29. Water Efficient Flush System	
30. Air Purifier System	
.....	Page 31
31. Used to Re-Use	
32. Agri Rover	
33. Intelligent Toilet Doors for Schools	
.....	Page 32
34. Portable Cooler	
35. Ashitizer – Sanitizer Made from Ash	
36. Child Safety Socket Locker	
.....	Page 33
37. Army Contingent Control System	
38. Thermoelectric Energy Harvesting System	
39. Safer Helmets for Workers Carrying Head Loads	
.....	Page 34
40. Recycling of Polythene Covers into Sheets	
41. Maa Care	
42. Bio Fibre	
.....	Page 35
43. Obstacle Detector Car to Avoid Accident without Human Control	
44. Save Cattles from Fire	
45. Dual Purpose Wheel Chair and Stretcher Bed for Hospitals	
.....	Page 36
46. Light Fidelity (Li-Fi) Project Prototype	
47. QR Key Finder	
48. Agro-Forestry Model in Hilly Region	
.....	Page 37
49. Composite Kitchen Waste Management	
50. Sadak Companion	
.....	Page 38

Bonus: Beyond the 25 Winners, here are the next 50 interesting ideas that reached up to final round in GYS Avishkar Awards 2025.

Link for videos of these innovations

[Youtube.com/@GETAYoungScientist](https://www.youtube.com/@GETAYoungScientist)

## AUTOMATIC TOILET CLEANING SYSTEM



Student: K Pavithra

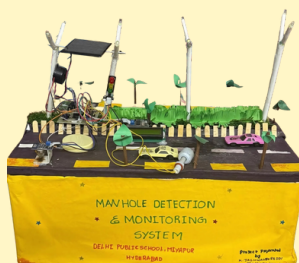
Class: 9th

Guide Teacher: V RajaGopal

School: Government High School, Pattampudur, Virudhunagar, Tamil Nadu



Public toilets are crucial for maintaining hygiene and sanitation in urban areas, but they often face unhygienic conditions due to irregular cleaning, lack of maintenance, and staff shortages. Manual cleaning is labor-intensive and exposes workers to harmful bacteria, leading to poor sanitation and increased infection risk. The Automatic Toilet Cleaner is a cost-effective, automated system that reduces human involvement, ensures consistent cleanliness, and saves water and time. This project supports Swachh Bharat Abhiyan and promotes smart city goals, promoting a healthier, safer, and cleaner environment. The system uses electronic control units and mechanical components to clean toilets efficiently, starting with a timer or sensor, followed by a solenoid valve, a 12V DC motor and a brush mechanism.



## MANHOLE DETECTION & MONITORING SYSTEM

Student: Kaipu Jashwanth Reddy

Class: 7th

Guide Teacher: P Swapna Reddy

School: Delhi Public School,  
Miyapur, Medchal, Telangana



During heavy floods, manholes are often opened, making it difficult to identify whether they are open or closed visually. This leads to people falling in and losing their lives. To address this issue, a long-term solution has been proposed. An IR sensor will be placed under the manholes, connected to an embedded system, monitor, and GSM sim800. When the manhole is open, the sensor sends an alert to the lighting system, turning the light red and emitting a buzzer sound. The GSM 800 will then send an alert message to the nearest government authority. Solar power stored electricity will be used to monitor the manhole during rainy seasons.

## AI WILDLIFE ALERT SYSTEM



Student: Fathima Minha

Class: 7th

Guide Teacher: Angel Getcia

School: Government High School,  
Puliambara, Gudalur, Nilgiris, Tamil Nadu



The AI Wildlife Alert System is a low-cost, easy-to-implement solution that uses PictoBlox's AI-based image classification to detect wild animals near villages, farms, or forest borders. The system processes images from a connected camera to identify animals like elephants and sends a notification alert to nearby residents or authorities. If the animal shows aggressive or abnormal behavior, it is urged away without causing harm. This method ensures safety, prevents crop and property damage, and protects wildlife by guiding them away from human areas. Traditional prevention methods are costly, time-consuming, and often ineffective.

## SMART BIODEGRADABLE DETECTOR

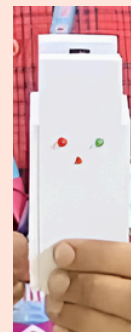


Student: Rishi Pratti

Class: 8th

Guide Teacher: Sekhar, Sridevi

School: Pride International School, Chirala, Bapatla, Andhra Pradesh



The Smart Biodegradable Food Wrapper Detector is a low-cost, quick solution that uses an IR LED transmitter and a TSOP sensor to determine if a plastic wrapper is biodegradable or not. Non-biodegradable plastics pollute soil, water, and air for centuries. The system uses an Arduino Nano, an IR LED, and two LEDs (green and red) to show results. If the wrapper is biodegradable, the Arduino turns on the green LED, indicating eco-friendly packaging. If it's non-biodegradable, the Arduino blocks the IR light, indicating harmful packaging. The project is fast, portable, and doesn't require chemical testing.



## INTRODUCING ORCHIDARIUM IN SCHOOLS

Student: Tungnya Hallang

Class: 9th

Guide Teacher: Pravrajika Prashantatmaprana

School: Ramakrishna Sarada Mission Girls School,  
Khonsa, Tirap, Arunachal Pradesh



Orchidariums are specialized areas in schools that cultivate and display orchids, providing optimal conditions for various species to thrive. Arunachal Pradesh, known as the "Orchid State of India," has the highest orchid diversity in India, with over 600 species found in its forests and mountainous regions. Orchids hold socio-religious importance for various tribes in the region, with some species used in traditional medicine and rituals. To introduce students to this treasure trove, rooftop-top Orchidariums can be established in schools, providing hands-on experience in growing, maintaining, and tending orchids, as well as knowledge about specific pot mixtures and commercializing orchid culture. Orchids are naturally available in various forms, and a systematic manual about each species collected should be maintained.

## POWERLESS SPEAKER



Student: Ihina Lingi

Class: 10th

Guide Teacher: Nitu Kumari Sharma

School: Vivekananda Kendra Vidyalaya,  
Tezu, Lohit, Arunachal Pradesh



The "Powerless Speaker" project is a powerless device that amplifies sound from a mobile phone using a bamboo tunnel and two tin containers as speakers. The device uses multiple reflection to increase sound volume, without requiring electricity. The idea was sparked by a lack of electricity in a village where children wanted to watch movies together. The cost-effective device is made from waste products like bamboo, tin containers, and aluminum foil, and is eco-friendly. It provides a louder voice for mobile phones in areas lacking electricity.



