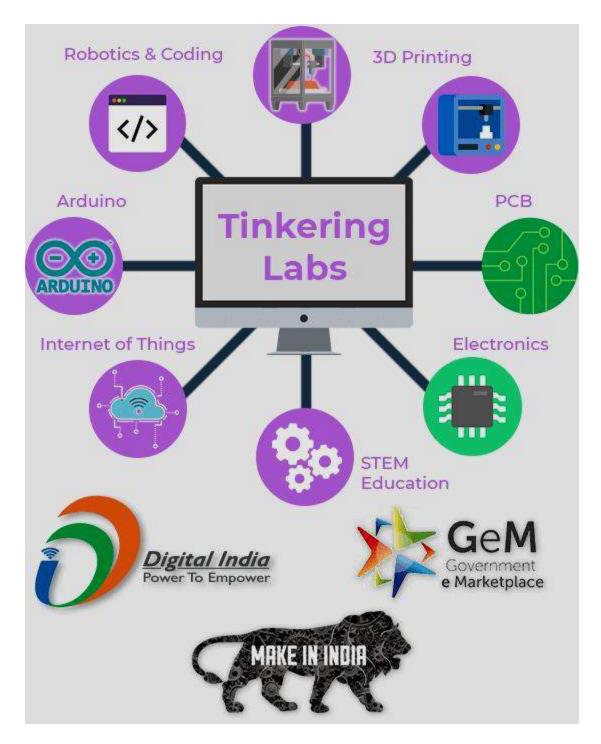
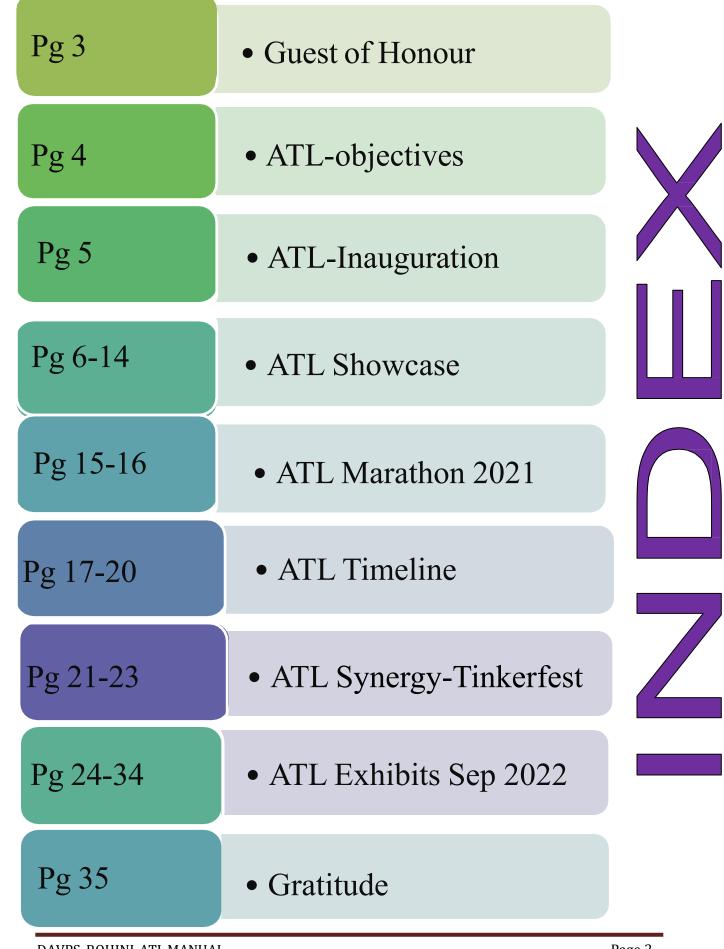


