Ministry of Environment, Forest and Climate Change

LiFE Lifestyle for Environment

Environment Education Programme

Pi Jam Foundation

amazon future engineer

Eco-Creativity & Innovation Hackathon

"National Level Showcase"



Tuesday
17 December, 2024

Time
10:00 AM - 04:00 PM

NDMC Convention Centre,
Sansad Marg, New Delhi.







Glimpses of the event

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Title:

Smart Plant Protection System for Orchards

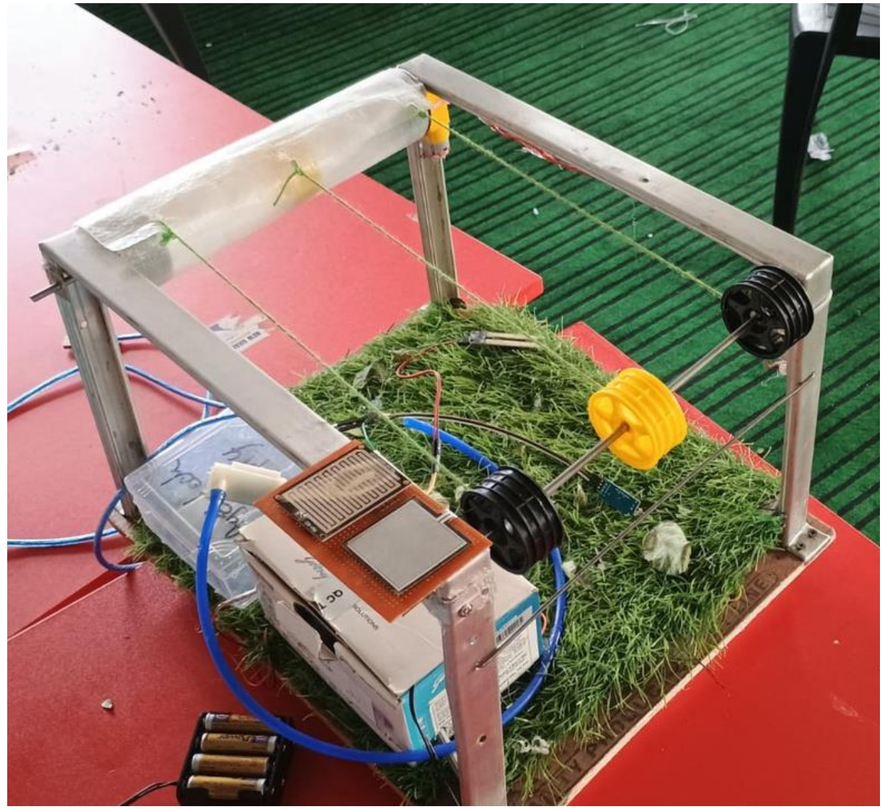
- **Name: Humaira Showkat**
- **Grade: 11th**
- **Location: Kulgam, JnK**

Problem Statement:

Apple orchards in Kashmir are highly vulnerable to sudden hailstorms, droughts, and temperature fluctuations. Traditional methods of protection and irrigation are labor-intensive and insufficient to address these challenges effectively. This project proposes the development of a smart system that autonomously detects and mitigates these threats, ensuring efficient, real-time crop protection and resource management.

Solution:

The system utilizes humidity, temperature, and light sensors to continuously monitor environmental conditions. When soil moisture drops below a set threshold or the temperature becomes too high, the Arduino automatically activates the water pump for irrigation. In the case of hail detection, the raindrop sensor triggers the Arduino to deploy an umbrella for crop protection. Additionally, the GSM module sends notifications to the farmer about each significant action performed by the system.



Student Presentation type: Working model

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Title:

Toxic gas detector and Controller

- **Name: Sheikh Anzar**
- **Grade: 12th**
- **Location: Baramulla, JnK**

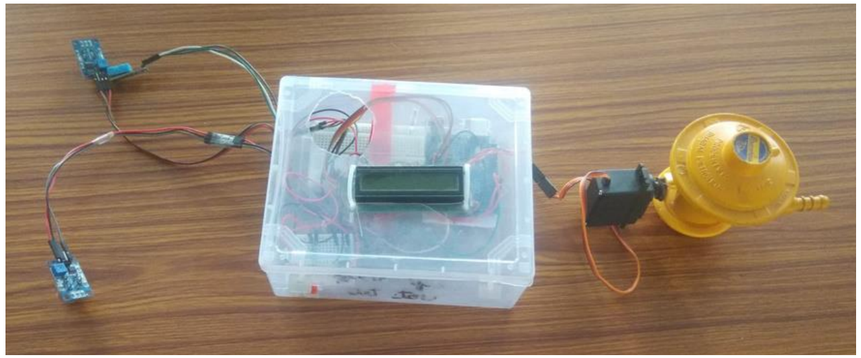
Problem Statement:

During winters in Kashmir, almost every household uses Gas Bukhari which emits CO. The continuous emission of CO and lack of ventilation cause deaths and accidents every year.



Solution:

Upgrade the construction of gas bukhari and install CO detection and regulation system. The system will keep monitoring the temperature using DHT 22 sensor and level of Cabon Monoxide (CO) using MQ7 sensor inside the room. Whenever the levels cross a threshold value, the regulator is turned off using a servo motor.
This will not only save the lives but also the enery.



Student Presentation type: Working model

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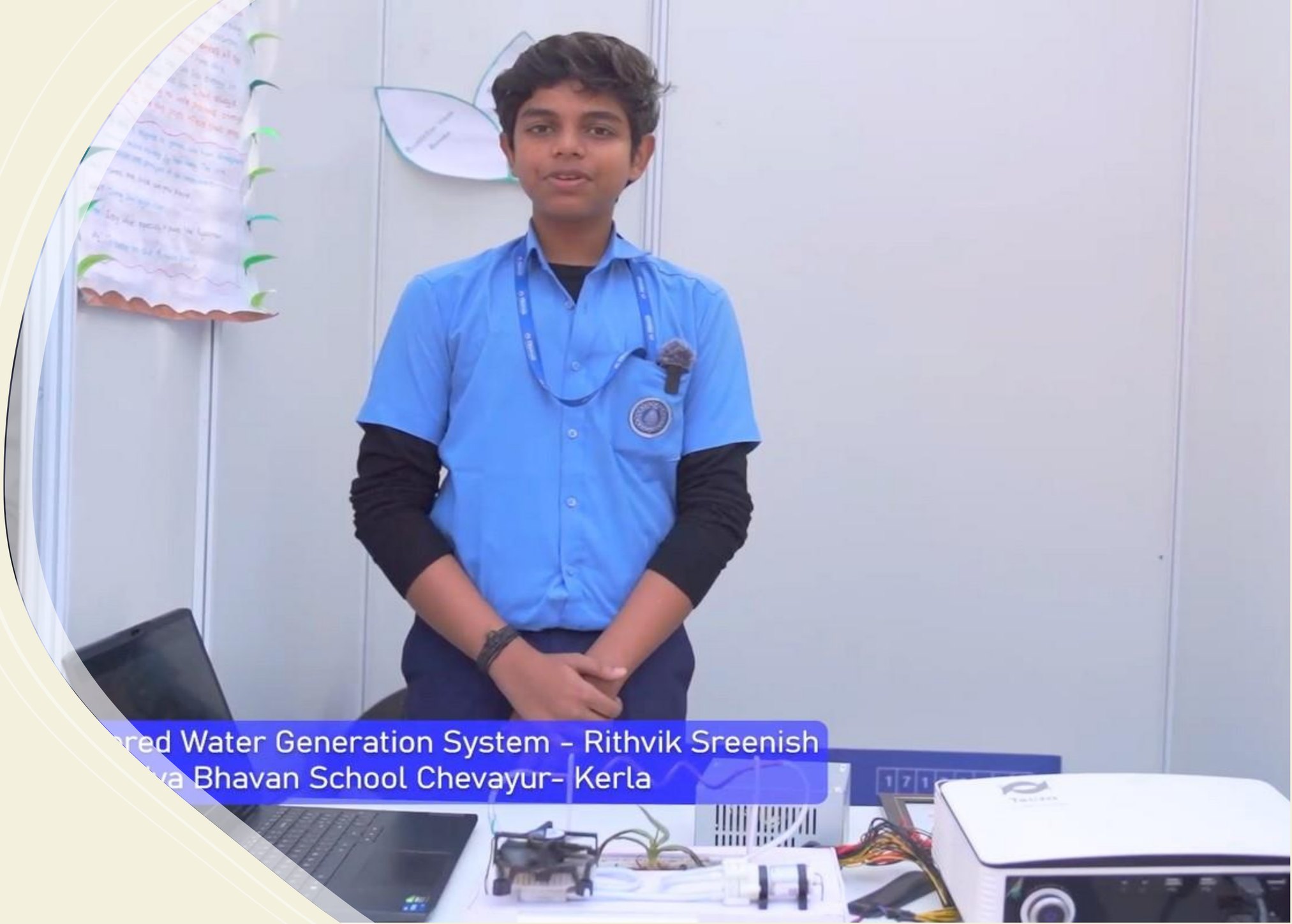