## LIFE SAVING SLIPPERS FROM THE SNAKE BITES



Student: Pilla Navya Sri

Class: 9th

Guide Teacher: Kanaka Mahalaxmi

School: MJPAPBCWR School (Girls),  
Nellimarla, Vizianagaram, Andhra Pradesh



The Life-Saving Slippers project is introducing a low-cost, eco-friendly solution to protect individuals from poisonous snake bites, particularly during nighttime. The slippers, equipped with vibrating motors and LED lights powered by small batteries, create continuous vibrations that scare snakes away. These LED lights provide visibility in dark areas, preventing accidental encounters. The project aims to find a safe and eco-friendly solution to protect students and staff from snake bites, especially in rural or forested areas. The project was inspired by a tragic incident where a student was bitten by a poisonous snake while walking to a dormitory, and the snake was later killed by staff.

## INNOVATIVE DISINFECTING STRAW



Student: Agnigundala Saranya

Class: 9th

Guide Teacher: Nukathoti Nageswara Rao

School: ZPHS Valaparla, Martur,  
Bapatla, Andhra Pradesh



This is a water purification device that uses a hollow fiber membrane filter to remove bacteria, viruses, and contaminants from water, making it safe to drink. The straw, made of materials like a filter, plastic housing, end caps, a drinking straw, and a pre-filter (optional), is designed to protect against diseases caused by E. coli, Giardia, cryptosporidium, cholera, typhoid, and other waterborne pathogens. It requires no electricity or chemicals and operates entirely mechanically, relying on suction through the straw to filter water instantly. This innovative solution is crucial, as millions of people worldwide are exposed to unsafe drinking water due to pollution from industrial, agricultural, and domestic sources.

## AGRO ELECTRIC NEXUS



Student: Charvi More

Class: 7th

Guide Teacher: Kartiki Kawale

School: Bhartiya Vidya Bhavan's NTPC Vidya Mandir,  
Mouda, Nagpur, Maharashtra



The idea proposes a closed-loop model for sustainable agricultural waste management, replacing open-field burning with resource recovery and value addition. The system uses heat and steam from controlled combustion of crop residues to sterilize agro-waste substrates, improve mushroom yield and generate electricity and battery storage. It also generates high-quality compost, biogas, and ply sheet production from processed waste fibers. The system integrates principles of microbial sterilisation, thermodynamics, electrochemical energy storage and aerobic decomposition to maximise benefits from a single waste source. The challenge is to design a modular, cost-effective, and easy-to-operate system that converts farm waste into multiple marketable products, creating local employment and improving energy access.

## CELLOVERA

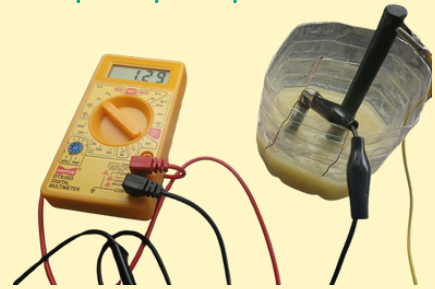


Student: Sanchi Bansal

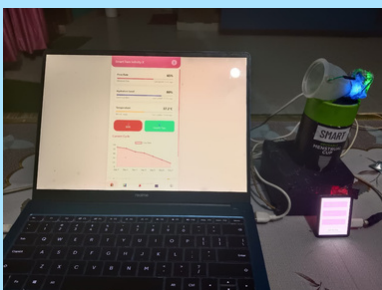
Class: 12th

Guide Teacher: Charu Dhodi

School: Darbari Lal Dav Model School,  
Pitampura, North West, Delhi



Cellovera is an eco-friendly solution that uses the natural gel inside aloe vera leaves to generate electricity. This innovative solution offers a green, sustainable alternative to traditional AA batteries, which are harmful and nonrenewable. Cellovera uses aloe vera gel as a natural electrolyte, generating up to 9 volts with just one leaf. The setup involves inserting copper and zinc electrodes into the gel, which can be amplified using a step-up transformer for increased output. Aloe vera has been scientifically observed to produce the highest voltage among plant-based options, making it a promising alternative to traditional batteries. The prototype involves extracting the gel and encasing it in a battery-like container for practical use. As the world increasingly relies on battery-powered gadgets, there is a pressing need for a clean, biodegradable and renewable alternative that can replace conventional batteries without compromising performance.



## SMART FEM INFINITY X

Student: Suryansh Yadav

Class: 10th

Guide Teacher: Urmila

School: SAH Educational Centre,  
Varanasi, Uttar Pradesh



Smart Fem Infinity X is a next-generation smart menstrual cup that combines hygiene, safety, and community support. It uses built-in UV-C sterilization to automatically clean the cup, ensuring maximum hygiene without extra equipment. The companion mobile app tracks cycles, provides reminders, and offers health tips tailored to each user. In emergencies, the community SOS map connects users to nearby volunteers. India produces around 12.3 billion disposable sanitary pads annually, creating 113,000 metric tons of non-biodegradable menstrual waste. Smart Fem Infinity X is an advanced health-tech menstrual care system that combines hygiene, safety, and intelligent health tracking. The core product is a reusable cup with a titanium-silver antimicrobial coating, preventing bacterial growth and ensuring long-term hygiene.

## MANUAL WEEDING MACHINE



Student: Duyu Empu

Class: 8th

Guide Teacher: Juhi Gupta

School: Vivekananda Kendra Vidyalyaya,  
Baliyan, Papumpare, Arunachal Pradesh



This project aims to develop a manual machine to tackle the issue of frequent weed cleaning in their school's vegetable and flower garden. The machine is ergonomically designed, adjustable for precise root removal, and made of durable materials for minimal maintenance. It saves time and labor, prevents weed regrowth by removing roots, and promotes healthy plant growth. The machine uses metallic wheels with spikes, a hedge trimmer blade, a long handle, long iron nails, and wheels to effectively remove weeds from roots, promoting a healthier and more sustainable garden ecosystem.



## ELDERLY AND DISABLED FRIENDLY WASH BASIN

Student: P.Lohitha

Class: 8th

Guide Teacher: Thaduri Sampath Kumar

School: ZPHS, Dammannapet, Gambhiraopet,

Rajanna Sircilla, Telangana



A major challenge for disabled, elderly, bedridden, or feeding mothers is cleaning their hands or mouth, as they struggle to reach wall-mounted basins, causing discomfort and hygiene issues. To address this, they designed a movable smart washbasin with height adjustment, a touch-free tap, and a mop that cleans both wet and dry floors. Local technicians dismantled the basin, tap, and mop using scrap remote-control car parts, enabling remote movement and height adjustment to suit the user. This reduces disease spread and improves patient comfort. Demonstrations in hospitals and homes received high satisfaction from doctors, nurses, and patients. The solution offers independence, hygiene, and comfort to those unable to reach traditional wall-mounted basins, making it valuable for healthcare and home-care settings.