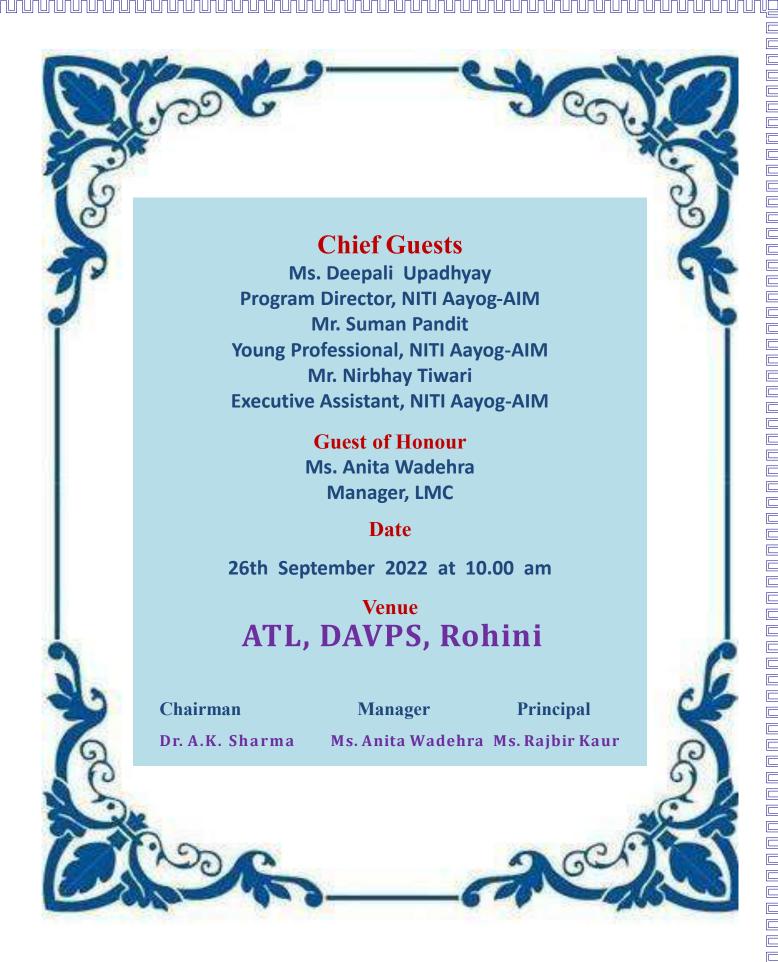
## DAV PUBLIC SCHOOL SEC-7, ROHINI, DELHI.





Leading through innovation....





#### ATAL TINKERING LAB

ATL is an initiative of Central government of India, to create an environment of scientific temperament, innovation, creativity amongst Indian students. It is a step towards a new India.

ATL lab would teach students essential 21st-century skills which will help them in developing their professional and personal skills

The Government of India has setup the ATAL Innovation Mission (AIM) at NITI Aayog. Realizing the need to create scientific temper and cultivate the spirit of curiosity and innovation among young minds, AIM proposes to support the establishment of a network of ATAL Tinkering Laboratories (ATL). ATL is a workspace where young minds can give shape to their ideas through hands-on do-it-yourself mode and learn innovation skills

#### **OBJECTIVES**

The objective of this scheme is to foster curiosity, creativity, and imagination in young minds and inculcate skills such as design mindset, computational thinking, adaptive learning, physical computing etc. Young children will get a chance to work with tools and equipment to understand 'what', 'how' and 'why' aspects of STREAM.



**STREAM**---Science, Technology, Reading, Engineering, Arts and Mathematics.

#### ATL INAUGURATION

"The important thing is not to stop questioning. Curiosity has its own reason for existence."

#### -ALBERT EINSTEIN

ATAL Tinkering laboratory was inaugurated in our school on 27 Sep' 2019 to instill a spirit of scientific enquiry and exploration in our students. Mr. Ronak Jogeshwar, an eminent expert at AIM, NITI Aayog, Government of India, did the honors. Also present on this occasion were the chairman of our school Dr. A.K. Sharma and manager madam, Mrs. Anita Wadehra. This lab is an initiative of Central government for providing opportunities to work with tools and equipment under the concepts of STREAM.



## ATL ACTIVITIES-(SEPT2019-TILL DATE)

Showcase ......

We secured first prize in Robotics in ATL Tinker fest at HRMS Punjabi Bagh on 1 Oct 2019.





We participated in ATL Marathon 2020 with a project named 'kalpataru' which was appreciated by Dr. K.K. Aggarwal.

We organised a painting competition at DAV Rohini on 'Gandhi Jayanti' day in our ATL.



#### E-WASTE MANAGEMENT (2019-22)

We handed over 125 kg of e-waste, (responsible for environmental pollution) like mobile phones, CD's, cables, mouse, joystick, earphones, chargers etc in the month of Nov 2019, since recycling is the need of the hour.



ATL LAB of D.A.V Public School, Rohini also organized" E-waste awareness drive- E- Safai" in collaboration with GEMS Group of Companies, on 2nd August 2022. Dr Vijay, who is an active member of E safai initiative by GIZ India and RLG India, conducted a workshop to sensitize students about hazards of e-waste and its proper disposal followed a memorable street play showcasing the importance of recycling E-waste



#### Prakash utsav

We invited students from different non-ATL schools to celebrate ATL Community Day & 'Prakash Utsav' at DAV Rohini in the month of Nov 2019.



Wishing all a very happy and blessed Diwali. 'Keep tinkering and innovating'.

