

Dr APJ Abdul Kalam Ignited Mind Children Creativity and Innovation Awards 2020

In the memory of Dr. A.P.J. Abdul Kalam, the Honey Bee Network, SRISTI, and GIAN jointly organise a national competition of student's innovative and creative ideas with the name of **Dr APJ Abdul Kalam Ignited Mind Children Creativity and Innovation Award**. The competition accepts entries from students up to class 12 or children up-to 18 years of age. This award aims to develop a culture of the *samvedana* amongst the children to address unmet social needs. The idea is to make children aware of the problems and hardships that have been faced by the common people in their day-to-day life and with which many of us have learned to live with. Hence if children start becoming impatient with social inertia at an early age, it is likely that they will bring about more creative and compassionate changes in the society as they grow up.

Dr APJ Abdul Kalam Ignited Mind Children Creativity and Innovation Awards 2020 received around 9000 entries from 22 states and UTs across the country. Out of these, 9 awards and 6 appreciations were selected. The virtual award ceremony was held on **March 11, 2021** and the awards were given away by eminent scholar **Padma Vibhushan Dr RA Mashelkar, FRS**.

Padma Shri Prof Anil Gupta while welcoming the guests highlighted that Late Shri Abdul Kalam had always been a great promotor that children should be allowed to think without any bias or notion implanted onto them. He also stressed that children, when left free to think and act according to their own will, look for unconventional ideas to solve unmet societal needs.

Hon'ble chief guest of the function **Dr Mashelkar**, while addressing the children, pointed out the need to promote more such activities at national as well as local level to encourage children to work towards meeting the unmet needs of the society. He also said that even if we eventually find water on the moon, it would be of little help if we could not save water in our surrounding areas. He also mentioned when people ask him why is he such an optimistic personality, he says that it is the children of this country which gives him hope and confidence that India's future is in good hands and so the reason behind him being such an optimistic person.

For the screening and selection of the awards, the Members of the review Committee included Prof Anil K. Gupta (Founder, Honey Bee Network, SRISTI, GIAN, & NIF, and CSIR Bhatnagar Fellow 2018-21), Shri PVM Rao (Professor and Head, Department of Design, IIT Delhi), Dr Viswajanani Sattigeri (Head, CSIR TKDL), Prof Vijaya Sherry Chand (Professor & Chairperson, Ravi J. Matthai Centre for Educational Innovation, IIM Ahmedabad), Prof Ambrish Dongre (Professor, RJMCEI,

IIM Ahmedabad), Prof Premilla D'Cruz (Professor, IIM Ahmedabad), Prof Navdeep Mathur (Professor, IIM Ahmedabad), Dr Vipin Kumar (Director and Chief Innovation Officer, NIF), Dr Nitin Maurya (Scientist, NIF), and Dr Anamika Dey (CEO, GIAN).

Highlights of the awards:

- The HBN received overwhelming response from the students despite the fact that we sent out the announcements for the Ignited Mind Awards during the lockdown. Reaching out to the schools for the purpose during the pandemic was also a challenge. But nothing could dampen the enthusiasm of the students who sent their entries in huge numbers.
- We promoted this activity through social media, volunteers of Honey Bee Network [HBN], teachers and other like-minded organizations. The HBN received around 3000 entries from online and 6000 from organizations associated with HBN including GIAN, InShodh, SIR Foundation, HBN Innovation Clubs of Haryana, Orissa, Himachal Pradesh, SRISTI etc. The award and appreciated consolation award winning entries were nine and six respectively. After reviewing the entries, we could see the enthusiasm of the children in addressing the unmet social needs.
- The entries were received from students of all classes from rural government schools and private schools in metropolitan areas. We received entries from even dropout children. This clearly shows that awards are not restricted to students from any particular background and their creativity cannot be limited by any constraints.
- The children from non-metro cities bagged the most awards, primarily from tier-3 and 2 cities leaving only a small pie for the children from metro cities.
- The students did not restrict themselves to submitting their ideas to solve the current problems but also chose to give solutions to deal with future problems and unforeseen issues like Covid-19. It is very evident that given an opportunity, spirit of creativity and zeal of our children can make a positive difference in our society.
- We were also able to convert some of the award winning ideas into products for use by the common people. One such example is a sieving device to clean various grains ideated by Bodhisatva Ganesh Khanderao of Yavatmal, Maharashtra. He made nearly six different designs of the device (of which the latest one is selected for Ignited Mind appreciation award) and distributed such machines to 48 widows.
- There were also cases where we received ideas which have already been given shape in India or abroad and hence we could not accept such brilliant ideas for awards.