## AUTO RAIN RETREAT

Student: Itta Bhavesh

Class: 6th

Guide Teacher: Chaithanya MN

School: The Prodigies International School,

Varthur, Bangalore, Karnataka



This is a low-cost solution designed to prevent clothes from getting wet during sudden rain. It uses an Arduino, a rain sensor, and a servo motor to detect droplets and send a signal to the Arduino. The motor then rotates the clothes hanger to a covered area, keeping clothes dry automatically even when no one is around. This affordable, easy-to-build project is ideal for homes in rainy regions and offers a practical use of technology to solve an everyday problem. It provides a simple, automatic way to protect clothes from unexpected rain without needing anyone present. The Auto Rain Retreat is smart and efficient, using basic tools and technology to solve a common issue faced by many families in heavy rainfall areas.

## AI BASED SMART WASHROOM



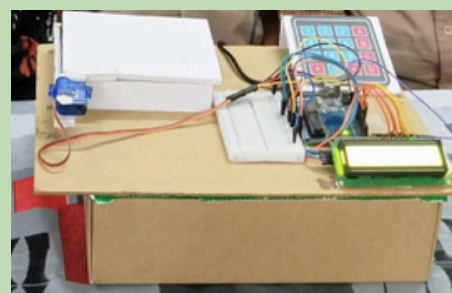
Student: S Yoga Sri

Class: 10th

Guide Teacher: K Synthiya

School: Govt Girls Higher Sec School,

Kundrathur, Krishnagiri, Tamil Nadu



The AI Based Smart Washroom is a system designed to provide safe, gender-specific access to women's washrooms in educational institutions and public facilities. It uses facial recognition to detect faces and identify gender, unlocking doors for females and locking them for males. This system enhances privacy, safety, and inclusivity by eliminating the need for manual checks or constant human monitoring. The system addresses the shortcomings of traditional locks and signage, ensuring only authorized individuals can enter. Future upgrades will incorporate recognition for more genders, and optional multi-factor authentication methods like RFID cards, mobile-based verification, or PIN entry can further enhance security.



## FARMER-FRIENDLY BATTERY OPERATED TILLING & SOWING MACHINE



Student: Saksham Bhatnagar

Class: 9th

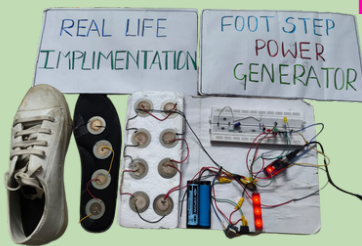
Guide Teacher: Divya Bhatnagar

School: Delhi Public School, Pal Road,  
Jodhpur, Rajasthan



The paper introduces a battery-operated "Tilling and Sowing Machine" as a solution to the labor-intensive farm tilling process. The machine is simple, portable, user-friendly, cost-effective, and efficient. It features a cylindrical metallic wheel with metal spikes for soil gripping and a lightweight design for easy control. The metal spikes also have holes for sowing seeds for even sowing. This fuel-free device is designed for Indian farmers with low incomes who struggle with manual labor and expensive equipment. The machine includes a comfortable seat, pocket for essentials, and a backup seeds basket. It also features a solar panel for charging and soil fertility monitoring.

## PIEZOELECTRIC FOOTSTEP POWER GENERATOR



Student: S.Nischal

Class: 9th

Guide Teacher: S. Prabhakar

School: De Paul EM School, Anakapalli,  
Vishakapatnam Dist., Andhra Pradesh



The global energy crisis is a significant concern, especially in India where over 1.4 billion people face insufficient power supply in rural and semi-urban areas. A potential solution is to convert mechanical energy from human footsteps into electricity using piezoelectric technology. This project consists of a footstep power generation mat made of multiple piezoelectric discs arranged under a flexible base plate. When a person steps on it, pressure is applied, generating AC voltage. This voltage is passed through a bridge rectifier, smoothed using capacitors and stored in a rechargeable battery or capacitor bank. An Arduino UNO is used to monitor voltage levels, count footsteps and display energy.

## GESTURE X

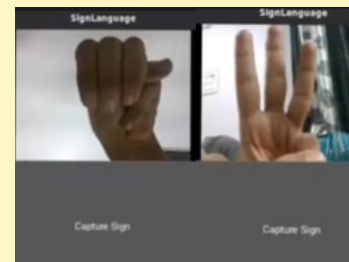


Student: Ch Dehan Vardhan Kumar

Class: 9th

Guide Teacher: Swapna Reddy

School: Delhi Public School, Pragathi Nagar,  
Rangareddy, Telangana



GestureX is a wearable sign language interpreter that uses computer vision, machine learning, and natural language processing to interpret hand signs and gestures into natural language. It is designed for non-verbal individuals and uses embedded gesture sensors to detect hand and finger movements. Machine learning algorithms interpret these gestures into spoken words or text, enabling seamless communication. GestureX also integrates emergency response, detecting predefined gestures and automatically triggering alerts. Future enhancements could involve drones for quick delivery of emergency kits or notification of authorities in hard-to-reach areas. GestureX combines assistive communication with life-saving automation, offering inclusivity and safety in real-world applications.

## SMART MULTIPURPOSE SICKLE



Student: Yendapalli Siva Naga Kaleshwar

Class: 7th

Guide Teacher: B Titus

School: CK JRC High School, Mangalagiri, Guntur, Andhra Pradesh



This project aims to develop a Smart Multipurpose Sickle to protect farmers and agricultural coolies in their village. The Sickle uses solar energy to convert light energy into electricity, using a snake repulsion vibrator, syron, lights, mobile charging system, height adjustable, and an umbrella. The eco-friendly, low-cost, and multi-utility tool converts light energy into electricity stored in batteries through the snake repulsion vibrator, syron, lights, and mobile charging system. When farmers wear the Sickle, snakes and other dangerous items run away, saving them from danger. The attached lights also help farmers charge their mobiles while in the field.



## POOR MAN'S CAR

Student: Sankith Jain

Class: 8th

Guide Teacher: V Srinivas

School: Montessori EM High School,  
Vidya Nagar, Kurnool, Andhra Pradesh



The project aims to transform bikes into cars with low costs by incorporating a specially designed umbrella that protects riders from hot sun and heavy rain. The umbrella features a fan for cool air and a Bluetooth for pleasant music. A shocking circuit is attached to the umbrella, extracting DC voltage from the solar panel and storing it in a rechargeable battery. The circuit uses a step-up transformer and transistor to convert DC voltage into AC for shocking purposes. If the rider switches on the shocking circuit and leaves the bike, it gives a shocking effect when a suspicious person approaches. The solar panel is connected to a buzzer circuit, closing and emitting a devil sound to alert surrounding people.

