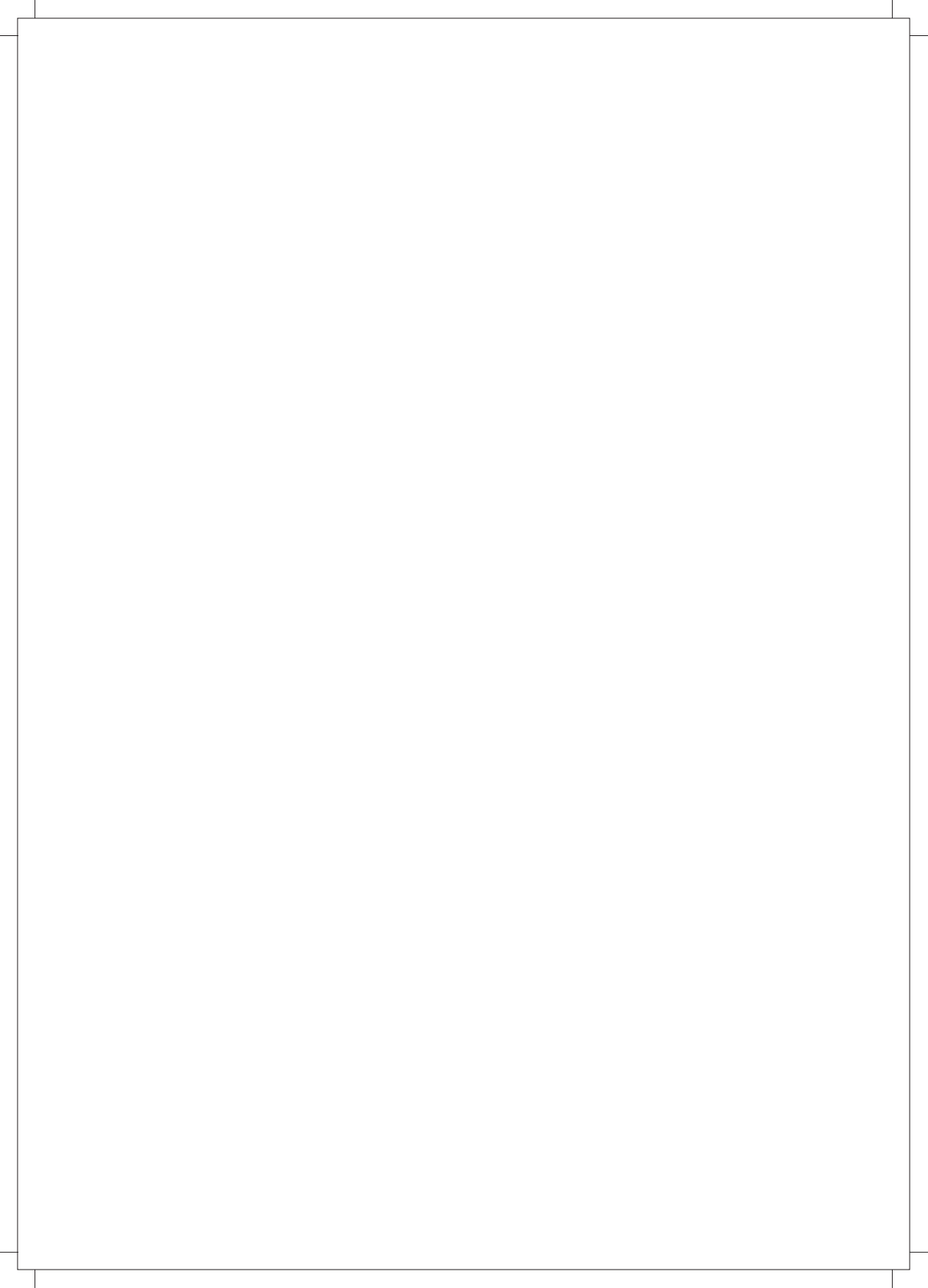


LET'S TINKER.

TOP 30 INNOVATIONS FROM ATAL TINKERING MARATHON





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TOP 30 INNOVATIONS FROM ATAL TINKERING MARATHON

WE WOULD LIKE TO THANK
ALL ATLS FOR PARTICIPATING
IN THE ATAL TINKERING MARATHON
AND MAKING IT A HUGE SUCCESS.