Let's take a pledge to make our society, our nation and our planet a better place, to live in.



#### **MENTOR SESSION**

A mentorship session was conducted in the ATL of DAVPS Rohini on 12 Dec 2019 which was taken by our own alumnus Ms. Swati Achra. She explained our students that real role of science and technology is not just to provide advancement and ease in our life but also in handling very basic things like waste disposal system by segregation of wastes to have cleaner and healthier society. She shared ideas of her research work, which she is pursuing in Belgium in the field of NANOTECHNOLOGY.



"When we change the way we look at things, the things we look at change".

Our little tinkers have surprised us with the way they made smart calculator using Aurdino.

They have started realizing that learning is best with experiments and activities.





#### ATL - TINKERING BEGINS AT PRIMARY LEVEL

With a series of visits by the Primary Wing students, the ATL room buzzed with infectious zeal to glow in the world of LED lights. Students are introduced to the functioning of electric circuits and are explained how LED glows. Celebrating young creative instinct, the students were guided and encouraged to utilize the uses of LED they learnt in pictures they made to spread the message of a clean and green Diwali.



'We are what we repeatedly do. Excellence is not an act but a habit'

Proud moment for ATL DAV Rohini
Due to the sincere efforts and skillful execution, an
App. designed by the youngest student of our school
Lisha Aggarwal from V B has been selected to be
displayed on Plezmo Community App.



#### **NEW VENTURES**

#### **SUMMER CAMP:**

In the past few years our society has acknowledged that "Coding & Artificial Intelligence" have become an indispensable part of the digital era. Coding is considered as one of the crucial tools to develop the key 21st-century skills like Logical Thinking, Creativity, Computational Thinking, Critical Thinking, Problem-Solving etc. We, at DAV Public School, Sector 7 Rohini, organized a summer camp where classes on Robotics, Coding and Artificial Intelligence were conducted. Now this trigger is going to continue in full form for our teachers and students through "Tinker—Coder program by Stemrobo".







#### **NEW VENTURES**

International year of Sustainable Development Goals-SDG 2022: The students of DAVPS, Sec 7, Rohini have taken great interest in participating in a 'best out of waste' activity to create awareness about the sustainable development goals as built by UN. Goals like NO poverty, zero hunger, quality education, gender equality, reduced inequalities are some of the discussed goals which made its place on the wall solely dedicated for portraying today's SDGs.

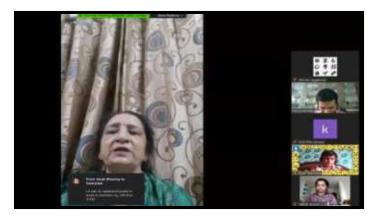


# ATL 1<sup>ST</sup> ANNIVERSARY CELEBRATIONS

We, at DAV Rohini, celebrated the first anniversary of ATL online, on Zoom platform. To create a more inclusive society of young innovators & foster an environment of Innovation and Creativity by exposing the children to the world of design, thinking and tinkering, we conducted a Mentor session by our alumnus Mr. Mayank Garg, on the theme "Robotics" on 27th Sep'20. On this day, our students were engaged in a plethora of activities(online) under the able guidance of, a team of qualified and efficient mentors. Our principal ma'am and all the supervisory heads congratulated the students and the teacher coordinators.









DAVPS, ROHINI-ATL MANUAL

# ATL 2<sup>ND</sup> ANNIVERSARY CELEBRATIONS

"As rightly said by Helen Keller, Alone we can do so little and together we can do much".

schools it is achieved .ln through Atal tinkering lab. which NITI AAYOG has established under the Atal Innovation Mission (AIM) .It is an extremely rewarding for our students that they didn't stop this innovating in even pandemic time,



they kept their spirits high always to explore, learn and innovate. They participated in making 'Plezmo App designing, Atal tinkerpreneur projects and coding in 'Scratch' and many more such programmes started by NITI AAYOG. We feel proud to announce that our ATL has celebrated its second anniversary on this 27th September 2021 where our students showcased their projects in an online with a great zeal and enthusiasm. The celebration begin with a webinar on "Artificial intelligence". Our Principal ma'am Ms. Rajbir Kaur appreciated our student's work with her motivating words. It is the need of an hour to come together and encourage our Neoteric innovators to create a better world to live in .We should keep TINKERING and keep INNOVATING.

#### **ATL MARATHON 2021**

#### 1. SHIKSHA KA PITARA:

Every problem has a solution .The concern is to look for it. Inspired by the efforts of UNICEF, to provide education to students displaced in the cyclone hit Africa, our team innovated an idea called "Shiksha ka Pitara". Using this model we aim to cater education to students in remote areas with no access to learning tools . Our "Shiksha ka pitara" brings with it weather resistant books, waterproof bags, table and reusable Slate and also a projector based on basic principles of refraction and reflection. It also consists of a creative pen, a tool for fun learning. All the materials used are either user-friendly or recyclable.