## ECO AIR DEFENDER

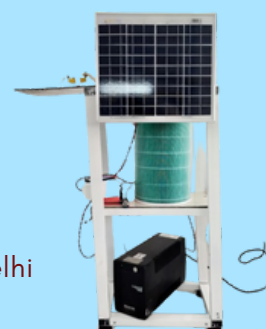


Student: Saksham Mehta

Class: 9th

Guide Teacher: Aman Gupta

School: Salwan Sr. Sec. School (Boys), Baljeet Nagar, New Delhi



Eco Air Defender is a sustainable and energy-efficient air purifier designed to combat indoor and outdoor air pollution. It uses advanced filtration and natural air-purifying techniques, ensuring cleaner, healthier air in homes, offices, and public spaces. Unlike traditional purifiers, it operates on low power, uses eco-friendly materials, and requires minimal maintenance. It is affordable, accessible, and integrates real-time air quality monitoring to encourage responsible behavior. The device uses DC airflow technology to draw in polluted air and release clean, purified air back into the environment. Its energy independence is achieved through solar panels and wind turbines.

## SMART MULTIPURPOSE SPINNING WHEEL

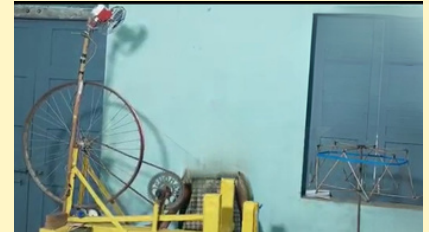


Student: Pandi Sankeerthana

Class: 8th

Guide Teacher: B Titus

School: CK JRC High School, Mangalagiri, Guntur, Andhra Pradesh



This project aims to develop a smart multipurpose spinning wheel to address the challenges faced by the handloom sector in India. The handloom sector, the largest, relies on weaving for its livelihood, and the wheel aims to create a solution that can perform various domestic tasks without relying on electrical energy. The mechanical energy generated by the spinning wheel is converted into electrical energy, which can be used for various domestic tasks such as light, fan, siren, spice mixing, and mobile charging. The wheel has three main functions: light the bulb, run the fan, charge mobiles, and mix spices. In conclusion, the smart multipurpose spinning wheel is a cost-effective and eco-friendly solution for various domestic tasks.

## BOTANICUS: IOT-BASED SMART AGRICULTURE ROBOT



Student: Sameer Kulhari

Class: 12th

Guide Teacher: Tanya Kumari

School: PM SHRI Kendriya Vidyalay, JNU Campus, Delhi



Botanikus is an IoT-based smart agricultural robot that integrates sensors, robotics, and remote monitoring to optimize plant care. Using ESP32 and Tasmota firmware, it tracks temperature, humidity, and soil moisture in real time, automatically activating a water pump for efficient irrigation and reducing water wastage. It also allows manual control via a custom Tasmota dashboard for motors and pump operation. Botanikus promotes water conservation, precision farming, and rural empowerment while serving as a STEM learning tool for students in ATL labs. By combining IoT, automation, and mobility, it tackles traditional agriculture's inefficient water use and high labor demands. In Autonomous Mode, it irrigates when soil moisture or air dryness crosses thresholds.

## IOT-BASED FLOOD DETECTION SYSTEM

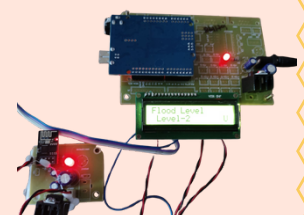


Student: Rishabha GV

Class: 9th

Guide Teacher: K Suseela

School: Bhashyam High School, Tirupati, Chittoor, Andhra Pradesh



Floods are devastating natural disasters causing loss of life, property damage, and infrastructure collapse. Traditional monitoring systems often lack real-time accuracy due to reliance on manual observations and weather forecasts. The integration of technology, particularly the Internet of Things (IoT), has transformed disaster management by enabling real-time data collection, early warnings, and rapid response. This project, "IoT-Based Early Flood Detection," develops a smart, real-time flood monitoring system using IoT to reduce flood-related risks. Interconnected sensors measure critical parameters, transmitting data to a cloud platform for continuous monitoring and analysis. Early warning alerts are sent to residents, government agencies, and response teams via SMS, mobile apps, or web dashboards. The system uses cost-effective sensors like YL-69 soil moisture and ultrasonic sensors, offering automated control for diverse locations.



## WATER LEAKED DETECTION AND VALVE CONTROL SYSTEM

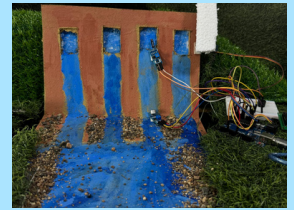


Student: Tanvi

Class: 6th

Guide Teacher: Bharadwaj

School: Sri Sankara Global Academy, East Tambaram,  
Kanchipuram, Tamil Nadu



The Water Leak Detection and Valve Control System is an automated solution for detecting and controlling water leaks in dams or pipelines. It uses sound and vibration sensors to identify leaks and abnormal pipeline activity. An Arduino Uno processes sensor data and triggers a servo motor to close the valve, preventing water loss. Operators are alerted by a buzzer and an LCD display shows real-time status. Once the leak is resolved, the system automatically reopens the valve. This low-cost, reliable system minimizes water wastage, protects infrastructure, and enhances safety in water management facilities. It is compact, affordable, and easy to deploy in multiple water system sections, ensuring minimal downtime, reducing manual monitoring, and significantly curbing water wastage.

## MAT FIREFIGHTER SET TEMPERATURE MONITORING DEVICE



Student: Jahnvi Dewangan

Class: 11th

Guide Teacher: Dr Vijayalaxmi Singh

School: Shiv Singh Verma Adarsh Govt Higher Sec School,  
Dhamtari, Dhamtari, Chattisgarh



The Smart Fire Safety Temperature Monitoring Device is a safety-oriented device designed for firefighters, industrial workers, and those working in high-temperature environments while wearing fireproof safety suits. It monitors an individual's body temperature and transmits data to assisting colleagues, notifying them to prevent loss of life or property. Integrating smart devices into fire safety suits can significantly reduce risk to life and property. The system consists of a transmitter attached to the firefighter's body and a receiver operated by assisting personnel. The device is currently in the prototype stage and fully functional, allowing it to be integrated with existing fire suits.