Innovations are grouped according to the thematic area
and in alphabetical order of their states.



DR. RAJIV KUMAR
VICE CHAIRMAN, NITI AAYOG

VC's MESSAGE

Dear Top 30 ATL schools,

It is a pleasure for me to congratulate you on being selected to top 30 innovator list of Atal Tinkering Lab Marathon Challenge, for 2017. Now you are a part of our mission to transform India into a New India by 2022.

Technology is transforming life across the world and India is on the path towards developing disruptive innovations that will solve societal problems for 7Bn people of the world.

Our young children are very smart and talented. And Atal Tinkering Labs will give our students an opportunity to tinker and innovate. They will be introduced to latest technologies of IoT, robotics, 3D printing and so on. We look at ATLs as incubators towards building a generation of young student innovators at the grassroot level, with the 'I am an Innovator' attitude and mindset. And we are extremely delighted that your school will contribute heavily to fulfill our dream.

Together we shall transform and make India a hub for world class innovation to solve societal problems.



AMITABH KANT
CEO, NITI AAYOG

CEO's MESSAGE

For India to contribute significantly to the fourth industrial revolution, we need to empower our youth with the 'skills of the future', which include computational thinking, Internet of things (IoT), artificial intelligence, design thinking, advanced robotics – to name a few. The Atal Tinkering Lab, a flagship initiative of Atal Innovation Mission of NITI Aayog, will introduce our youthful population to 21st century skills through self-learning. These Atal Tinkering Labs are introducing children to the world of innovation and tinkering. AIM has selected more than 2400 schools in 2017, for establishing Atal Tinkering Labs, where students are free to explore ideas across sectors like aerospace, medical diagnostics, clean energy, clean water, biotechnology and many more areas of future technologies.

I am delighted to congratulate the Top 30 ATL schools of the Atal Tinkering Marathon for their disruptive innovations, which will go on to inspire the students to develop innovative solutions that align with the national agenda of creating a New India by 2022. We are extremely proud to see an overwhelming response from the ATL schools and we aim to spread the ideology of scientific temper, of innovative thinking which the ATLs champion, to the farthest corners of the country and attract the young generation towards science and innovation.



RAMANAN RAMANATHAN

MISSION DIRECTOR, AIM

MD's MESSAGE

Atal Innovation Mission is a flagship initiative set up by the NITI Aayog to promote innovation and entrepreneurship across the length and breadth of the country, based on a detailed study and deliberations on innovation and entrepreneurial needs of India in the years ahead.

At the school level, AIM is setting up state of the art Atal Tinkering Labs (ATL) in schools across all districts across the country. These ATLs are dedicated innovation workspaces where latest technologies like 3D Printers, Robotics, Internet of Things (IOT), Miniaturized electronics are installed. This will enable to create a problem solving, innovative mind set within millions of students across the country. To date, 2400+ schools have already been selected for ATL.

More than just grants, the ATL program is undertaking on-the-ground activities to engage students and teachers in identifying problems in and around their communities and creating innovative solutions leveraging the ATL technologies to achieve the objectives of the program. ATL Labs are allowing our young innovative students to dare to dream and dream to dare about being significant contributors to an innovative, progressive, prosperous and sustainable New India.

We are extremely delighted to see the overwhelming response of all ATL schools. We wish you all the very best in your innovation journey with Atal Tinkering Labs.

FOREWORD

India is on the cusp of transformative change, moving towards a New India. The Hon'ble Prime Minister Shri Narendra Modi strongly believes that with the skills of innovation and entrepreneurship, India's 1.3 billion people will help transform our nation into a New India. To achieve this goal, what is essential is that we Innovate in India and Make in India.

With the Atal Innovation Mission, innovation and entrepreneurship have become an integral part of our national mission, and children as young as 12 years of age are being introduced to the world of technology innovation, with Atal Tinkering Labs in schools. Atal Tinkering Labs encourage students and teachers to experiment, explore and follow a self-learning path. They empower students to think differently about problems around them and develop innovative solutions leveraging latest technology tools like 3D printers, IoT (Internet of Things), robotics, and miniaturized electronics and so on.