Title:

Solar powered water generation system

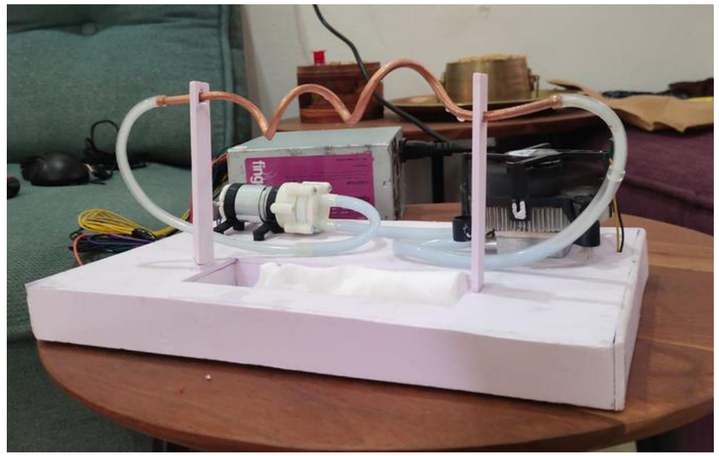
- **Name: Rithvik Sreenish**
- **Grade: 11th**
- **Location: Kozhikode, Kerala**

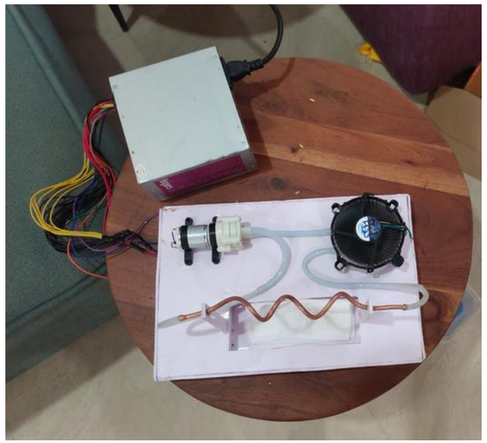
Problem Statement:

The problem this project aims to address is water scarcity in regions with abundant solar energy but limited water resources, such as Rajasthan. Traditional methods of obtaining water are often inadequate in these areas, leading to significant challenges for agriculture and daily living. This project seeks to generate water from atmospheric moisture using solar-powered technology, providing a sustainable and eco-friendly solution for irrigation and other water needs.

Solution:

Solar-Powered Water Generation System for Plant Irrigation Using Air Conditioning Technology. This innovation addresses the critical issue of water scarcity in regions with abundant solar energy but limited water resources, such as Rajasthan. The device generates water from atmospheric moisture, powered entirely by solar energy. Utilizing principles similar to those of air conditioners, the system is designed to aid in plant irrigation. The design is scalable, eco-friendly, and requires minimal maintenance, making it a promising solution for both rural and urban settings.





Student Presentation type: Working model


Sewer Cleaning Bot

Title:

Sewer Cleaning bot

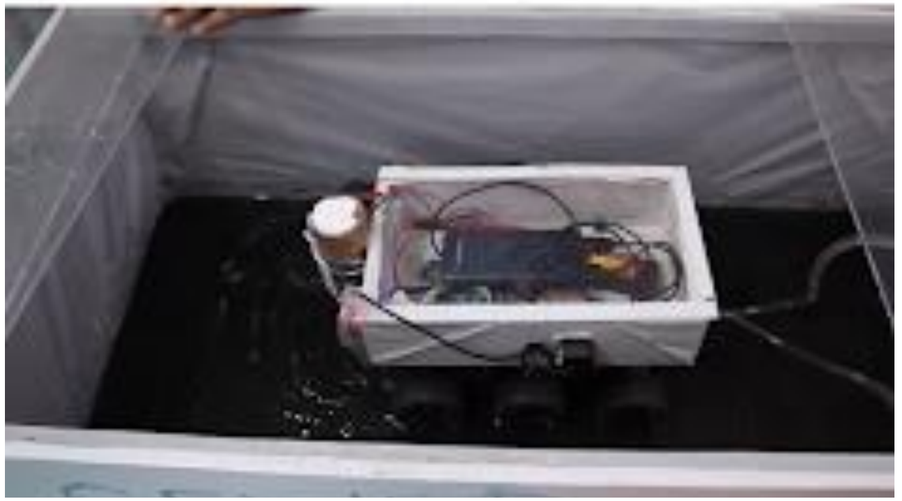
- **Name: Gautam**
- **Grade: 9th**
- **Location: Delhi**

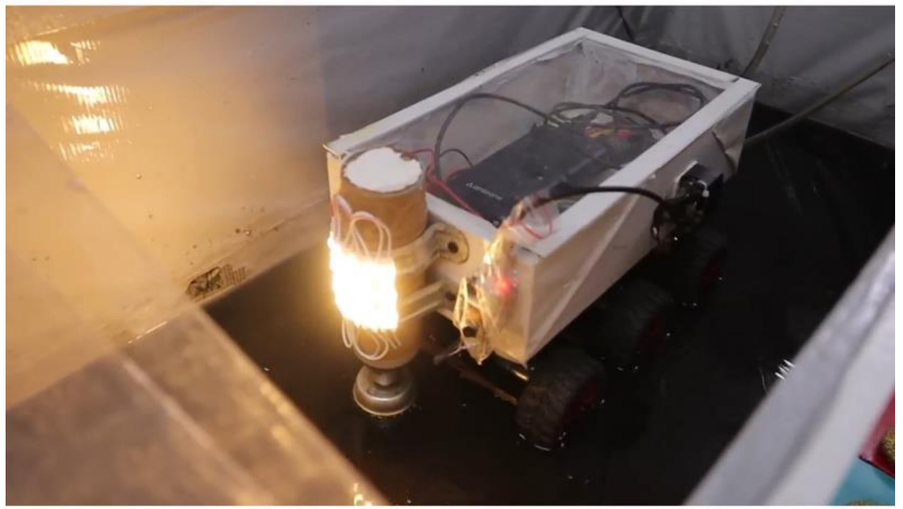
Problem Statement:

A **sewage system is a necessity in any developed society, and so is the need to maintain them**. However, the workers who clean them are also subjected to a lot of dangers including health issues that come from being exposed to very unsuitable conditions. Many times, some parts of sewage pipes are manually inaccessible.

Solution:

We have developed a **bot** which when inserted into the drainage system **identifies the solid or semisolid waste** such as plastic or cloth into the drainage pipe using torch and camera and c**onverts into thinner concentration**. And finally **into the liquid,** the waste is cleaned out of the pipe using the robot's suction system that **deploys a vaccum pump to bring the waste out** and collect the waste in the tank outside. This bot helps the manual scavengers and save them from the hazardous health problems.





Student Presentation type: Working model

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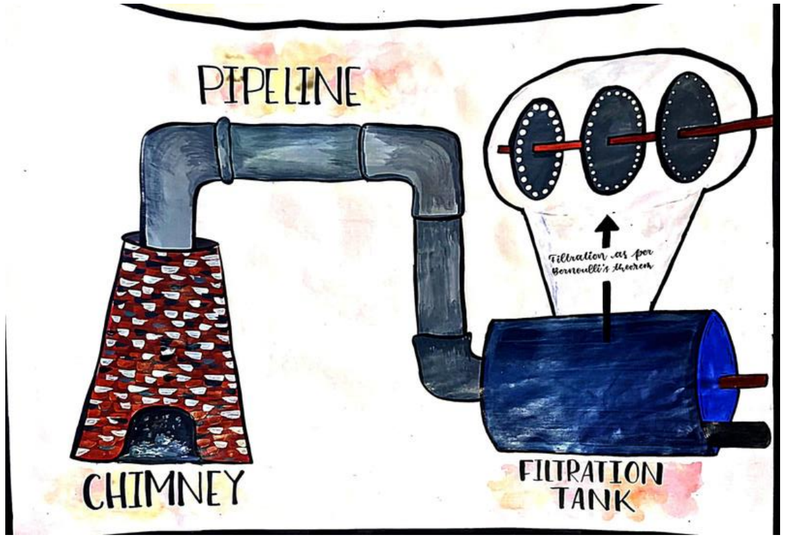
Title:

Chimney Smoke to useful products

- **Name: Asees Singh**
- **Grade: 9th**
- **Location: Ludhiana, Punjab**

Problem Statement:

As one **chimney produces minimum of 30 to 40000 litres of smoke every day**. In India approximately 3 to 4 lakh chimneys are sold every year and due to this **GREEN HOUSE GASES EFFECT** is increasing rapidly which can prove to be fatal and climatic changes. Smoke also damages agriculture production and on regular basis is harmful to the people residing in the area



Solution:

The filtration tank consists of Tin sheets which helps to accumulate the smoke/carbon particles , and thus it is controlling the air pollution , at the same time, the accumulated carbon particles when we mixed with petroleum jelly is converted into the Shoe polish.