## IOT-ENABLED CONTACTLESS DUSTBIN WITH INTELLIGENT LID MECHANISM

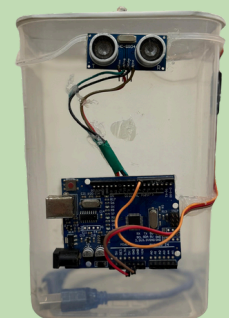


Student: Adishree Tenzin Kurup

Class: 8th

Guide Teacher: Dr Santhosh Kumar Tamang

School: Vivekananda Kendra Vidyalaya, Nirjuli,  
Papumpare, Arunachal Pradesh



The project introduces an IoT-enabled contactless dustbin with an intelligent lid mechanism. It uses an Arduino Uno board, an HC-SR04 ultrasonic sensor, and a SG90 servo motor to detect a person or hand nearby and automatically open the lid without physical contact. This reduces the risk of spreading diseases by avoiding direct touch, making it ideal for hospitals, schools, and homes. The setup includes a microcontroller, sensor, servo, power supply, and basic wiring. The ultrasonic sensor triggers the Arduino Uno to open the lid smoothly, and the servo motor automatically closes it after a brief period or when the object moves away. The system is easy to assemble and maintain, with a power supply available via USB or battery.

## BIOMETRIC VOTING MACHINE

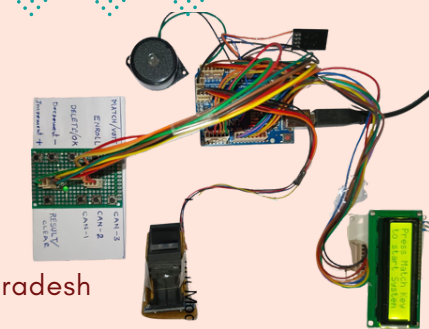


Student: Borusu Pallavi

Class: 9th

Guide Teacher: Vinukonda Ramya Sudha

School: ZPHS, Rangampeta, East Godavari, Andhra Pradesh



The Indian election process is complex and lengthy, leading to potential misuse of votes. To address this, a biometric voting device was created using an Arduino microcontroller and a finger print module. This device allows voters to cast their votes on the same day, ensuring transparency and preventing misuse. The device is connected to a wifi module, finger print module, buzzer, and LCD screen. The admin, who has enrolled their finger print, can access the results by pressing the result button. Voters must enroll their finger before the election process, and if they try to vote again, the results show the vote has been cast. This system makes the election process easier and allows for immediate access to results on the day of the election.



## WATER EFFICIENT FLUSH SYSTEM

Student: Utkarsh Maurya

Class: 9th

Guide Teacher: Rumeet Bhatnagar

School: Sunbeam Suncity School & Hostel, Varanasi, Uttar Pradesh



The Water Efficient Flush System is a toilet system that uses air pressure and greywater recycling to reduce or eliminate the use of fresh water for flushing. This innovative toilet system is ideal for areas with limited water availability, as traditional flush toilets waste a significant amount of clean water, contributing to water scarcity and limiting agricultural activities. The system uses compressed air to force compressed air through a commode, creating suction and pulling waste material into an underground storage pit. It also includes on-way valves to maintain hygiene and prevent backflow. The system integrates with a washbasin, allowing for minimal rinses using greywater. The water collected from the basin is directed for rinsing the commode or flushing residue, contributing to water conservation efforts in the community.

## AIR PURIFIER SYSTEM



Student: Sanskruti Prasad Gujar

Class: 10th

Guide Teacher: Madhavi Chikode

School: SBS Kanya Shala, Nipani, Belgaum, Karnataka



India faces significant health issues due to air pollution, with 35 of the world's 50 most polluted cities being located in the country. This pollution causes over 1.7 million deaths annually, posing serious health risks such as respiratory diseases, heart conditions, and premature deaths. A machine has been developed to mitigate air pollution, specifically targeting PM 2.5 and PM 10 pollutants. The machine includes an air purifier unit, exhaust system, and mist air blower. The air purifier unit filters pollutants, which are sent to the exhaust unit via an exhaust fan. An IoT-based dust measuring unit monitors dust density using a PM 2.5 sensor, which is transmitted to a ThingSpeak server. The mist air blower has an inbuilt water tank, which automatically activates the mist sprayer unit if dust density exceeds a certain threshold.

## USED TO RE - USE



Student: Udvitha Boddu

Class: 8th

Guide Teacher: B Usha Kiran

School: AK&K EM High School, Chirala, Bapatla, Andhra Pradesh



Plantable bowls are created using used papers, ripen leaves from trees, and fenugreek seeds as adhesive materials. These materials are soaked and ground into a paste, mixed with fenugreek seeds, coriander seeds, and chia seeds for planting purposes. Students throw these materials, which take hundreds of trees to make a book of papers. The paste is then applied to a glass bowl and dried under a sunshade for two days. The bowls are then removed from the mould after two days. Many families cannot convert dried leaves into manure, so they use them in dustbins.



## AGRI ROVER

Student: Mast Rudra Bhiva Umraskar

Class: 10th

Guide Teacher: Milan Milind Patil

School: Dr KB Hedgewar High School, Asnoda, North Goa



The "Agri Rover" is a smart technology project aimed at improving agricultural practices. The Multipurpose Agri Rover automates farming processes and provides real-time data monitoring, making farming more efficient and sustainable. This leads to improved crop yields, timely responses to environmental changes, and reduced resource wastage. The project aims to enhance agricultural efficiency by reducing manual labor and optimizing resource use, resulting in lower operational costs. The Agri Rover is equipped with sensors, including moisture sensors for soil moisture detection and irrigation time, temperature and humidity sensors, air quality sensors, and an ultrasonic sensor for field movement. The project's location can be traced on a laptop or mobile screen.

## INTELLIGENT TOILET DOORS FOR SCHOOLS



Student: M Bhoomi Sri

Class: 9th

Guide Teacher: Sk Akbar Basha

School: ZPHS Settipalli, Kupam, Chittoor, Andhra Pradesh



The Intelligent Toilet Door for Schools is a hygiene-focused solution designed to keep school toilets clean and germ-free. It integrates a toilet door locking mechanism with a flush detection system, ensuring the door can only be opened after flushing. This promotes hygiene, accountability, and behavioral change among students while reducing the spread of infections caused by unflushed toilets. Unhygienic school toilets are a major health concern, leading to poor sanitation, disease spread, and discomfort. Key issues include lack of cleanliness, poor maintenance, and germ spread. The project uses an Arduino-based system connected to sensors and a servo motor to control the toilet door lock. The IR sensor detects if the toilet has been flushed, and the servo triggers the door to unlock. This system makes flushing a compulsory step before exiting, fostering responsibility and hygiene.