In an effort to identify India's best student innovators, Atal Tinkering Labs organized an Atal Tinkering Marathon, a six month long nationwide challenge across six different focus areas that align with our national mission. The thematic areas included Clean Energy, Water Resources, Waste Management, Healthcare, Smart Mobility and Agri-technologies. Over 650 innovations were received, of which the Top 100 were selected based on novelty and prototype functionality. These 100 teams were then given a month to further refine their prototypes and rework their presentations. Following this, their innovations were judged by an esteemed panel of judges including industry and academia experts to select the Top 30 innovations. These Top 30 innovations have been identified from 20 different States and Union Territories across India. Over the next few months, these innovative minds will be receiving mentoring support by industry and start-up incubator to test their innovations in the community.

With Atal Tinkering Labs, schools are participating and contributing in India's transformational journey. Young student innovators from ATLs in Puducherry and Kolhapur, Maharashtra have been innovating new ways to generate electricity from sewage water. Atal Tinkering Labs will create several young student innovators and entrepreneurs across India at the grassroot level and will disrupt and redefine education.

This booklet is an effort to showcase the enthusiasm and the ideas which the Tinkering movement encourages. Mentors, teachers, schools and children are exposed to an ecosystem of knowledge-sharing, an environment where anything is possible. These Top 30 innovations are symbolic of a larger movement which is taking root in every school, in every district across India. Let's Tinker!

Dr. Ayesha Chaudhary
Atal Innovation Mission
NITI Aayog

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WATER RESOURCES





RAINBOW INTERNATIONAL SCHOOL, NAGROTA BAGWAN, HIMACHAL PRADESH

MENTOR

Yoshita Sood

PROJECT NAME

Smart rainwater harvester

FOCUS AREA

Water Resources

DISTRICT

Kangra

STUDENTS

- 1) Devanshi 2) Jaharvi
- 3) Mannat 4) Kalika
- 5) Abhay 6) Arun
- 7) Prashant

SUMMARY

An Automatic Water Collection system using a Harvester vehicle and multiple reservoirs.





JNANA PRABODHINI NAVNAGAR VIDYALAYA, NIGDI, PUNE, MAHARASHTRA

MENTOR

Arundhati J. Jadhav

PROJECT NAME

Recycling waste water
from automobile garages

FOCUS AREA

Water Resources

DISTRICT

Pune

STUDENTS

- 1) Malhar Limbekar
- 2) Varun Kolhatkar
- 3) Tanmay Walhekar

SUMMARY

Underground and industrial
waste water treating system.





SHIVARAJ VIDYALAYA AND JUNIOR COLLEGE, MURGUD, KOLHAPUR, MAHARASHTRA

MENTOR

Shete Uday U.

PROJECT NAME

Industrial waste
water management

FOCUS AREA

Water Resources

DISTRICT

Kolhapur

STUDENTS

- 1) Shete Prathamesh Uday
- 2) Patil Anuja Ananda
- 3) Shikalgar Mubna Sikandar

SUMMARY

To generate electricity from sewage
water from dairy/sugar factories.





MAHARAJA AGRASEN MODEL SCHOOL, NEW DELHI

MENTOR

Rakesh Bhardwaj

PROJECT NAME

Smart Tap

FOCUS AREA

Water Resources

DISTRICT

Delhi

STUDENTS

- 1) Satyam Prakash
- 2) Yash Soni
- 3) Pranshu Kapoor

SUMMARY

A smart tap which monitors and purifies water flowing through it.





ACHARIYA BALA SIKSHA MANDIR, PUDUCHERRY

MENTOR

K. Sivasankar

PROJECT NAME

Sewage Water Filtration
and Power Plant

FOCUS AREA

Water Resources

DISTRICT

Puducherry

STUDENTS

- 1) J. Srimathi
- 2) R. Darani Karthick
- 3) A. G. Ragav Prasath

SUMMARY

A system which uses sewage water to generate electricity.



SMART MOBILITY





PRANABANANDA VIDYAMANDIR, ASSAM

MENTOR

Rajib Paul

PROJECT NAME

Intelligent Blind Stick

FOCUS AREA

Smart Mobility

DISTRICT

Hojai

STUDENTS

- 1) Mrinmoy Nandi
- 2) Anwesha Roy
- 3) Akangsa Lodh

SUMMARY

Blind Stick is an innovative stick designed for visually impaired people for improved navigation.