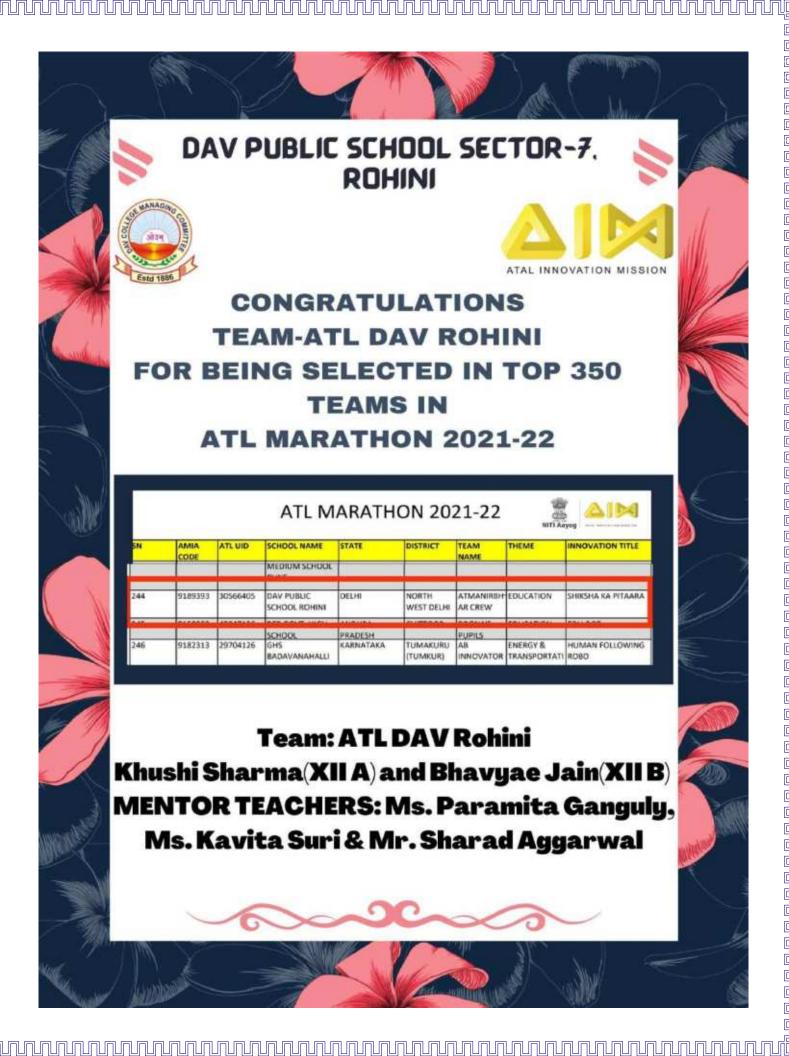
#### 2. HEALTH AND NUTRITION APP:

"He who has health, has hope; and he who has hope, has everything". Therefore, we made an interactive and user friendly web application to make the children aware of their BMI (body mass index) and health problems associated with obesity. This application also tests their knowledge and makes them aware about their health. It also provides nutritious alternatives to junk food with an exercise regime to keep them healthy. The application also gives information about various causes of obesity, its symptoms, the underlying health problems associated with it and the corrective measures to eliminate the same.

#### 3. ERADICATE POVERTY:

Solution:- Creating a platform to connect people to know about the schemes of government





## ATL PROJECTS AT GLANGE

Timeline .....

DATE	EVENT NAME & DETAILS	REMARKS	
1. 1 <sup>ST</sup> Oct 2019	ATL Tinker fest, HRMS Punjabi Bagh	Secured first prize in robotics	
2. 19 <sup>th</sup> Oct 2019	Painting Competition at DAV Rohini on 'Gandhi Jayanti'	Appreciation Certificate	
3. 12 <sup>th</sup> Nov 2019	ATL Community Day & 'Prakash Utsav' at DAV Rohini	Students from non-ATL schools were invited.	
4. 23 <sup>rd</sup> Nov 2019	Regional level competition by CBSE	Participation certificates	
5. 12 <sup>th</sup> Dec 2019	Mentor session on 'use of Nanotechnology in science'	Conducted by our Alumnus 'Ms. Swati Achara'	
6. 26 <sup>th</sup> Dec 2019	Teachers training session on 'use of technology in day to day life'	Conducted by mentor from Stemrobo pvt. Ltd.	
7. 8 <sup>th</sup> Jan 2020	Inaugration of 'Budhi kit' of AI at IIT Delhi	Our student from classes 11 <sup>th</sup> and 12 <sup>th</sup> attended the seminar	
8. March 2020	Participated in ATL Marathon 2020 with a project named 'Kalpataru'	Appreciation by Dr. K.K. Agarwal	
9. Aug 2021	Teacher training on Plezmo app	Attended by mr. Sharad Agarwal	
10. From 20 Sep 2020	Training for students on Plezmo app	Around 200 students of classes 6 <sup>th</sup> to 10 <sup>th</sup> keep attending these sessions	