Future Modification:

Hair dye is in making (Smoke/Carbon+alovera + mustard oil + curry leaves and methi dana paste) , and will test on dogs and then humans.

Student Presentation type: Working model

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ashwant Vishwakarma
hool Bilaspur - Chhattisgarh

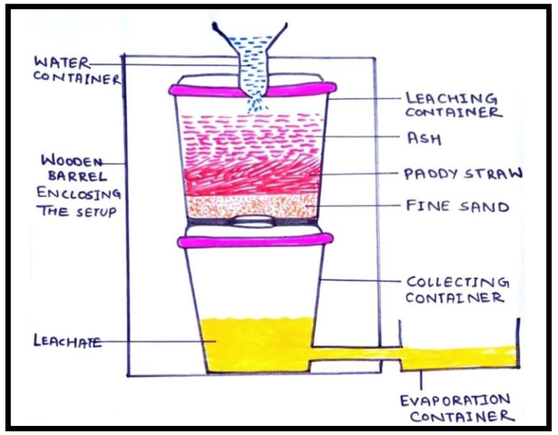
Title:

Ashitizer

- **Name: Yashwant Vishwakarma**
- **Grade: 8th**
- **Location: Bilaspur, Chhattisgarh**

Problem Statement:

Most students at Bharatmata School are frequently absent, which causes them to fall behind in their studies and score lower marks. After consulting doctors, it was found that they suffer from stomach aches because they do not wash their hands properly before lunch.



Solution:

We have created **"Ashitizer,"** a **hand sanitizer** made from **ash**, **paddy straw, fine sand, few quantity of calcium carbonate and alcohol** which is completely chemical-free. It is much more affordable compared to other sanitizers available in the market and has no side effects.



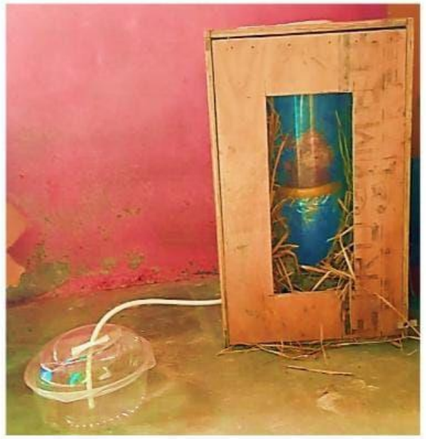
Raw Materials



Assembling the



Materials assembled in



Complete Prototype/Model setup

Student Presentation type: Product based

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Title:

Automated vermi composting centre - THE VERMI KENDRA

- **Name: Abhishek Dhanda**
- **Grade: 11th**
- **Location: Ludhiana, Punjab**

Problem Statement:

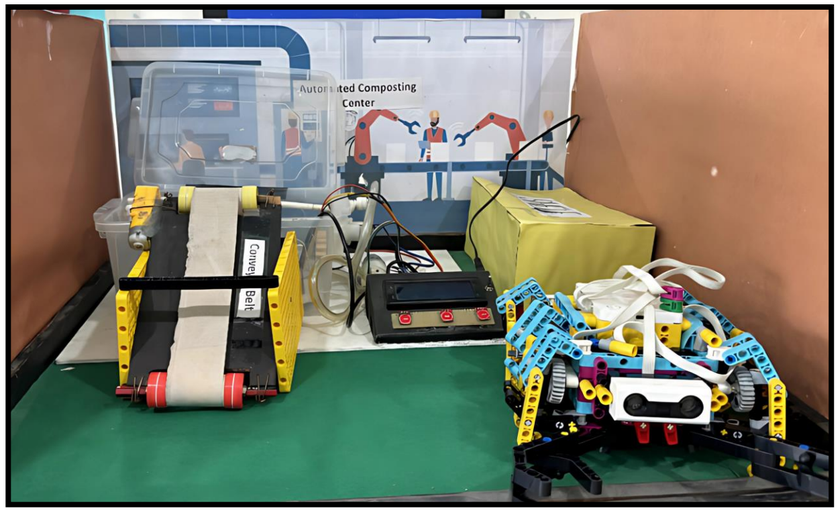
The problem we are addressing is the **inefficient management of organic waste,** which contributes significantly to **environmental pollution and soil infertility**. Traditional waste disposal methods, such as **landfilling and burning wastes**, not only waste valuable organic material but also **generate greenhouse gases**. We chose this problem because it directly impacts the environment, public health, and agricultural productivity.

Efficiently managing organic waste through vermicomposting can mitigate these issues and promote a greener, more sustainable way of living.

Solution:

Our proposed solution is an **automated vermicomposting system** named VermiKendra designed to revolutionize organic waste management. By automating the traditionally lengthy and labor-intensive process, our solution efficiently **converts organic waste into high-quality by-products:** vermicompost, vermiwash, and vermisticks. These products enrich soil health, reduce dependence on chemical fertilizers, and promote sustainable agriculture.

The system **utilizes smart technology**, including IoT-enabled **monitoring app integration via Vermi Veda**, to streamline operations, ensure optimal conditions, and track production. This innovative approach minimizes human effort, accelerates composting, and addresses waste disposal challenges. Additionally, **awareness campaigns** amplify the impact by promoting eco-friendly practices and encouraging community participation.



Student Presentation type: Working model

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ater For Hydroponics - Charan Katyal
eas - Punjab

Title:

RO waste water for hydroponics

- **Name: Charan Katyal**
- **Grade: 8**
- **Location: Amritsar, Punjab**

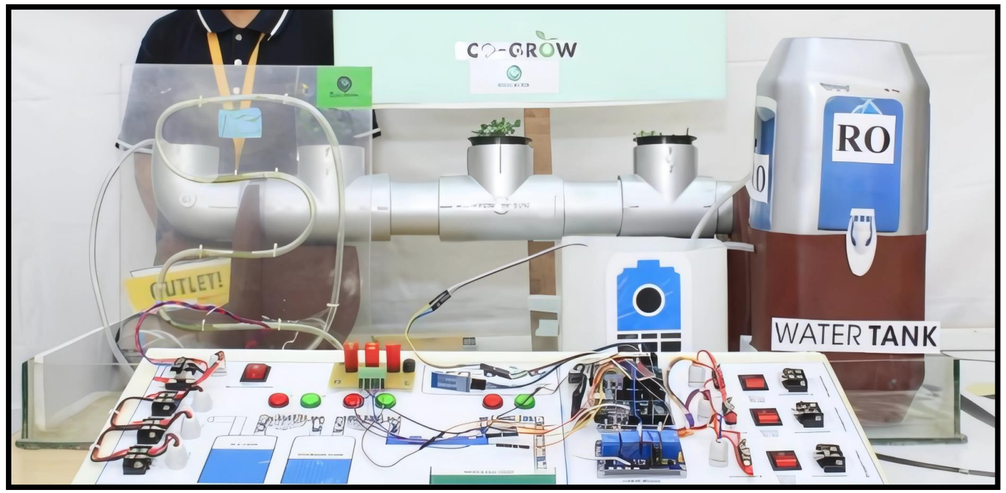
Problem Statement:

The **RO water filtration process**, while essential for providing clean drinking water, results in **significant water wastage**, with approximately 75% of the input water being discarded. This issue was observed firsthand in a school in Jalandhar, where a substantial amount of water was wasted during filtration. Research indicates that for **every four glasses of water processed, three are wasted, representing a critical challenge in water conservation.**

Solution: (From Waste to Wonder)

To solve this problem, I came out with an innovative solution 'Eco Grow'. 'Eco Grow' offers a sustainable solution by **transforming this wasted water into a valuable resource for hydroponics and supports plant growth.**

Future Modifications: In the future we've planned to make this circuit fully controlled via Bluetooth/WiFi.



Student Presentation type: Working model

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Title:

Sahara:- The Sustainable Food System

- **Name: Gautami Bokefode**
- **Grade: 6th**
- **Location: Pune, Maharashtra**

Problem Statement:

Food wastage is a significant issue, especially **in banquet halls and restaurants** where large amounts of food are often left unconsumed daily. This surplus food, which could otherwise be used to feed the needy, typically goes to waste due to the **lack of an efficient system to redistribute it.** The absence of a streamlined mechanism to connect food providers with volunteers and beneficiaries exacerbates the problem, leading to both **economic loss and missed opportunities to alleviate hunger.**

Solution:

To address this issue, an **application can be developed that facilitates the redistribution of surplus food.**

- Banquet halls and restaurants **register** on the platform, providing their location and capacity details.
- When **surplus food is identified**, the establishments can post a **notification** on the app, specifying the type and quantity of food available.
- **Volunteers** registered on the app will **receive real-time alerts about food availability** in their vicinity and will collect the food and distribute it to nearby shelters, orphanages, or directly to individuals in need.
- The app will **track the quantity of food saved and distributed**, providing data to assess the impact and identify areas for improvement.