- These awards have reinforced a culture of innovation amongst children, their teachers and family members as well. Children don't need endorsement or mediation of their parents or teachers in sending any number of ideas to the Network institutions, including GIAN, SRISTI and all other collaborators and volunteers at ignited-mind@honeybee.org. The HBN acknowledges their help and hopes that the support from them and new volunteers will continue to scout and resolve the unmet social problems.

List of the awardees:

AWARDS							
Sr. No	Name	Class	Address	Email Id.	Title	Problem	Idea Solution
1	Ms. Jui Abhijit Keskar	9th	The Orchid School, Baner - Mhalunge Road, Baner, Pune ,Maharashtra	keskar.meera-jui@gmail.com	An apparatus for measuring the hand tremor of a patient affected by parkinson's disease.	Non-availability of an effective device for measuring the tremor of a patient suffering from Parkinson's disease.	As described in the drawing, the wearable device will track the 3-D movement of the limb of the patient sending signals to the controller, connected to a database on the cloud. The web application on the cloud can generate the tremor profiling of the patient. The doctor and the patient can directly access the charts. This will help the doctor to understand the intensity, spread, frequency, duration of the tremor and to decide an appropriate medication and physiotherapy plan. Further, the doctor can also get to know the anxiety level of the patient.

2	Sejuti Sarkar	9th	Jawahar Navodaya Vidyalaya, Howrah, West Bengal	sejutisarkar2006@gmail.com	TYPHA: An organic water purifier bag	There is no affordable and simplified solution so far to purify water in small quantities.	After cleansing the roots of Typha plant, we need to grind it to powder form. We can then keep ten grams of this powder sealed in small bag in 500ml water for 25-30 minutes to get a completely purified and potable water. This affordable method of purifying water in small quantities would benefit all sections of the society.
3	Shreyash Gedam	9th	Dhyaneswar vidyalaya, salebhata, Thlakhni, dist Bhandara, Mumbai, Maharashtra	ra-shirborkar14@gmail.com	Cycle-operated low cost spraying machine	The need for a cost effective spraying machine remains unmet.	This cycle-operated spraying machine helps in ploughing as well as spraying operation with much ease minimizing the hardship. It is not only a low-cost but also a user-friendly solution.
4	Saurav	9th	Govt. Senior Secondary School Camp Yamunanagar, Haryana	darshan.baweja@gmail.com	A device for laying and wrapping school mat	Absence of an effective solution to do the routine of laying out and wrapping up of sitting mats in schools.	The student has designed a time saving device to do the chore of laying the sitting mat for serving mid-day meal to children in schools in proper manner and wrapping it up after use.

5	Parthvi	8th	Mukund Lal Public School Sarojini colony Yamunana-gar, Haryana	In-duarora71@gmail.com	Supply of fresh air to the house through electrical fittings	Non-availability of a simplified and cost effective system to provide fresh air to all the rooms of a house.	We keep pipes of electrical fittings with its wires inside the walls in hollow soft plastic pipe of 3 to 6 mm. All the rooms, lobby and kitchen have these wires embedded in the switch boards. We will install an electric pump / blower at the top of the roof with filters to maintain the circulation of fresh air in the pipe. This pump will blow air through that 6mm soft pipe to all rooms, each of which will have an air opening in each electrical switch board. Fresh air will come inside the house through this opening placed in the switch board. This method will increase the oxygen level in the house. Even when we keep our windows and doors closed, we will still continue to experience fresh air flow in the rooms through the soft plastic pipes of electrical fittings.
6	Digantika Bose	12th	Memari V. M. Institution Unit 2, P.O and PS-Memari District Purba Bardhaman	digantikab@gmail.com	Reduction of pressure on the ears due to the continuous use of mask	Poor design of masks for longer duration of use by the people in public service.	Health workers, police, and users have to wear masks for long durations causing constant pressure on the ears. The student has designed a support system out of a discarded plastic,(or flexible board) which will stick to the back of the head while using the mask. As a result, there will be no pressure behind the ears.

7	Charmi B pandya	10th	Shri Vividhlaxi Vidhyamand ir, palanpur, Gujarat	bhavesht- pandya2008@gma il.com	A height ad- justable chair for old and physically challenged people	Unfriendly design of chairs for the el- derly and physically challenged..	Many adult and physically challenged people face a serious discomfort while they attempt to sit on a chair. The student has designed a chair which would help the person to raise its height by the handle placed on the side of the chair. The physically challenged person can sit on such a chair and also can stand by making the backrest of the chair raised to the desired level. This will make it easier for the person with disabilities to get up from the surface of the ground without hardship.
8	Aniket Prashan- trao Kakde	10th	School of Scholars ,Yavatmal, Maharashtra	aniket- kakde509@gmail. com	Mobile oper- ated auto- matic sanitiz- ing machine	Non-availability of a system to operate a sanitizing machine without direct hu- man intervention.	The student has developed a working model of mobile-operated sanitizer spraying device for use in various public and other spaces.