DATE	EVENT NAME & DETAILS	REMARKS	
11. 27 Sep 2020	Online webinar on 'AI'	Conducted by our alumnus Mr. Mayank	
12. Jan 2021	Online training on AIM, IBM ATL-OTT	Mr. Sharad Aggarwal attended it.	
13. Jan 2021	Online classes on Scratch and Plezmo & 3D Printer	Teacher's training by NITI Aayog from SRF foundation	
14. Jan- March 2021	Online classes for classes 5 <sup>th</sup> to 10th	Students actively participated in it.	
15. 27 Sep 2021	Online workshop for students & ATL 2 <sup>nd</sup> anniversary celebration	Students showcased their modules online.	
16. 1st Nov 2021	Celebration of 'ek Diwali Maths wali'	Students of 9th & 10th made mathematics lighting lamps with shapes	
17. 10 <sup>th</sup> Dec 2021	Celebrated 'Netaji Subash Chadra Bose Jayanti'	Students of 12 <sup>th</sup> made sketches of him	
18. 15 Jan- 15 Feb 2022	ATL Tinker fest –synergy 2021- 22 organised by DAV Rohini	32 students from Delhi and outside Delhi participated online in competition	
19. 26 <sup>th</sup> April 2022	Mock Drill conducted on 'disaster managment and fire fighting'	Class 9 <sup>th</sup> and 10 <sup>th</sup> were given demonstrations	
20. 25 <sup>th</sup> Aug 2022	Participated in an event 'Robo fight challenge' by Doon Public School, Pashim Vihar	Class 10 <sup>th</sup> student won 3 <sup>rd</sup> prize	
21. Aug 2022	EVS Management by 'Nukkad Nataka'/street play	Classes 11 <sup>th</sup> &12 <sup>th</sup> participated	
22. Aug 2022	Celebrated 'Azadi ka Amrit Mahotsav'	Classes 11 <sup>th</sup> &12 <sup>th</sup> participated in kite flying	





## ATL SYNERGY-TINKERFEST

Success is life altering. The idea of being and feeling successful enriches lives. People nurture all kinds of dreams and aspirations into what they love. The efforts they put in to achieve, manifest in fruitful results. DAV PUBLIC SCHOOL ROHINI is organizing an Inter school Competition ATL TINKERFEST- SYNERGY DAV ROHINI 2021-22 to provide a platform to budding talents to showcase their creativity and skills.

#### "Imagination and creativity can change the world"

With a belief in the above words, **DAV ROHINI** organized a plethora of
online activities wherein students of
different schools showcased their creativity
and talent in the field of
SCIENCE and

TECHNOLOGY

#### **TABLE OF EVENTS**

<u>sno</u>	EVENT NAME	TOPIC	CLASS
1	ADUMBRATE	GAME DRAFTING	VI -VIII
2	APP RACHNA (APP DESIGNING)	APP MAKING	IX-X
3	METEOR (MEME CREATION)	ARTIFICIAL INTELLIGENCE	IX-X
4	TRANSFORMATION (COLLAGE MAKING)	INTERNET of THINGS (IoT)	X
5	INTERFACE DESIGN (WEBSITE DEVELOPMENT)	STEM	XI-XII
6	CIPHERING (PYTHON CODING)	COMPUTER GAME	XI- XII
7	MECHANIX	PROBLEM SOLVING PROJECT	VI -VIII