## PORTABLE COOLER



Student: Ayan Bhattcharjee

Class: 12th

Guide Teacher: Kirti Sharma

School: Govt Higher Sec School, Namsai, Arunachal Pradesh



The project aims to create a cost-effective and energy-efficient air cooler that uses water evaporation to cool air. The cooler is designed to be compact, efficient, and user-friendly, addressing rising temperatures and energy costs. It uses solar energy and is lightweight, portable, and suitable for homes, offices, and schools. The cooler is built using durable plastic jars, a low-power DC motor, and a 2000 mAh lithium battery. It features a water tank with a 2000 mAh battery, making it practical for daily use. The project aims to deliver low maintenance and affordability without relying on expensive, high-energy devices.

## ASHITIZER - SANITIZER MADE FROM ASH

Student: Yashwant Vishwakarma

Class: 9th

Guide Teacher: Dr Panu Halder

School: Bharat Mata English Medium School,  
Bilaspur, Chattisgarh



Ashitizer is a cost-effective and eco-friendly sanitizer made from waste wood ash, often discarded due to poor hand hygiene in schools. The ash is reused in a tank with layers of ash, paddy straw, and sand and hydrolyzed through water to create a cleaning liquid. This liquid then goes to an evaporation chamber, where it becomes stronger and more effective in killing germs due to its alkaline nature. The ash leachate, collected from the tank, is concentrated in an evaporation chamber, increasing its alkaline strength and germ-killing ability. This simple process makes Ashitizer a valuable hygiene product, helps keep students healthy, and reduces environmental pollution.

## CHILD SAFETY SOCKET LOCKER

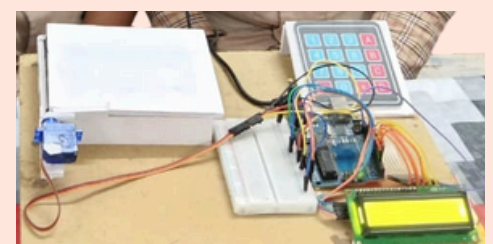


Student: Tamil Selvi M

Class: 8th

Guide Teacher: Synthiya K

School: Govt Girls Higher Sec School,  
Kundrathur, Krishnagiri, Tamil Nadu



The Child Safety Socket Locker is a device designed to protect children from accidental electric shocks by preventing direct contact with electrical sockets. It uses a password-protected locking system powered by an Arduino Nano, 4x4 keypad, servo motor, LCD display, and jumper wires. The lock unlocks for a short time and locks automatically when the correct password is entered. If the password is incorrect, the lock stays closed. Inspired by dispensers and lockers, the lock creates a secure barrier between children and electrical hazards, reducing the risk of injuries and fatalities. Future enhancements include AI-based unauthorized access detection, voice recognition, and camera monitoring.

## ARMY CONTINGENT CONTROL SYSTEM



Student: Krish chetry

Class: 11th

Guide Teacher: Subham Kumar Gupta

School: Vivekananda Kendra Vidyalaya, Roing,  
Lower Dibang Valley, Arunachal Pradesh



The Army Contingent Control System is a cost-effective and easy-to-build project that uses an ultrasonic sensor and Arduino microcontroller to maintain vehicle stability unless an object or person is detected within a set distance. The sensor sends a signal to the Arduino, which activates the motors, allowing the vehicle to move. This setup provides enhanced control, security, and automation, preventing unauthorized or accidental movement. Ideal for military use where vehicle activation depends on personnel presence or command, the system uses a simple yet effective logic: the ultrasonic sensor continuously monitors the space in front of the vehicle.

## THERMOELECTRIC ENERGY HARVESTING SYSTEM



Student: Arpit Chandgothia

Class: 10th

Guide Teacher: Nisha Agrawal



School: Sunbeam Suncity School & Hostel, Varanasi, Varanasi, Uttar Pradesh

The thermoelectric energy-harvesting system is a prototype that converts air conditioning waste heat into electricity. TEG modules mounted on AC condenser units capture temperature differences to generate DC power, which drives integrated cooling fans. An Arduino-based control system optimizes efficiency through real-time temperature monitoring, automated PWM fan speed adjustment, voltage boosting, and performance tracking. Key innovations include parallel TEG configuration, self-regulating thermal management, and up to 30% waste heat reduction. This open-source prototype demonstrates scalable micro-generation potential, turning urban heat into clean energy, improving energy efficiency, lowering operational costs, and reducing carbon footprint for sustainable urban infrastructure.

## SAFER HELMETS FOR WORKERS CARRYING HEAD LOADS



Student: Ritesh Sunil Shah

Class: 9th

Guide Teacher: Prasad Marathe

School: Vidya Varidhi Vidhyalaya,  
Nallasopara, Palghar, Maharashtra



The project aims to enhance safety for construction workers by modifying helmets to securely hold heavy loads. This is a simple yet significant improvement, as many workers carry heavy materials on their heads, which can cause accidents and injuries. A groove or support frame is designed to fit the bowl tightly, preventing slipping and preventing harm to the back, neck, and spine. This simple, cost-effective, and effective solution can prevent accidents and protect workers' health on construction sites.

## RECYCLING OF POLYTHENE COVERS INTO SHEETS



Student: Punoori Sri Chandana Lasya

Class: 8th

Guide Teacher: Gundapantula Bhagya Lakshmi

School: LPCT Gujarati Vidhyalaya EM High School, Vijayawada, Andhra Pradesh

Polythene, a non-biodegradable chemical, poses a significant environmental issue due to its decomposing nature. This project proposes a 3-R approach: Reduce, Reuse, and Recycle to tackle this issue. Reuse and recycle aim to minimize waste management and promote sustainable resource management, while recycling involves processing materials into new products, conserving natural resources, reducing pollution, and minimizing land fill spaces. An eco-friendly process involves using waste materials like polythene covers, papers, and fevicol, ground into a paste, mixed with polythene covers and fevicol, and dried in the sun. This method can be used for large-scale preparation at an industrial level and dried in hot furnaces. For thicker sheets, paper paste can be mixed with wooden powder and coco powder. This simple and cost-effective method ensures no harmful substances are released and no environmental pollution.