Student Presentation type: App based

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Title:

Reminder Alarm

- **Name: किंचल चौहाण**
- **Grade: 6th**
- **Location: Pune, Maharashtra**

Problem Statement:

Many individuals tend to fall asleep while watching TV at night, resulting in the TV remaining on throughout the night. This habit leads to unnecessary energy consumption, causing an increase in electricity usage and contributing to higher utility costs, as well as a negative environmental impact due to wasted energy.

Solution:

Developed a system to turn off the TV automatically at a set time using an Arduino.

An RTC (Real-Time Clock) module keeps track of the current time and sends updates to the Arduino. When the preconfigured time is reached, the RTC triggers a message to the Arduino. The Arduino then sends a signal to a relay connected to the TV. This relay acts as a switch, **cutting off the power to the TV at the designated time**. The system operates autonomously, ensuring the TV is turned off without manual input. This approach saves energy and adds convenience by automating the process.

Future Modififcation:

Controlling high power consuming appliances through integrating IoT in this project

Student Presentation type: Working model

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Title:

ECO-FRIENDLY MANNUAL WATER LIFTING PUMP

- **Name: ARYAHI ARPITA NAYAK**
- **Grade: 6th**
- **Location: Jagatsinghpur, Odisha**

Problem Statement:

In Odisha, 46% of cultivated land **lacks irrigation,** impacting farmers' livelihoods. Farmers rely heavily on electric, diesel, and kerosene pumps, leading to high costs, environmental pollution, and depletion of non-renewable energy.

Solution:

The **Eco-Friendly Manual Water Lifting Pump (Eco-MWLP)** addresses this issue by using manual effort to lift water efficiently. It conserves non-renewable energy, reduces pollution, and lowers irrigation costs. The pump, powered by a reciprocating handle and dual foot and piston valves, **can lift 1800 liters of water per hour**, equivalent to a 0.5hp electric/diesel pump.



Student Presentation type: Working model

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Title:

Solar Grass Cutter

- **Name: ROHIT BHUE**
- **Grade: 9th**
- **Location: Bargarh, Odisha**

Problem Statement:

Farmers frequently use **diesel-powered grasscutters** in their fields, which results in **high energy consumption** and **increased operational costs**. This practice also raises environmental concerns due to the reliance on non-renewable energy sources, making it a significant challenge to address.



Solution:

The **solar-powered grasscutter** is built with lightweight pipes, cardboard, and wheels for easy mobility, and features plastic pipe handles for simple steering and control. It operates by **converting solar energy into electrical energy using a solar panel**, storing it in a lithium battery. The **stored energy powers a motor enabling the rotation of blades** to efficiently cut grass.

Student Presentation type: Working model

Scan or Click to View



Title:

Fog Water Harvesting

- **Name: SAI PRIYANSI MISHRA**
- **Grade: 6th**
- **Location: Cuttack, Odisha**

Problem Statement:

Despite two-thirds of the Earth being covered in water, we face a severe global **water crisis,** exacerbated by ecological degradation and growing demand for freshwater in agriculture, industry, and daily life. **Insufficient availability of clean water** in many regions has become a critical challenge, **particularly in arid, remote, or disadvantaged areas,** further threatening human survival and sustainable development.



Solution:

This project proposes a sustainable method to address water scarcity by **utilizing fog as a source of clean water. Fog catchers**, consisting of mesh panels made from durable materials like polypropylene, capture and **condense tiny water droplets from fog into usable water**. This water can be collected in storage tanks and used for various purposes, such as drinking, agriculture, and electricity generation. Additionally, **integrating hydroelectric systems powered by stored fog water can provide renewable energy.** This innovative, cost-effective, and eco-friendly approach offers a practical solution to supplement traditional water sources, ensuring water and energy availability in vulnerable regions.



Student Presentation type: Working model

Scan or Click to View



Title:

Antisleep timer for students

- **Name: MAMATA MINZ**
- **Grade: 6th**
- **Location: Sundargarh, Odisha**

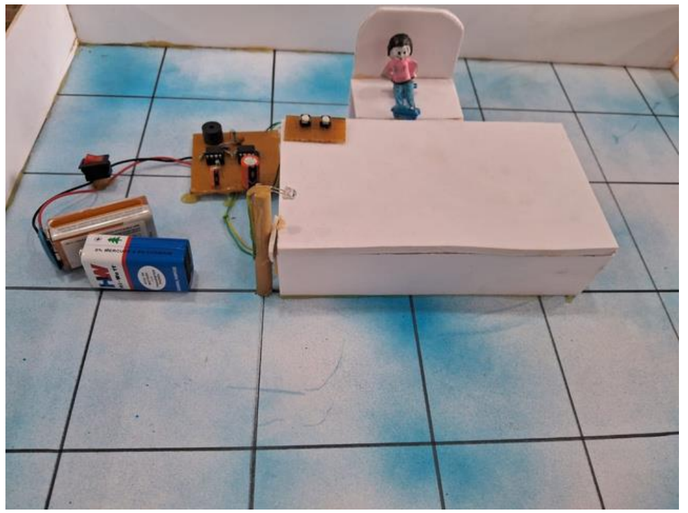
Problem Statement:

Students often face challenges staying awake and focused during late-night study sessions, leading to reduced productivity. Additionally, **leaving table lamps ON unnecessarily** when students fall asleep results in significant energy wastage, especially in environments with limited electricity resources.



Solution:

The **Anti-Sleep Timer** is an **automated system** that integrates a table lamp with a timer and alarm mechanism to address these issues. Using a 555 timer IC, the lamp is activated for a preset duration and automatically triggers a buzzer alarm when the time elapses, alerting students to stay awake. **If the student resets the system, the lamp remains ON for continued study; otherwise, it turns OFF to conserve energy.** This solution ensures energy efficiency while helping students maintain focus during study sessions.



Student Presentation type: Working model

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Title:

E-bin

- **Name: Anurag yadav**
- **Grade: 11th**
- **Location: Bangalore Urban, Karnataka**

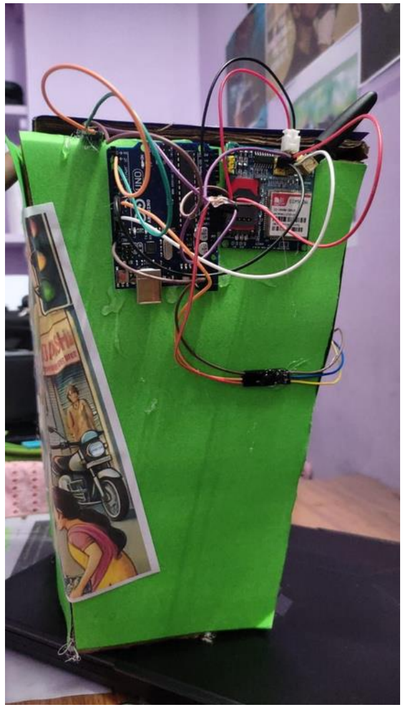
Problem Statement:

The improper management of waste due to **overflowing dustbins** is a significant issue in India, particularly affecting poor and middle-class communities that constitute 80% of the population. Overflowing dustbins lead to **scattered garbage on roads**, creating **unhygienic and unpleasant environments.** This problem arises from the **lack of timely communication** with municipal authorities regarding dustbin overflow, especially in densely populated urban areas.

Solution:

The proposed project addresses this issue by implementing a s**mart notification system** for dustbins. When a dustbin overflows, **it sends an alert message, "THE DUSTBIN IS FULL," along with its location to the concerned authorities.** This enables timely waste collection and ensures cleaner streets. With a cost of 800 INR per unit, the project is cost-effective and can be made more affordable through mass production, making it a scalable solution for better waste management in urban areas.





Student Presentation type: Working model

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Title:

Eco-Credit

- **Name: Yakshith K D**
- **Grade: UG**
- **Location: Dakshina Kannada, Karnataka**

Problem Statement:

Local communities are suffering from **environmental degradation,** including pollution and biodiversity loss, which negatively **impacts public health** and sustainability. There is a **lack of accessible tools for real-time environmental monitoring** and **actionable insights to drive collective action.** A platform is needed to empower communities with data, incentivize eco-friendly behaviors, and foster collaboration to improve local environmental conditions.