#### RESULT HIGHLIGHTS OF THE



#### **EVENTS**

EVENT NAME	1st POSITION	2 <sup>nd</sup> POSITION	3rd POSITION
1. ADUMBRATE (GAME DRAFTING)	Navy Children School, Chanakyapuri	ST. Mark's Sr. Sec. Public School Meera Bagh	Fr. Agnel School, Gautam Nagar & ML Khanna DAV Public School, Dwarka
2. APP RACHNA (APP DESIGNING)	Delhi Public School Noida	OPG World School Dwarka	St. Arnold's School Pune & DAV Public School Jasola Vihar
3. METEOR (MEME CREATION)	OPG World School Dwarka	Queen's Valley School Dwarka	Navy children school Chanakyapuri
4. TRANSFORMATION (COLLAGE MAKING)	Queen's Valley School Dwarka	ITBP Public School Dwarka	DAV Public School Jasola Vihar
5. INTERFACE DESIGN (WEBSITE DEVELOPMENT)	DAV Public School Shrestha Vihar	Fr. Agnel School Gautam Nagar	Indraprastha International School Dwarka
6. CIPHERING (PYTHON CODING)	Indraprastha International School Dwarka	Amity International School Saket	DPSG Meerut Road
7. MECHANIX (PROBLEM SOLVING PROJECT)	Delhi Public School, Noida	Maharaja Agrasen Model School, PitamPura	Hansraj Model School Punjabi Bagh

## ATL EXHIBITION [26 SEPTEMBER 2022]

#### CLASS 5<sup>TH</sup>

#### **MERGE CUBE**

The Merge Cube lets you hold digital 3D objects (holograms), enabling an entirely new and powerful way to learn Science and STEM. Now you can explore a galaxy in the palm of your hand, hold fossils and ancient artifacts, explore a DNA molecule, investigate the Earth's core, dissect a virtual frog, and much, much more!

Participants: Aaryav 5C, Deepanshi 5C





#### **MAGNETIC AIR HOCKEY**

Based on working of air hockey, our board game made by waste cardboard box simulates real hockey game where we have a marble that acts like the ball and metallic pieces attached to human figures(players). We move a stick with magnetic head under cardboard and metallic figure moves and it looks like players are playing the game.

Participants: Arnab Mondal 5E, Raghav 5D

#### **LED NIGHT LAMP**

Students will make use of e-waste to create their own night lamps. Led bulbs will be attached to wires wrapped up in ice cream cup and then to any charger or power bank. To cover the cup, students can draw any picture on transparent sheet and personalize it.

Participants: Hanshika 5C, Aman 5C



# HOVERCRAFT

#### **HOVERCRAFT**

Hovercraft is an air cushion vehicle that moves over land or water on a cushion of air. It helps us to explore Newton's third law of motion according to which for every action there is an equal and opposite reaction. The small hole in the center of the CD forces air escaping from the balloon downwards. This creates an opposite force upwards which lifts the hovercraft off the ground and thus the hovercraft moves.

Participants: Gauransh 5C, Gaurika 5C

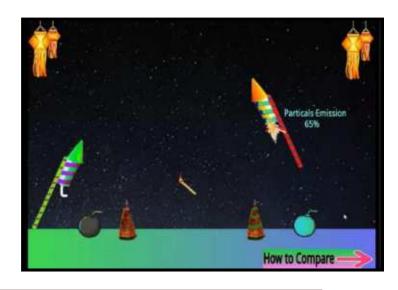
#### CLASS 6TH TO 8TH

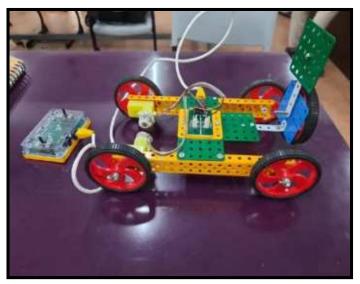
#### <u>DIGITAL CRACKERS (SCRATCH)</u>

Digital fight against smoke pollution due to crackers produced during various occasions.

This is a scratch project which can be converted into HTML or an android app, whichever preferable.

Participants: Lisha Aggarwal 7B





#### **MECHANICAL ROBOTIC CART**

Robotics is an interdisciplinary sector of science and engineering dedicated to the design of construction and use of robots.

Robots are also used in the manufacturing, assembly, packaging, earth and space transport. Mechanical robotic car is a programmable mechanical device that can perform tasks and interact with its environment.

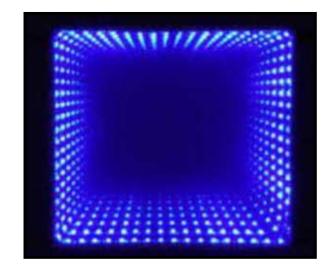
Participants: Aditya Narain, Aryan Jain 7D

#### **INFINITY MIRROR**

Infinity mirror is when two or more parallel mirrors create smaller and smaller reflections that appear to recede to infinity. The principal behind the working of infinity mirror is that two mirror surfaces are placed such that the light gets bounced between these mirrors.

In similar appearance in artworks of infinity mirror has been called the "droste effect".

Participants: Ishika Kaushik 7A, Jasleen 7A





#### **HYDRAULIC BRAKE SYSTEM**

A Hydraulic brake is an arrangement of braking Mechanism which uses brake fluid to transfer pressure from controlling mechanism to braking system. Hydraulic brake transfers force of fluid to stop rotating object or wheels.