9	Sree Samhita Gundimeda	10th	Kendriya Vidyalaya No. 3 Gandhinagar cantt, Army Cantt, Gujarat - 382042	sree.samhita@gmail.com	Device to detect and avoid accidental crushing of fingers in the doors	Absence of an effective solution to avoid accidental crushing of our fingers when doors are automatically/forcibly closed	We start by connecting IR (infrared sensors) to detect obstacles (a human hand or finger) to the Arduino and feed that information to the micro-controller. The IR sensor has transmitters on the one side [up or down] and the receivers on the other side. We get all the IR transmitters and receivers connected to one Arduino. The IRs detect any object which goes to the Arduino and make the LED glow (as light indication). A voice message or alerts are also other possibilities. The photosensitive sensor or the programmed Arduino can sense the LED light. When IR sensors detect obstacles, it signals to the hinges to lock itself or put an obstacle in the middle. If we are using special lock hinges, we may have to design the same for this purpose.
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APPRECIATIONS							
Sr. No	Name	Class	Address		Title	Problem	Idea
1	Yash Gokul Kshirsagar	8th	Malojiraje Vidyalay, Lonand, Post Lonand Taluka Khandala, Dist-satara Maharashtra	sneu06@gmail.com	A small scale groundnut thresher	Drudgery of manual separation of groundnuts from the pods	Separation of groundnut is a daily need in the kitchen. The student has made a thresher out of waste parts of a motorcycle and a bicycle. After filling the machine with the whole groundnuts, we can rotate its pedal to get the seeds and the crushed earpods out. Then, one can easily separate the seeds from the earpods. It can separate one kg of seeds in one minute and does not require any fuel. Its economical and ecofriendly.
2	Sandip biswas	11th	Jawahar Navodaya vidyalaya pirulia , West Bengal	sandip-wws2002@gmail.com	Folding crutches with chair	Unfriendly and poor design of crutches	The student has designed crutches with a chair-like facility for sitting for the physically challenged. In this system, we can fold the two parts of a crutch shown in the diagram to form a chair for the user to sit comfortably without any extra efforts. This is much more helpful for them and we can also modify the existing crutches at low cost.

3	Priyanka Turkey	11th	Holy Cross Higher Secondary School Chhattisgarh	adey401@gmail.com	A machine for making fuel from CO2	Non-availability of fuel free from causing pollution.	By using this machine which produces fuel out of atmospheric CO2, we can, to some extent, escape the pollution caused by the use of diesel and petrol. The machine collects the CO2 present in the atmosphere and heats the same at a very high temperature by using various chemical reactions for the purpose. While some scientists abroad have developed the technology, it is still at an experimental stage.
4	Vishal Kumar	9th	Government Senior Secondary School, Damla, Haryana	vk6219300@gmail.com, Sahil.kamboj00786@gmail.com	Battery powered rickshaw for sweeping the road clean	The problem of untidy roads requiring a low cost automatic sweeping machine	This rickshaw is solar-powered and battery operated. A broom attached below the rickshaw sweeps the street wherever it moves. It can sweep the garbage on one side of the road on the move.
5	Deg Busra Imtiyaz Adam	8th	Primary Mishra School, parkhet, Bharuch, Gujarat	parkhetmish-raschool1872@gmail.com	A litmus-type paper strip to detect artificial sweetness injected into the fruits	Lack of cost effective method to detect the artificial sweetness injected into the fruits/vegetables	Now-a-days, the vendors inject artificial sweetner in the fruits to boost their sales and earn extra money at the cost of our health. We can use a litmus kind of paper to detect the extent of externally induced sweetness injected into the fruits/vegetables as distinct from the natural one. When the vegetables/fruits are put to test by this paper strip, the colour changes if artificial usage of sweetness injected into the fruits/vegetables.

6	Bodhisatva Ganesh khanderao	8th	Kendriya Vidyalay Yavatmal	khanderaogan- esh007@gmail.co m	Multigrain sieving ma- chine to clean various grains	Drudgery involved in cleansing various grains and the ab- sence of an easy to use and cost effec- tive method to do this chore.	The student has designed this mechanical sieve to cleanse a huge amount of different types of grains. This is a very simple sieve which we can use manually or electrically. We can keep the sieve on a firm metal stand to be moved up and down like a seesaw to cleanse the grains. Further, we can change the mesh suiting the size of the grains.
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