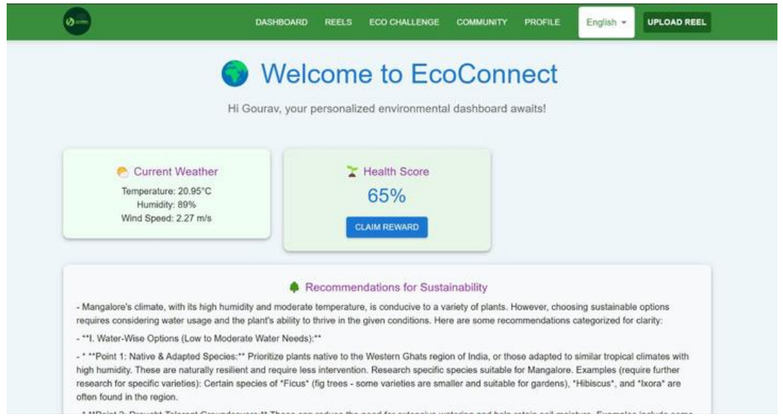


Solution:

The website/app empowers communities with data, encourage and incentivize eco-friendly behaviour and foster collaboration to improve local environmental conditions.

- **Eco friendly Tasks**: Users can complete tasks and earn credit points.
- **Environmental Monitoring:** The app tracks real time conditions like temperature, air quality and weather trends. A user can upload images to report issues or any natural disasters and every user will get notified if any user is travelling to that place. In future the app will also detects the natural disaster.
- **Recommends actionable items:** The app detects irregularities in different areas and recommends eco-friendly practices tailored to each region. Based on the recommendation it will give suitable products to that region
- **Video Sharing:** Users earn points for posting videos based on views and engagement.

(Rewards System: Points can be used to buy eco-friendly products from partnered companies)



Student Presentation type:
ppt presentation

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Title:

Eco-briquettes from Saw dust

- **Name: Basharat ashraf**
- **Grade: 12th**
- **Location: Baramulla, JnK**

Problem Statement:

In Kashmir, abundant autumn leaves and sawmill sawdust are wasted despite their potential as valuable biomass resources. Meanwhile, the high winter demand for firewood to heat "Hamam" contributes to indoor air pollution and respiratory issues due to smoke. This underscores the need for an innovative solution to repurpose these natural by-products into sustainable, eco-friendly alternatives, addressing both environmental and health concerns.



Solution:

The solution involves collecting fallen autumn leaves and processing them into powder, which is then mixed with sawdust from sawmills to create eco-friendly heating bricks. Natural additives are included to reduce smoke and harmful emissions during combustion. The mixture is compressed into dense, long-lasting bricks using hydraulic or manual machines, ensuring high efficiency and low environmental impact.





Student Presentation type: Working model


Bees

Title:

Happy Bees

- **Name: Asmat Tariq**
- **Grade: 12th**
- **Location: Baramulla, JnK**

Problem Statement:

Bee farming is an important source of economic contribution to Kashmir's economy. However, given the nature of the process, bee farmers find it difficult to observe the state of honey and bees and hive development and health during the honey development phase.

Solution:

Build a system for Bee Hive Boxes that tracks the ideal temperature, parameters and pictures of the bee hive to inform farmers of the status and health of the bee and honey potential yield.





Student Presentation type: Working model

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thrash management - Basharat Ashraf
L SCHOOL CHANDIGAM- J & K

Title:

Water and trash management

- **Name: SHAKIR UL ISLAM**
- **Grade: 7th**
- **Location: Kupwara, JnK**

Problem Statement:

Students at AGS Chandigam are wasting water within the school premises, leading to a shortage of water resources within the school

Solution:

Implemented an RFID-based water ATM that dispenses water to authorized users, tracks usage, and deducts credits to promote water conservation among students. Integrated smart dustbins reward students with credits for proper waste disposal, encouraging cleanliness. A leaderboard displays top students weekly or monthly, fostering healthy competition and positive habits.



Student Presentation type: Working model

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Title:

Automatic fertilizer supply system

- **Name: Rishiraaj Nath**
- **Grade: 7th**
- **Location: Nalbari, Assam**

Problem Statement:

Our traditional fertilizer methods mostly leads to overuse, underuse, or uneven use, which leads to less productivity of crops, and environmental degradation and more expenses for the farmers.

Solution:

Automatic fertilizer supply system that utilizes sensors and precision agriculture to optimize fertilizer application. The system features a network of soil sensors that continuously monitor nutrient levels and moisture content in real time. Based on the crop's specific requirements, the system automatically dispenses the appropriate amount of fertilizer, minimizing waste and reducing environmental impact.

Student Presentation type: Working model

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System - Adhya Rahulan
ida- UP

Title:

Sensory water system

- **Name: Adhya Rahulan**
- **Grade: 9th**
- **Location: Noida, UP**

Problem Statement:

In India, inefficient irrigation methods lead to excessive water wastage, contributing to water scarcity and reduced agricultural sustainability. Traditional systems fail to regulate water usage based on actual crop needs, causing unnecessary consumption of valuable water resources.

Solution:

The **IoT Sensory Water Irrigation System** is an advanced, automated solution to address water wastage in irrigation. This system uses soil moisture sensors to monitor real-time water content in the soil. Based on the data collected, the system automatically activates sprinklers when the soil moisture drops below optimal levels and deactivates them once sufficient water is supplied.

Student Presentation type: Working model

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Title:

Solar Powered Air Filter Units

- **Name: Saideep Goel**
- **Grade: 10**
- **Location: Karnal, Haryana**

Problem Statement:

The declining air quality is causing serious health problems and environmental damage in both urban and rural areas. Air pollution is a pervasive issue that affects everyone, leading to respiratory and heart diseases, and harming ecosystems.

Solution:

Implement solar-powered air filter units to improve air quality. These low cost units will have an Air Quality sensor that will keep track of air quality and turn on and off automatically according to the air quality.
These units will be beneficial at hospitals, schools, roadside houses etc.

Future Modiciations:

We will integrate IoT to these units so that the air quality of the rooms can be monitored and controlled remotely.

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Title:

By-Product E-Bazar

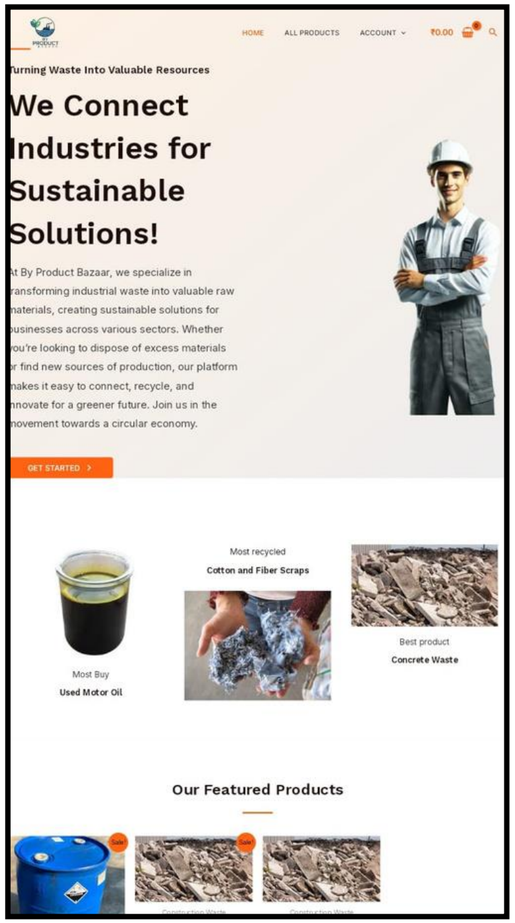
- **Name: SATYAM PATEL SURESH BHAI**
- **Grade: UG**
- **Location: Surat, Gujarat**

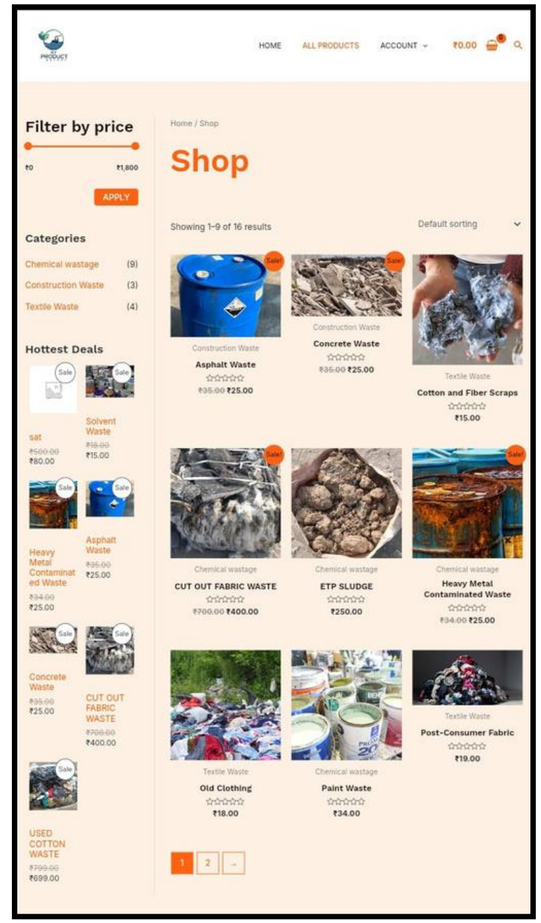
Problem Statement:

Industries often produce byproducts that are discarded or decomposed at high costs, leading to waste and environmental impact. These byproducts, however, can be valuable raw materials for other businesses, but there is no streamlined system to connect industries for effective byproduct utilization.