## MAA CARE



Student: Shrey Sehgal

Class: 10th

Guide Teacher: Charu Dhodi

School: Darbari Lal DAV Model School, Pitampura, North West Delhi



The project introduces a smart wearable belt for health and safety monitoring. It features a custom PCB with advanced sensors that track vital parameters, detect anomalies, and transmit data for timely action. Compact and efficient, the PCB costs around ₹3,600. Unlike conventional bulky and expensive health devices, this belt embeds sensor-rich technology directly into a durable, damage-resistant form. Its design ensures comfort, style, and practicality, making it suitable for everyday use across all age groups. By eliminating the need for separate devices, the belt enables continuous, convenient health monitoring while combining cutting-edge technology with wearable practicality.

## BIO FIBRE



Student: Lijen Padu

Class: 10th

Guide Teacher: Ashok Singh

School: Vivekananda Kendra Vidyalaya,  
Pasighat, East Siang, Arunachal Pradesh



The project aims to extract bast fibers from the fast-growing tree Odal, a sustainable alternative to synthetic fibers. The process involves natural retting, decortication, degumming, and bleaching techniques to evaluate the fibre's physical and mechanical properties. The study aims to address synthetic fibre pollution and underutilization of non-conventional fibre-yielding plants like Odal in textile applications. Materials used include fresh bark from Assam, standard laboratory chemicals, and a decortivating machine. The project showcases the strong tensile strength, biodegradability, and aesthetic properties of Odal fibre, promoting indigenous fibre resource utilization from North-East India.



## OBSTACLE DETECTOR CAR TO AVOID ACCIDENT WITHOUT HUMAN CONTROL

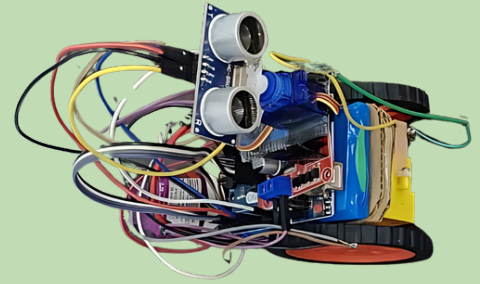


Student: Bigotkarap

Class: 12th

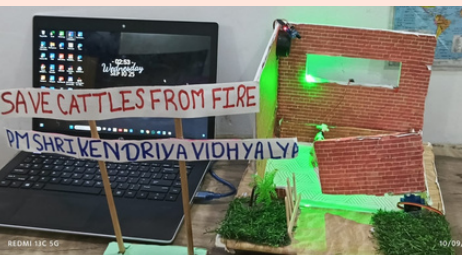
Guide Teacher: Subham Kumar Gupta

School: Vivekananda Kendra Vidyalyaya, Roing,  
Lower Dibang Valley, Arunachal Pradesh



The Obstacle Detector Car is a low-cost, autonomous robotic vehicle that uses ultrasonic sensors to detect and avoid obstacles. The system uses an Arduino as the central controller, motor drivers, ultrasonic sensors, and DC motors. The goal is to create a low-cost, autonomous system that senses obstacles without human intervention, making traditional remote-controlled or manually guided vehicles less efficient for automated tasks. The ultrasonic sensor continuously emits sound waves and measures the distance to nearby objects. When an obstacle is detected within a predefined range, the car halts and executes programmed actions to avoid it. The Arduino Uno microcontroller serves as the central processing unit, receiving real-time data from the ultrasonic sensor.

## SAVE CATTLES FROM FIRE



Student: Tanish

Class: 8th

Guide Teacher: Deepak Porwal

School: PM SHRI Kendriya Vidyalyaya, Arjangarh, Delhi



The project aims to save animals like cows, buffalo, and goats from fires caused by their ropes. The system works by opening an emergency gate when a fire occurs, with red LEDs on, a buzzer starting to sound, and green LEDs on, a buzzer off. This system is designed to save over 13,000 cows in India and 18,000 in Texas dairy farms each year. By implementing this system, many of these animals will be saved and happy, reducing the cost of farmers. The project is the most cost-effective solution for this problem, as it saves many lives and reduces the cost of buying new cows. The project is a significant step towards reducing the number of fires and deaths in India and Texas dairy farms.

## DUAL PURPOSE WHEEL CHAIR & STRETCHER BED FOR HOSPITALS



Student: Shaik Afifa Firdouse

Class: 9th

Guide Teacher: V Ramesh Ranjith

School: Ravindra Vidya Niketan, Adoni, Kurnool, Andhra Pradesh



Thanishka CareMatic is a medical mobility device that functions as both a wheelchair and stretcher, aiming to improve patient care and reduce caregiver strain. It features a motorized mechanism for quick transitions between sitting and lying positions, lightweight aluminum frame, high-torque motors, and safety features like emergency stop buttons and posture monitoring. The device's IoT integration allows remote control via a mobile app, and future AI enhancements could provide posture detection and automated adjustments. Thanishka CareMatic is a smart, scalable, and affordable solution for patient mobility, addressing modern healthcare demands.

## LIGHT FIDELITY (Li-Fi) PROJECT PROTOTYPE

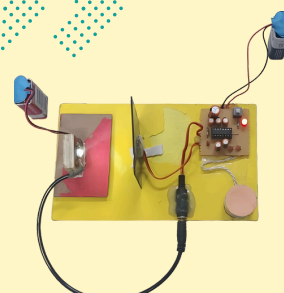


Student: B Akhila

Class: 7th

Guide Teacher: P Vannur

School: Akshara Sree EM Model High School, Adoni, Kurnool, Andhra Pradesh



A Li-Fi prototype aims to demonstrate the feasibility of wireless data transmission using visible light emitted from LEDs instead of radio waves like Wi-Fi. The system includes a transmitter (an LED that rapidly flickers to encode data) and a receiver (a photodiode that detects and converts light back into data). However, radio frequency signals are more susceptible to environmental noises and signal stability is a concern. To overcome these issues, the prototype uses light signals that do not harm humans or animals. The cost to implement this project is around Rs 600.

## QR KEY FINDER

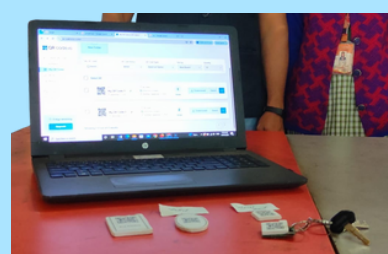


Student: Sruthi G. Desai

Class: 9th

Guide Teacher: Vaibhav Ambekar

School: Balika Adarsha, Vidyalaya, Belgaum, Karnataka



The QR Key Finder is a technology that uses QR code technology to help users locate lost keys or other important items. Each keychain is tagged with a unique QR code linked to a secure cloud-based database containing the owner's contact information or message. When a lost key is found, the user can scan the QR code using any smartphone, which displays the owner's details or instructions to return it. This innovative solution promotes responsible item tracking and retrieval without requiring expensive GPS or Bluetooth systems. It is practical, user-friendly, and respects user privacy. The system can be customized for various use cases.