DR. K. B. HEDGEWAR HIGH SCHOOL, CUJIRA, GOA

MENTOR

Akash Kulkarni

PROJECT NAME

Smart Headlight

FOCUS AREA

Smart Mobility

DISTRICT

Bambolim

STUDENTS

- 1) Hrishikesh Mahesh Bhandari
- 2) Sashreek Satyaprasad
Nayak Dhaimodkar
- 3) Rounak Ajit Naik

SUMMARY

Innovation helps to prevent momentary blindness during night while driving because of full glare/dipper lights.





BEST SCHOOL, GUJARAT

MENTOR

Madhish Parikh

PROJECT NAME

Smart Lock System

FOCUS AREA

Smart Mobility

DISTRICT

Ahmedabad

STUDENTS

- 1) Aditya Rajput
- 2) Vimal Maheshwari
- 3) Lekh Patel

SUMMARY

A Smart Lock system for scooters and bikes to prevent illegal use, accidents and theft.



Name of the School: Best Higher Secondary School, Ahmedabad, Gujarat

Statement:

On 22 million vehicles run on Indian roads, a lot of them carelessly and possibly, resulting in a lot of traffic problems. A large number of people drive without a license. They are not aware of the traffic rules and regulations. This results in traffic which is a major cause of deaths in the country. 70% of deaths in the country are due to accidents.

Users:

It will be useful for all the people who use any vehicle and for the government. It will reduce the number of accidents and deaths. It will also help the police to track the vehicles and drivers and vehicles.

Users (continued):

The project will also help in the implementation of the smart city plan to add smart features to the city. It will also help in the implementation of the smart city plan to add smart features to the city.



DAV PUBLIC SCHOOL, CHANDRASEKHARPUR, BHUBANESWAR, ODISHA

MENTOR

Jyoti Ranjan Mohanty

PROJECT NAME

V-Bikes

FOCUS AREA

Smart Mobility

DISTRICT

Bhubaneswar

STUDENTS

- 1) Amit Vaishnav
- 2) Gyanig Kumar
- 3) Nihar Modi

SUMMARY

A smart bike with various features to make daily commute safe for the citizens.





KV AFS, JAISALMER, RAJASTHAN

MENTOR

Rewantee Lal

PROJECT NAME

Noise Pollution Prevention System

FOCUS AREA

Smart Mobility

DISTRICT

Jaisalmer

STUDENTS

- 1) Ravinder Bishnoi
- 2) Abhishekh Kumar
- 3) Sandeep Sharma

SUMMARY

The system will be deployed in silent zones, for example, hospitals, examination halls etc to send signals to vehicles and jam the horn circuitry.



HEALTHCARE





GOVT MODEL SENIOR SECONDARY SCHOOL, ABEDEEN, PORT BLAIR, ANDAMAN & NICOBAR ISLANDS

MENTOR

Chanchal Dey

PROJECT NAME

Disaster Stretcher

FOCUS AREA

Healthcare

DISTRICT

Port Blair

STUDENTS

- 1) Binit Jaiswal
- 2) B. Vikram
- 3) Divakar Kumar Pal

SUMMARY

An emergency stretcher for hospitals built from the resources available in A&N Islands.





JNANA PRABODHINI NAVNAGAR VIDYALAYA, NIGDI, PUNE, MAHARASHTRA

MENTOR

Yogini Kulkarni

PROJECT NAME

Ayuspray

FOCUS AREA

Healthcare

DISTRICT

Pune

STUDENTS

- 1) Shravanee Limaye
- 2) Jay Aherkar
- 3) Shreya Gaikwa

SUMMARY

To minimize harmful microbes present in the air of a closed environment using a spray made of traditional indigenous Ayurvedic herbs .





MODERN PUBLIC SCHOOL, SHALIMAR BAGH, NEW DELHI

MENTOR

Naina Nagpal

PROJECT NAME

The Knock Sensor

FOCUS AREA

Healthcare

DISTRICT

New Delhi

STUDENTS

- 1) Apoorv Vats
- 2) Prabhsimar Singh Tapia
- 3) Ishan Vohra

SUMMARY

A gadget that converts knocks into written text.