Solution:

Develop a web-based B2B platform enabling industries to list, exchange, and purchase byproducts. This platform promotes a circular economy by reducing waste, offering cost-effective raw material options, and supporting sustainability. Features like real-time order tracking, analytics, and secure transactions will ensure seamless user experience and operational efficiency.





Student Presentation type: Website

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Title:

Liquid Organic Fertilizer from water hyacinth

- **Name: Alaina CS**
- **Grade: 11th**
- **Location: Ernakulam, Kerala**

Problem Statement:

Water hyacinth, a free-floating freshwater weed, has become a major environmental issue in our country. It's a breeding ground for mosquitoes, leading to the spread of diseases like dengue and malaria. The current methods of eradication are costly, labor-intensive, and often uneconomical .

Solution:

Utilizing water hyacinth as a liquid organic fertilizer (LOF). This approach not only eradicates the weed but also provides a nutrient-rich fertilizer for farmers.

Student Presentation type: Product


Innovative Bio-Enzyme Solution

Title:

Bio Enzyme

- **Name: Muskan**
- **Grade: 9th**
- **Location: Firozpur, Punjab**

Problem Statement:

Stubble burning in Northern India, particularly during the harvest of paddy crops, poses **severe environmental challenges**. Farmers lack effective means to manage crop residue, leading to its open burning, which **releases harmful pollutants** such as carbon monoxide, sulfur dioxide, and nitrogen oxides. This contributes to **air quality deterioration, health problems** like asthma, and reduced soil fertility, **impacting the yield of subsequent crops**. Additionally, the **overuse of harmful chemicals** in everyday cleaning and agricultural practices **exacerbates pollution** and health hazards.

Solution:

Project aims to **convert stubble into bioenzyme,** serving a dual purpose: **decomposing crop residues into nutrient-rich fertilizers** on farms, eliminating the need for stubble burning, reducing pollution and improved soil health, and providing an **eco-friendly alternative to chemical cleaners.**



Student Presentation type: Product based


Air Guard Pro - Arigo

Title:

Air Guard Pro - ARIGO

- **Name: KOUNDAR BARATHIRAJA SUDHAKAR**
- **Grade: UG**
- **Location: Chennai, Tamil Nadu**

Problem Statement:

Air pollution is a global challenge impacting millions, leading to **respiratory issues, decreased productivity, and poor health**. While indoor air purifiers offer protection, those spending time outdoors—like students, workers, and traffic police—remain vulnerable.

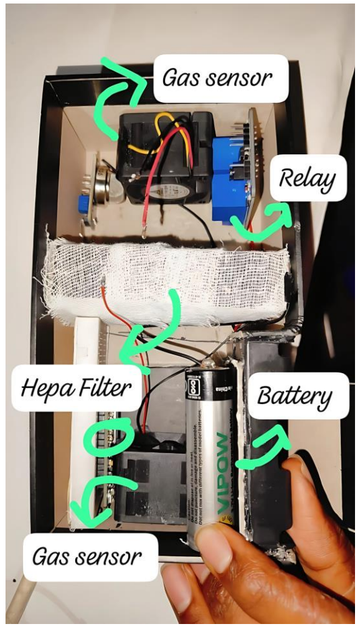
Solution:

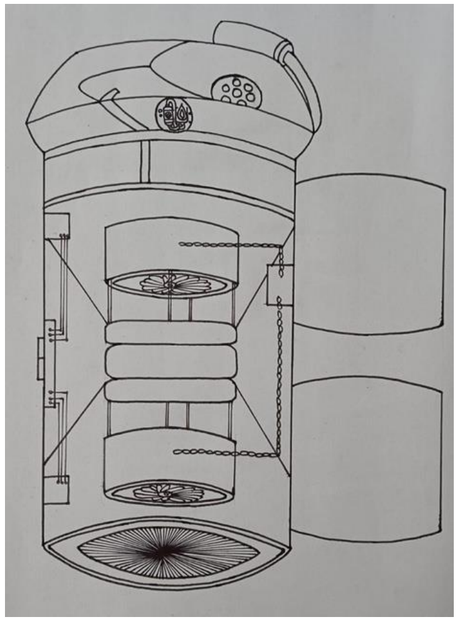
We developed the AriGo AirGuard Pro—a portable, real-time air purifier which after threshold AQI notifies the user which combines **air quality monitoring and purification**. Its compact, lightweight design ensures clean air on the go, extending protection beyond indoor spaces.

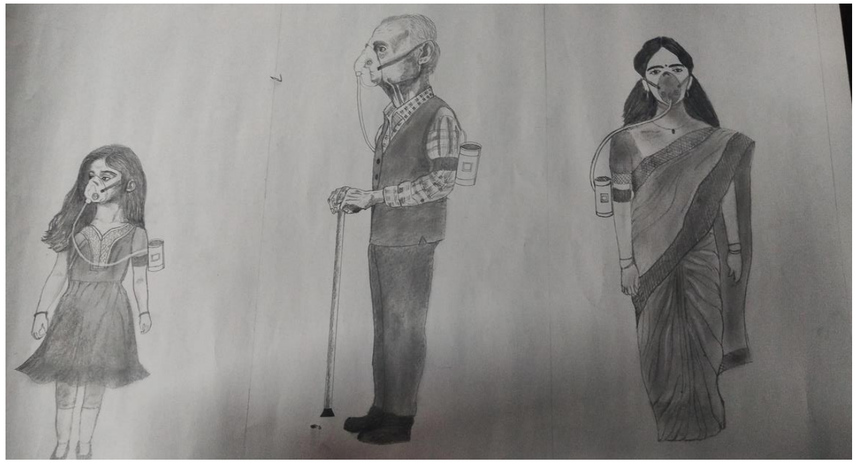
Future modification:

Intergating IoT/ML to calculate the pollution intake and the filtered pollution output.

Student Presentation type: Working model







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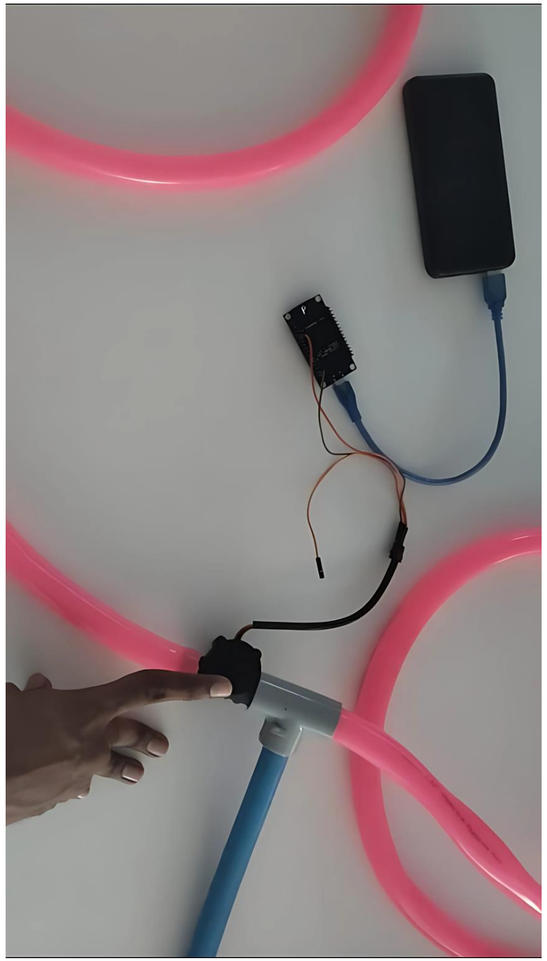
Title:

Aqua secure P2P

- **Name: Hariharan S**
- **Grade: UG**
- **Location: Coimbatore, Tamil Nadu**

Problem Statement:

Water leakage in buildings leads to water wastage, structural damage, and high costs. Traditional detection systems relying on centralized servers are slow, inefficient, and vulnerable to failures, making timely leak response challenging.



Solution:

The Aqua Secure project offers an advanced water leakage detection system using P2P technology and AI-enhanced sensors for real-time anomaly detection. Its resilient network ensures continuous operation, while integration with Building Management Systems automates corrective actions. Featuring 3D visualization, customizable alerts, and strong data encryption, this scalable solution provides robust leak detection and prevention with seamless usability.