## AGRO-FORESTRY MODEL IN HILLY REGIONS



Student: Taying Apa

Class: 12th

Guide Teacher: Jumli Kamdak

School: Govt Higher Sec School, Likabali,  
Lower Siang, Arunachal Pradesh



This is a sustainable afforestation approach designed for hilly regions, focusing on water conservation, weed control and tree development. It uses plastic sheets to suppress weeds and a hydromotor system to store rainwater and pump it uphill using solar energy. This ensures a steady water supply to higher elevations, supporting tree growth in challenging terrains. The model addresses challenges like water scarcity, soil erosion, weed overgrowth, irrigation difficulties, and lack of efficient water management. It also collects and stores rainwater in small reservoirs or tanks, promoting efficient water management.



## COMPOSITE KITCHEN WASTE MANAGEMENT



Student: Pronov Paul  
Class: 10th

Guide Teacher: Marter Nyodu  
School: PM SHRI Government Sec School,  
Likabali, Lower Siang, Arunachal Pradesh



Kitchen composting recycles food scraps and organic waste into nutrient-rich compost, improving garden soil. This reduces landfill waste, minimizes greenhouse gas emissions, and creates valuable soil amendments. It takes 2-3 months for waste to fully decompose, and adding jaggery water can speed up the process.



## SADAK COMPANION

Student: Mast Aarav Girish Kamat  
Class: 10th

Guide Teacher: Milan Milind Patil  
School: Dr KB Hedgewar High School, Asnoda, North Goa



The "Sadak Companion" project aims to reduce road accidents, particularly in challenging terrains like sharp U turns and mountain roads, by using advanced technology. The project uses Arduino UNO, Ultrasonic sensor, and RF module LED to prevent accidents in U-turns, S-turns, hilly Ghats, and mountain roads. In India, thousands of lives are lost each year due to road accidents. The "Sadak Companion—A Road Safety with Smart Accident Prevention System" integrates sensors, real-time alerts, and communication tools to monitor speed, detect obstacles, identify driver drowsiness, and send automatic alerts in case of accidents. Ultrasonic sensors are placed at both sides of the road and on mountain roads/U-turns, emitting light and sound to detect vehicles and provide an indication of their position at turning points.



### GYS Avishkar Awards 2023 Ceremony

Regional Science Centre, Vijayawada, Andhra Pradesh

1. Think Taste Drink Taste
2. How to Prevent Train Platform Accidents
3. Healthy Blackboard Duster
4. Turbo Hot - Energy Saving Water Heater
5. Cow Dung & Cow Curd use instead of Chemical Fertilizers
6. Hole Monitoring and Cleaning
7. Reduce and Produce
8. Smart Apron for Delivery Boys / Girls
9. Power Play
10. Bio Pots
11. River Cleaning Boat
12. Pot Cooler - an Eco-Friendly Cooler



### GYS Avishkar Awards 2024 Ceremony,

RK College of Engineering, Vijayawada, Andhra Pradesh

1. Taap Rakshak: Fireproof Material
2. AMCERD-F: Artificial Moisture
3. MacMed
4. Farmer's Friendly Bicycle
5. Autoswitch (Person Conting Device)
6. Smarty Washer
7. CARES: Animals on Roads - Enhancement of Safety
8. Smart Umbrella
9. Alert Drive Headgear
10. Automatic Cloth Dryer
11. Gradient Doors for Train
12. Caliper-X: Prosthetic Leg Improved Model
13. Project Title: AI Based Coma Patient Monitoring System



# Few Innovative Ideas from past editions of Avishkar Awards

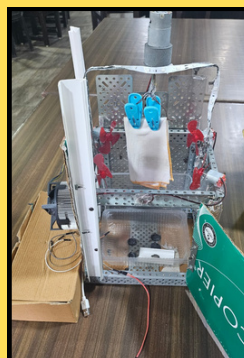
Caliper X: Prosthetic Leg Model



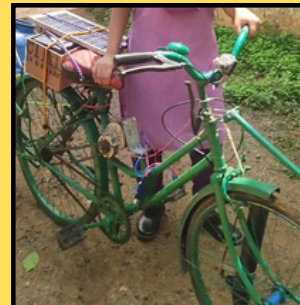
Taap Rakshak: Fireproof Material



Automatic Cloth Dryer



Farmers Friendly Cycle



Smart Dish Washer



AMCERD-F  
Artificial Moisture Controlled  
Fruit Ripening Device

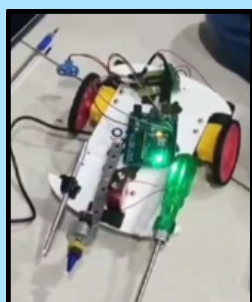
**GYS**  
*Avishkar*  
**AWARDS 2024**

Grooming Student Innovators for the Nation

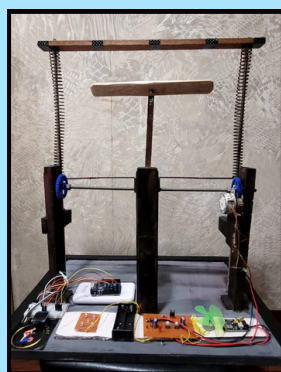
Healthy  
Blackboard Duster



Tubo Hot: Energy Saving  
Water Heater



Maintenance  
Hole Monitoring  
System



Powerplay:  
Sustainable Energy  
Generation System



Cow Dung based  
Chemical Fertilizer



Preventing  
Train Platform  
Accidents

**GYS**  
*Avishkar*  
**AWARDS 2023**

Grooming Student Innovators for the Nation

For more ideas from Avishkar Awards,  
visit [www.YoungScientistIndia.org](http://www.YoungScientistIndia.org)

# GETA YOUNG SCIENTIST PROGRAM

Grooming Student Innovators for the Nation



INSPIRING YOUNG MINDS FOR 20-YEARS!

2005

GETA  
Service Trust

2005

GETA Library

2006

GETA  
Talent Tests

2007

GETA P4  
(Pre-Placement  
Practice Program)

2009

Open School  
for Adults

2012

Operation Black Board

2014

Good  
Citizenship  
Grooming

GETA NexGen  
Stars

2015

2022

GETA Young  
Scientist Program

2023

GYS Avishkar  
Awards

2025

Young Scientist  
India Magazine

GETA Service Trust,  
Chirala, Andhra Pradesh.  
Ph. 9966775534, 9966332456  
[www.YoungScientistIndia.org](http://www.YoungScientistIndia.org)