Participants: divyansh yadav & aamid ali 7A



#### **ENO POWERED ROCKET**

ENO powder is the fuel for the rocket. It contains citric acid and sodium bicarbonate in dried form, thus they remain un-reactive but when we add water, citric acid reacts with sodium bicarbonate to convert them into a large amount of carbon dioxide[CO2] and water. [Third law of Newton]

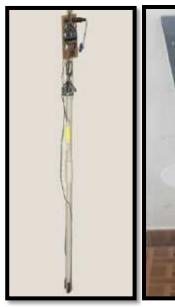
Participants: Jishnu Mahour 8D, Harshit

Bhandari 8D

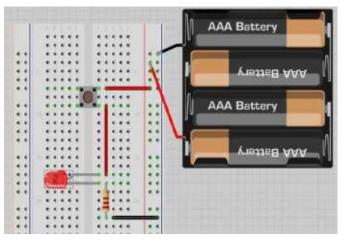
#### **SMART BLIND STICK**

The blind stick is able to detect the water by integrating with ultrasonic sensor. In this system, the ultrasonic sensors are used to detect obstacles by using ultrasonic waves. The main advantage of the system is that it helps the blind people in both indoor and outdoor, care-free navigation. The smart stick helps in detecting obstacles placed at a distance in front of the user.

Participants:— Ayush Kumar 8B, Akshat Kumar 8D







## HOW TO USE A BREADBOARD AND BUILD A LED CIRCUIT

A breadboard is a great tool for quickly testing out a prototype circuit or hooking up a quick experiment. Breadboarding is an important step in testing out ideas or learning how things work.

Participants: Aditya Gaur 8D, Abhinav Kumar 8D

## DISASTER MANAGEMENT (SCRATCH)

This App gives information about earthquake and floods.

How do they occur, how do they start and end, provides safety precautions, etc.

And at the end there is a quiz related to what you have observed.

Participants:— Bhavya Gulati, Vihaan Shandilya 8C







#### CLASS 9<sup>TH</sup> & 10<sup>TH</sup>

#### **3D PRINTER**

A 3D Printer is a manufacturing tool used to create three-dimensional artifacts that have been designed on a computer. 3D printing is a hands-off manufacturing process; just by pressing a button, whatever you design will be made. There are three broad types of 3D printing technology; sintering, melting, and stereo lithography.

Participant:- Pratyush Aggarwal 9E





#### **SMART DUSTBIN**

The smart dustbin uses an Ultrasonic sensor HC-SR04 to detect objects in front. It then sends the signals to Arduino Uno. The Arduino understands the signal and sends a signal to the Servomotor which opens the flap on top of the dustbin.

Participant: - Kartik Vashisth 9F

#### **POCKET COMPUTER**

Raspberry pi is a small pocket computer. It just needs a screen and works like a normal computer. It is cheap and affordable and most importantly easy to carry anywhere. It acts like a CPU and provides wifi, Bluetooth and USB 2.0 support with 512 mb to 8 gb ram.

Participant: Ansh Sharma 10A



#### **ROBO WAR CHALLENGE**



It is Arduino based Bluetooth mobile robot .Arduino, Bluetooth module and motor driver is used in this project. A robot car based on Arduino Platform is controlled using Bluetooth and a Android app. It operates via mobile Bluetooth. It is a robotic fighter car. It can fight with other robots and can even damage robot.

Participant: Shivam Dhawan, Daksh Bhandula 10E

#### **CLASS 11<sup>TH</sup> & 12<sup>TH</sup>**

## WIRELESS TRANSMISSION OF ELECTRICITY

A transmitter device, driven by electric power from a power source, generates a time-varying electromagnetic field, which transmits power across space to a receiver device, which extracts power from the field and supplies it to an electrical load. It is useful to power electrical devices where interconnecting wires are inconvenient, hazardous, or are not possible.

Participants:- Sanskar Shukla 12C, Chavvi Hargun 12A





#### **PULSE MEASUREMENT METER**

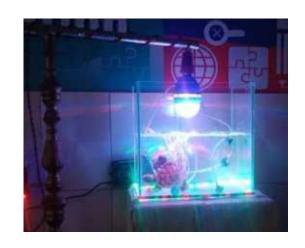
It's an instrument to measure the pulse rate of patients or athlete by just placing the finger on the heart shaped pulse sensor. It is quite useful for the patients who have fluctuating pulse rate. There is no need to rush to the hospital every time for diagnosing the fluctuating pulse rate. The material used in this device is ardunio uno, pulse sensor, jumper wires and an LCD display.