Student Presentation type: Working model

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Title:

Sustainable eco packaging with Mushrooms

- **Name: MIRUDHULAA M N**
- **Grade: 10th**
- **Location: Coimbatore, Tamil Nadu**

Problem Statement:

The widespread use of non-degradable plastics is causing global environmental pollution, harming wildlife, contaminating ecosystems, and posing long-term risks to human health and biodiversity.

These plastics persist for centuries, harming wildlife that mistake them for food and disrupting ecosystems. Communities living near polluted areas face health risks, while future generations inherit the long-term consequences of this degradation.

The problem is ongoing, with visible impacts worsening over time, and is prevalent in urban, rural, and marine environments worldwide



Solution

A sustainable alternative to plastic packaging is **plant-based packaging made from mushroom mycelium.** This eco-friendly material can be used to create boxes, bags, and other packaging solutions. Mycelium is biodegradable, reduces pollution, and provides a renewable resource for packaging needs, offering an effective way to replace harmful plastics while supporting a healthier environment.



Student Presentation type: Ppt and poster presentation

Scan or Click to View



- **Name: DEVASENA P G**
- **Grade: 7th**
- **Location: Coimbatore, Tamil Nadu**

Title:

Compost food waste at home

Problem Statement:

Excessive use of chemical fertilizers and poor solid waste management are causing soil degradation, pollution, and climate change, posing immediate and long-term health risks to communities globally, particularly in agricultural and urban areas.





Solution

The proposed solution involves making **Organic Nano Manure** from dried, finely ground banana peels and eggshells, rich in nutrients like magnesium, calcium, and potassium, which enhance plant growth and repel pests. The manure is tested for its impact on soil quality and microgreens' growth.



This eco-friendly manure improves soil fertility, supports beneficial microbes, decomposes naturally to reduce pollution, and promotes sustainable farming while producing healthier food.



Student Presentation type: Product based

Scan or Click to View



Title:

Green heartbeats

- **Name: NITIN HARINATH**
- **Grade: 12th**
- **Location: Coimbatore, Tamil Nadu**

Problem Statement:

Biodiversity loss, climate change, and deforestation are rapidly degrading ecosystems **in Kanjapalli,** threatening local livelihoods and the environment. The community's lack of awareness and sustainable practices exacerbates these challenges, requiring immediate action to educate, engage, and empower locals for long-term conservation.

Solution:

- Spreading Awareness: We **surveyed** the village and **educated people** about climate change, deforestation, and biodiversity loss. School students **performed role** plays to explain simple actions like saving water and reducing waste, mission Life.
- **Eco-Friendly Practices**: We **showed how to manage** waste, use biogas, and save energy with solar panels. We also **distributed** LED bulbs, cotton bags, and compost bags to promote sustainable habits.
- **Tree Plantation:** With the help of NGOs, we cleaned **one acre** of land and **planted 200 native tree saplings like Punga and Badam** with the villagers, tackling deforestation directly.
- Sustaining the Effort: **Form a school team** to care for saplings and engage the community in ongoing efforts. **we plan to expand this model to nearby villages**, inspiring more people to join the green movement.

Student Presentation type: ppt and poster presentation

Scan or Click to View



Title:

Wonders from Agro waste

- **Name: Anshika Upadhyay**
- **Grade: 11th**
- **Location: Delhi**

Problem Statement:

Agro waste generation is a significant environmental concern with millions of tons of waste produced annually contributing to many problems. The **improper disposal of agro waste leads to several impacts** like climate change, pollution, respiratory problems, health and economy issues to our farmers also. Agro-waste management is a significant economic burden with estimated annual losses in the billions of dollars due to waste disposal and environmental degradation. There is a dire need to bridge the gap between waste and wonders.



Solution:

In ancient India, people had a deep understanding of the value of agricultural waste. They repurposed leftover **stubble, sugarcane residues, and other byproducts to create essential household items like bowls, plates, and even paper**. This circular approach to resource management was a hallmark of their sustainable and eco-friendly lifestyle. We made **bio fuel** from the algae which we grow Biodiesel and fuel from algae offer promising alternatives to traditional fossil fuels, providing a cleaner, more sustainable, and energy-independent future.
Our Team's Innovative Approach: **Transforming Parali and sugarcane Sugarcane Waste into Bowls and Kitchen Utensils**





Student Presentation type: Product based

Scan or Click to View



Bin (Biodegradable And Non- Biodegradable) - Ansh Tomar
School - Delhi

- **Name: Ansh tomar**
- **Grade: 10th**
- **Location: Delhi**

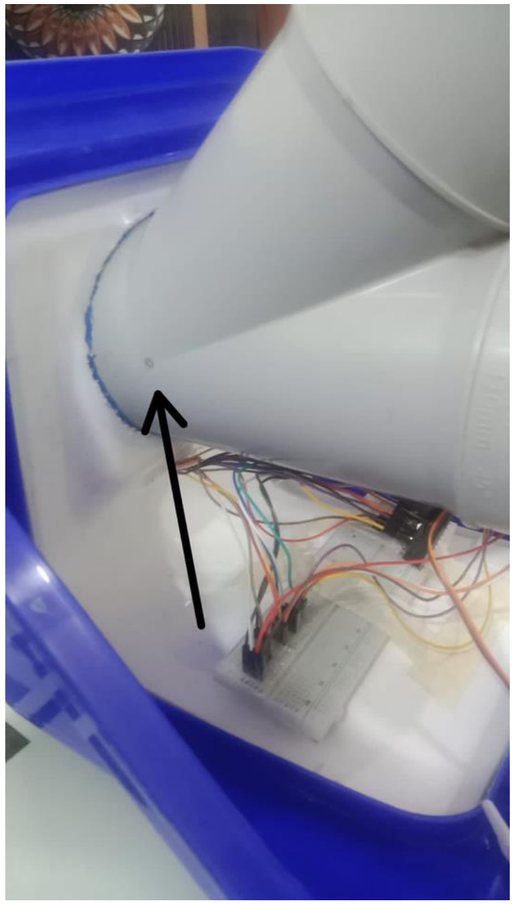
Title:

Waste sorter Bin (Biodegradable and non-bio)

Problem Statement:

Improper management of biodegradable and non-biodegradable waste presents significant challenges. Biodegradable waste can cause environmental issues like methane emissions and soil contamination if not composted properly. Non-biodegradable waste, such as plastics, accumulates in landfills, pollutes waterways, and harms wildlife. These problems lead to air, water, and land pollution, spread diseases, and strain waste management systems. By understanding these issues, we can innovate better waste segregation and recycling solutions to reduce environmental impact and improve public health.





Solution:

A system was developed consisting of a **smart dustbin** with two separate sections for biodegradable and non-biodegradable waste. Images of the waste are captured by a CCTV camera installed above the dustbin. These images are processed by a teachable machine trained on a dataset of various types of waste, enabling accurate sorting.

Student Presentation type: Working model

Scan or Click to View



Title:

Electricity Generation by Recycling Poisonous Gases

- **Name: Anubhav Gayen**
- **Grade: 8th**
- **Location: Kolkata, West Bengal**

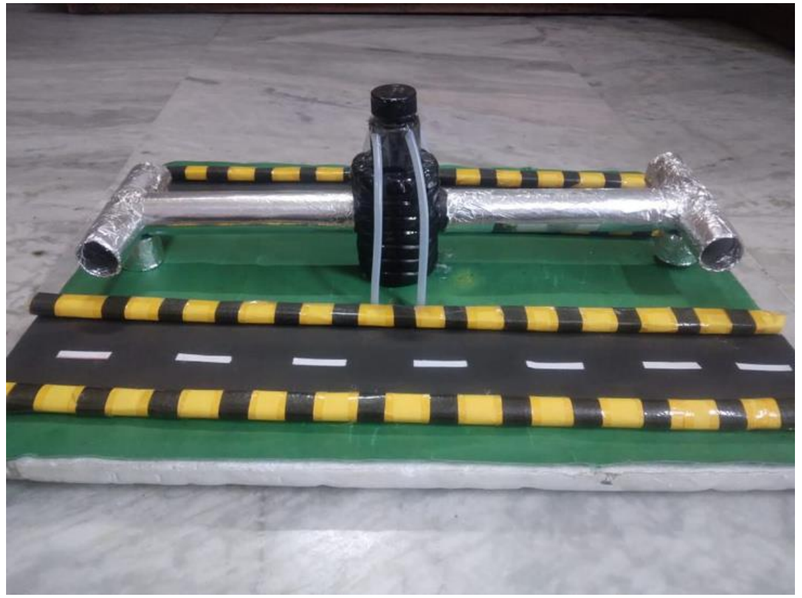
Problem Statement:

Pollution is also increasing day by day. One of the main factors of such pollution is the **increasing amount of vehicles emitting harmful gases**, which directly affects air quality in urban areas with low visibility. This type of air pollution is young and old alike by **developing lung problems, asthma,** etc. The busy cities like Delhi, Kolkata< Mumbai, etc. are falling victims of air pollution. Air pollution is rising in a rapid manner special around urban and congested roadways. This is leading to extreme pollution and is also depleting our world's petroleum reserve.