UTTAM SCHOOL FOR GIRLS, GHAZIABAD UTTAR PRADESH

MENTOR

Purna Ranjan

PROJECT NAME

The Synthetic Tree

FOCUS AREA

Healthcare

DISTRICT

Ghaziabad

STUDENTS

- 1) Deeksha Sharma
- 2) Kashish Gupta
- 3) Dia Chaudhary

SUMMARY

Air purification and monitoring system, addressing the community issue of air quality in Delhi.





AMITY INTERNATIONAL SCHOOL, SECTOR-6, VASUNDHARA, GHAZIABAD, UTTAR PRADESH

MENTOR

Sugandha Dhillan

PROJECT NAME

Calcium Dispenser

FOCUS AREA

Healthcare

DISTRICT

Ghaziabad

STUDENTS

- 1) Somansh Dhillan
- 2) Ashmita Sharma
- 3) Paksh Raheja

SUMMARY

No cost calcium supplement using non-biodegradable waste material.





WASTE MANAGEMENT





RANI PUBLIC SCHOOL, VADAKARA, KERALA

MENTOR

Needhu Krishna

PROJECT NAME

Automatic Garbage Truck

FOCUS AREA

Waste Management

DISTRICT

Vadakara

STUDENTS

- 1) Ning R. Manog
- 2) Azim Zamaan
- 3) Sourav Prathap

SUMMARY

A prototype of a garbage truck made by Robotics and IoT equipment, to minimise human intervention needed to manage waste in cities.





CHRISTUKULA MISSION HIGHER SEC. SCHOOL, SATNA, MADHYA PRADESH

MENTOR

Harish K. G.

PROJECT NAME

GloboClean

FOCUS AREA

Waste Management

DISTRICT

Satna

STUDENTS

- 1) Rachit Agrwal
- 2) Sadhak Jain

SUMMARY

GoboClean is a self-sustainable system for municipal corporation, officers, and citizens to report and monitor cleanliness issues of the city.





SPRINGDALES SCHOOL, DHAULA KUAN, NEW DELHI

MENTOR

Mandeep Sukhija

PROJECT NAME

Pratishtha – Ek Pahal

FOCUS AREA

Waste Management

DISTRICT

New Delhi

STUDENTS

1) Seher Taneja

SUMMARY

Pratishtha – model of a 'Mobile Toilet' which uses solar energy and is made of upcycled material to deploy affordable toilets to all.





DAV PUBLIC SCHOOL, CHANDRASEKHARPUR, BHUBANESWAR, ODISHA

MENTOR

Jyoti Ranjan Mohanty

PROJECT NAME

AADHAR Linked Dustbin (ALD)

FOCUS AREA

Waste Management

DISTRICT

Bhubaneswar

STUDENTS

- 1) Prisita Preetam
- 2) Pallavi Priyadarshini
- 3) Arpita Mohanty

SUMMARY

ALD - A dustbin linked to a citizen's UID to incentivise them to keep their surroundings clean.





DRV DAV CENTENARY PUBLIC SCHOOL, PHILLAUR, PUNJAB

MENTOR

Giridhari

PROJECT NAME

SWACHH Robo

FOCUS AREA

Waste Management

DISTRICT

Phyllaur

STUDENTS

- 1) Harmandeep Singh
- 2) Gurinder Singh
- 3) Rahul Kumar

SUMMARY

Waste Cleaning Robot. Some features include a fully metallic body, opensource technology, 'C' Language programming.



CLEAN ENERGY





VIVEKANANDA KENDRA VIDAYALYA, JAIRAMPUR, ARUNACHAL PRADESH

MENTOR

Deepak Kumar

PROJECT NAME

Solar Tracking Panel

FOCUS AREA

Clean Energy

DISTRICT

Changlang

STUDENTS

- 1) Amit Kumar Gupta
- 2) Arjun Chetry
- 3) Jyotishka Das

SUMMARY

Solar panel with sunlight tracking system to improve its efficiency.





GOVERNMENT MULTIPURPOSE HR SEC SCHOOL, BILASPUR, CHATTISGARH

MENTOR

Dr. Dhananjay Pandey

PROJECT NAME

Eco Gym

FOCUS AREA

Clean Energy

DISTRICT

Bilaspur

STUDENTS

- 1) Atul Agrawal
- 2) Bhuneshwar Sahu
- 3) Yogesh Das Manikpuri

SUMMARY

Eco Gym is an equipment to generate electricity from gym equipment.