Participant:- Piyush 12B, Paakhi 12B

#### **AUTOMATIC BLUETOOTH LIGHT**

We focused on creating this light decoration mainly using LEDs and water bubbles. We can display million of colors and 100+ light patterns from this decoration and we can control this easily by simple mobile application via Bluetooth. We have also installed sound for better experience.

Participant:- Ritik Arora, Palak Singhal, Vansh Rathour, kaustabh 12C



#### **2D,3D GAME(UNITY SOFTWARE)**

So in this game in starting the player will get a ball and their character has to put the ball in the goal that is protected by various obstacles and enemies. The enemies are equipped with weapons and can shoot you at the same time players will also have some weapons and powers. The player has a health bar which keeps decreasing on continuous attacks. Once the health bar reaches zero the player gets respawned. Winning objective is clear that you have to move your player forward avoiding obstacles and killing enemies and put the ball in the goal, Once the goal is scored you win





Aesthetics-

Competitive

Sporty feel

Action

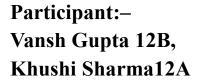
Become a star player

Participant:- Pious Sharma,

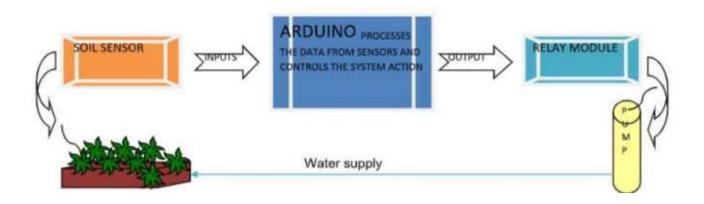
Prakul Khanna, Rishi Jha 11B

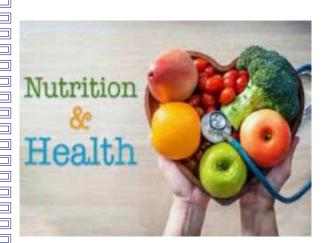
#### **SMART IRRIGATION SYSTEM**

"Smart irrigation system project" is a device, which is arduino based, and it uses sensors to detect the water requirement of your plant in soil. Once it gets the signal about lack of moisture content in soil or low water level in the fields ,it will automatically provide for the water supply to the target area. It is easy to use, water saving, cost effective modern irrigation technique. Great, isn't it?









#### **HEALTH AND NUTRITION APP**

We found solution by Creating a interactive and user friendly web application to make the children aware of their BMI( Body Mass Index) &health problems associated with obesity .This app also tests their knowledge & make them aware about the healthy and nutritious alternatives to junk food with an exercise regimen to keep them healthy.

Participants:- Tanmay Mathur, Yatharth

App link - https://webinar.plezmo.com/dnNP

Sachdeva, Vansh Gupta 12B

#### **TINKER ORBIT KIT**

Aim: To detect Temperature, Humidity and distance. The distance sensor: It detects the distance of an object at a range, once the object exceeds the range fan starts moving and light glows up. The temperature and humidity is detected by DHT sensor. All of these values are displayed on the OLED screen.





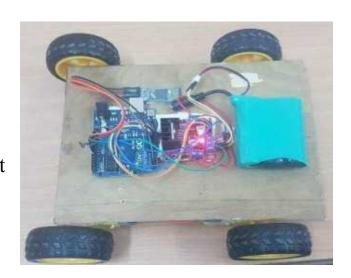
#### **VAN DE GRAAFF GENERATOR**

A Van de Graaff generator is an electrostatic generator, invented by an American physicist Robert J. Van de Graaff. It uses a moving belt that accumulates charge on a hollow metal structure designed like a globe, placed on the top of a column that is insulating in nature and thus, creating a very high electric potential in the order of a few million volts. This results in a very large electric field that is used to accelerate charged particles.

Participants: - Mohd. Zuhaib Ahmed, Sushant Chandra 12B

## BLUETOOTH CONTROLLED ROBOTIC CAR

Bluetooth controlled robotic car the project has mainly these following blocks 1 order Two Bluetooth module three DC motor driver for DC motor Rio 1 and DC motor to it can be used in low range mobile surveillance devices military applications without human intervention assistive devices like wheelchairs and home automation but the range of the Bluetooth communication is limited.





## AUTOMATIC SENSOR LIGHT(INAUGRAL CEREMONY)

This project is about Smart light, which will turn on while a person is comes close to it. Here we are using **IR sensors** that senses the position of the person. When person passes by a particular IR sensor it senses the position of person and gives its signal to the arduino board and it will turn on the LED's.

Participants:- Kavyansh Goel, Bhavyae Jain 12B