Solution:

The main concept of this project is a sort of **'BEST OUT OF WASTE'** idea, as we will be u**sing the poisonous gases emitted from vehicles to generate electricity** and doing so **will also reduce pollution**.

- The machinery needs to be installed beside the roadways which will start absorbing all the gases emitted by a turbine running on solar energy.
- The gases will descend to a chamber below, where their thrust would propel the blades of another turbine to generate electricity.
- Then, the gases will be transported to a steam chamber where the heat from the gases will be used to heat up a definite volume of water into steam.
- As the steam rises, it will propel another turbine to generate even more electricity.
- Next, the gases will pass through a filtration or 'scrubber' process, where all kind of carbon and sulphur particles and other impurities will be soaked. Finally, clean and fresh air will be released into the atmosphere by the machine.



Student Presentation type: Non -Working model

Scan or Click to View



Title:

Smart green house monitoring system

- **Name: Komal Sharma**
- **Grade: 11th**
- **Location: Giridih, Jharkhand**

Problem:

Rural farming faces challenges due to unfavourable environments, unpredictable weather conditions, difficulty in maintaining optimal temperature and humidity for plants, and the harmful impact of excessive chemical fertilizer use on both health and the environment.

Solution:

To address the challenges faced in farming, a sustainable solution has been developed in the form of a **sensor-based smart greenhouse or protected farming structure**. This system offers the following benefits:

- **Optimal Growing Conditions:** The greenhouse is equipped with **sensors to monitor and maintain** the ideal temperature and humidity levels required for healthy plant growth.
- **Eco-Friendly Practices**: The structure promotes the **use of natural resources and organic fertilizers**, reducing the dependency on chemical fertilizers and enhancing crop quality.
- **Energy Efficiency:** Energy Resources: **Solar energy powers most of the greenhouse's operations**, making it renewable and sustainable. Water-saving techniques like **drip irrigation or sprinkler systems** minimize water wastage. The setup ensures environmentally sustainable farming practices while improving productivity.

This solution not only supports better farming outcomes but also contributes to environmental conservation and long-term sustainability.

Student Presentation type: Poster presentation

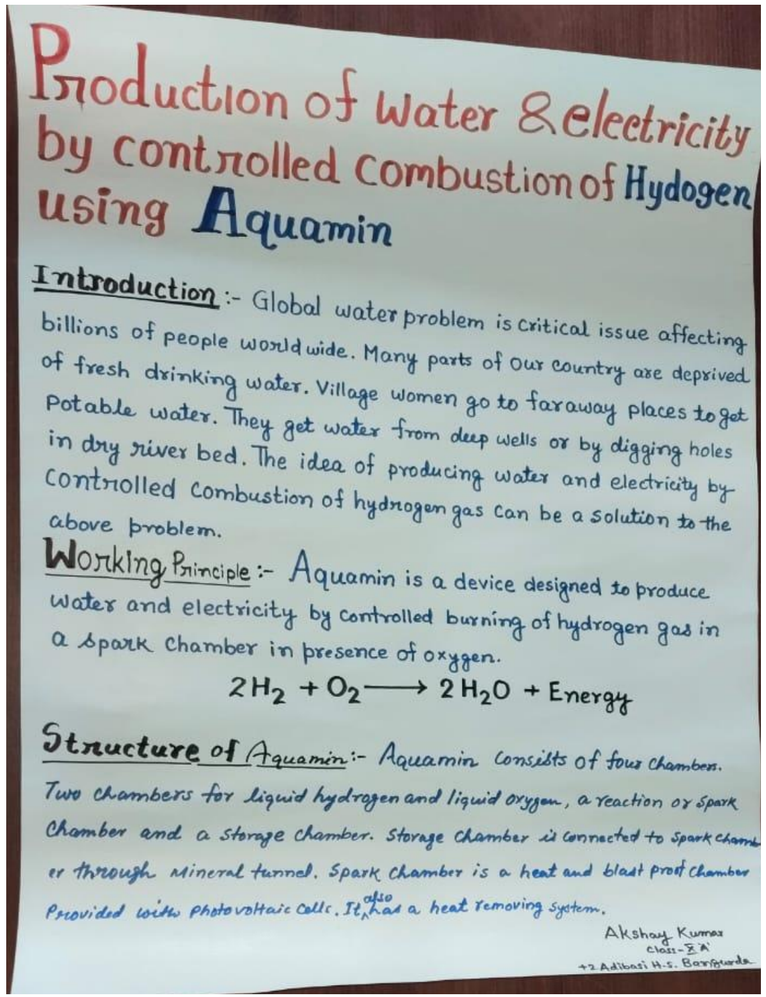
Scan or Click to View



Title:

Aquamin: The Water Formator

- **Name: Akshay Kumar**
- **Grade: 10th**
- **Location: East Singhbhum, Jharkhand**



Production of Water & electricity by controlled Combustion of Hydogen using Aquamin

Introduction :- Global water problem is critical issue affecting billions of people world wide. Many parts of our country are deprived of fresh drinking water. Village women go to faraway places to get Potable water. They get water from deep wells or by digging holes in dry river bed. The idea of producing water and electricity by controlled combustion of hydrogen gas can be a solution to the above problem.

Working Principle :- Aquamin is a device designed to produce water and electricity by controlled burning of hydrogen gas in a spark chamber in presence of oxygen.

$$2H_2 + O_2 \longrightarrow 2H_2O + \text{Energy}$$

Structure of Aquamin :- Aquamin consists of four chambers. Two chambers for liquid hydrogen and liquid oxygen, a reaction or spark chamber and a storage chamber. Storage chamber is connected to spark chamber through mineral tunnel. Spark chamber is a heat and blast proof chamber Provided with photovoltaic cells. It also has a heat removing system.

Akshay Kumar
Class - X A
+2 Adibasi H.S. Barajuda

Problem:

The global water crisis is a critical issue, with many parts of the world, including villages in India, lacking access to fresh drinking water specifically in Rajasthan. Women often need to travel long distances to fetch water from wells or dig holes in dry riverbeds.

Solution:

The proposed solution is Aquamin, a device designed to produce water and electricity through the controlled combustion of hydrogen gas in the presence of oxygen.

This process not only provides potable water but also generates energy, offering a dual benefit for solving water and electricity problems.

Student Presentation type: Non working model


WORK PLAN
Visit to PAU
Interaction with Dr. Surinder K. Sarao, Dr. Neeraj Rani
Survey Done
Interaction with Gardeners and Nursery Owners
Researched on cob and Vermicomposting
Started vermicomposting at PAU
Regular Maintenance
Developed an APP
Organized Rallies
Achievements, Revenue & Market Insights
METHODOLOGY
PREPARATION of VERMICOMPOST
EXPERIMENTATION on MINERAL CONTENT
DELHI SEWER CLEANING BOT




HAPPY BEES
TAMIL NADU AQUA SECURE P2P
PUNJAB THE VERMI KENDRA : AUTOMATED VERMI COMPOSTING CENTRE
Happy Bees


OWERED WATER
TION SYSTEM
JAMMU AND KASHMIR
SMART PLANT PROTECTION
SYSTEM FOR ORCHARDS
TAMIL NADU
AIR GUARD PRO - ARIGO


PUNJAB
CHIMNEY SMOKE TO
USEFUL PRODUCTS




Reserved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AKYSLEEP TIMER
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JAMMU AND KASHMIR
NAPPY BEES
TAMIL NADU
AQUA SECURE P2P
PUNJAB TNU
VERMI KENDRA - AUTOMATED
VERMI COMPOSTING CENTRE
RAKSHAK
JAMMU AND KASHMIR
TOXIC GAS DETECTOR AND
CONTROLLER
DELHI
SEWER CLEANING BOT
KERALA
SOLAR POWERED WATER
GENERATION SYSTEM
JAMMU AND KASHMIR
SMART PLANT PROTECTION
SYSTEM FOR ORCHARDS
TAMIL NADU
AIR GUARD PRO - ARIGO


TAMIL NADU
COMPOST FOOD
WASTE AT HOME
TAMIL NADU
SUSTAINABLE ECO PACKAGING
WITH MUSHROOMS
Eco-Creativity & Innovation
Kikani Vidhya Mandir




Sensory Water System


ODISHA
ECO-FRIENDLY MANUAL WATER
LIFTING PUMP
UTTAR PRADESH
SENSORY WATER SYSTEM
Sensory Water Sy


Eco-Creativity & Innovation Hackathon
An initiative by Amazon Future Engineer and Pi Jam Foundation
supported by Ministry of Environment, Forest and Climate Change (MoEFCC)
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