SOMALWAR HIGH SCHOOL & JUNIOR COLLEGE, RAMDASPETH, NAGPUR, MAHARASHTRA

MENTOR

L. R. Pande

PROJECT NAME

Solar Water Bulb

FOCUS AREA

Clean Energy

DISTRICT

Nagpur

STUDENTS

- 1) Ninad Ajane
- 2) Vallabh Kaorey
- 3) Anurag Aparajit

SUMMARY

A bulb which reflects sunlight in the day and captures solar energy that can be used to power the home during the night.





ARMY PUBLIC SCHOOL, SHILLONG, MEGHALAYA

MENTOR

Silveraj Chellapan

PROJECT NAME

Thermodynamic Electric Cooler

FOCUS AREA

Clean Energy

DISTRICT

Shillong

STUDENTS

- 1) Dhruv Arora
- 2) Abhishek Rautela
- 3) Abhyudai Kulshestra

SUMMARY

The prototype effectively lowers loss of energy due to heat dissipation.





SUBBIAH VIDYALAYAM GIRLS HIGHER SECONDARY SCHOOL, THOOTHUKUDI, TAMIL NADU

MENTOR

T. Ananthi, S. Priyadarsini

PROJECT NAME

Automatic Irrigation

FOCUS AREA

Clean Energy

DISTRICT

Thoothukudi

STUDENTS

- 1) I. Sakthi Petchiammal
- 2) A. Yogah
- 3) V. Ragavi
- 4) S. Shreema Thangam

SUMMARY

A smart and self sustainable irrigation system powered by solar energy.



AGRITECH





HONGIRANA SCHOOL OF EXCELLENCE, SHIMOGA, KARNATAKA

MENTOR

Rohith V.

PROJECT NAME

Moto Areca

FOCUS AREA

Agritech

DISTRICT

Shimoga

STUDENTS

- 1) Akarsha
- 2) Tejas
- 3) Gurudutt

SUMMARY

Moto Areca is an innovative, automated, cost effective, efficient and easy-to-use intelligent machine to climb the Areca tree for both harvesting and spraying the chemical solution.





MODERN PUBLIC SCHOOL, SHALIMAR BAGH, NEW DELHI

MENTOR

Ritu Sharma

PROJECT NAME

Porous Ceramic Pipe
Irrigation system

FOCUS AREA

AgriTech

DISTRICT

New Delhi

STUDENTS

- 1) Aayush Chandra Pathak
- 2) Naman Jain

SUMMARY

Innovation uses a combination of traditional and electronic equipments to effectively use irrigation in agriculture. The innovation will only deploy water to the farm when needed.





DAV PUBLIC SCHOOL, LAWRENCE ROAD, AMRITSAR, PUNJAB

MENTOR

Resham Sharma

PROJECT NAME

Smart Granaries for food security
irrigation system

FOCUS AREA

Agri-tech

DISTRICT

Amritsar

STUDENTS

1) Rachit 2) Rishab
3) Parth 4) Kuvam

SUMMARY

The innovation effectively manages and reduces post-harvest grain loss considerably by design innovation and correct management of resources.





MOHAN LAL DAYAL VINAY MANDIR, ALWAR, RAJASTHAN

MENTOR

P. C. Gupta

PROJECT NAME

KISAN Project

FOCUS AREA

Agritech

DISTRICT

Alwar

STUDENTS

- 1) Rajeev Nehra
- 2) Shubham Sharma
- 3) Lakshman Sarkar

SUMMARY

Krishak Integrated Security Automated Network (KISAN). The Innovation protects the agricultural fields from animals, birds and trespassing. Reducing the risk of damage to crops to increase productivity and profits.





DELHI PUBLIC SCHOOL NACHARAM, TELENGANA, HYDERABAD

MENTOR

M. Subash

PROJECT NAME

Farm Tech

FOCUS AREA

AgriTech

DISTRICT

Hyderabad

STUDENTS

- 1) Advait Gowrishetty
- 2) Manikanta Chavvakula
- 3) Manish Mallapur

SUMMARY

The innovation is aimed at helping farmers with economical and effective digital and technological solutions for their problems. It helps reduce the chances of crop failure and increase their profits, thus, helping them escape debt traps.



HAPPY TINKERING



*TOP 30
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FROM
ATAL TINKERING
MARATHON.*