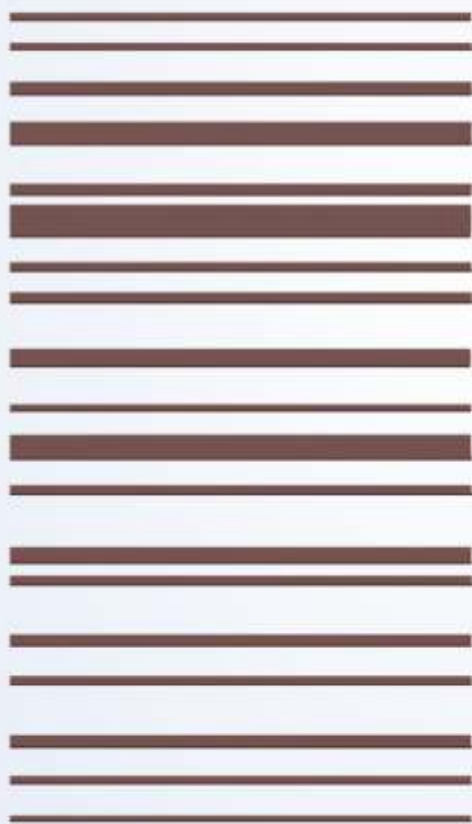


Dr. APJ Abdul Kalam

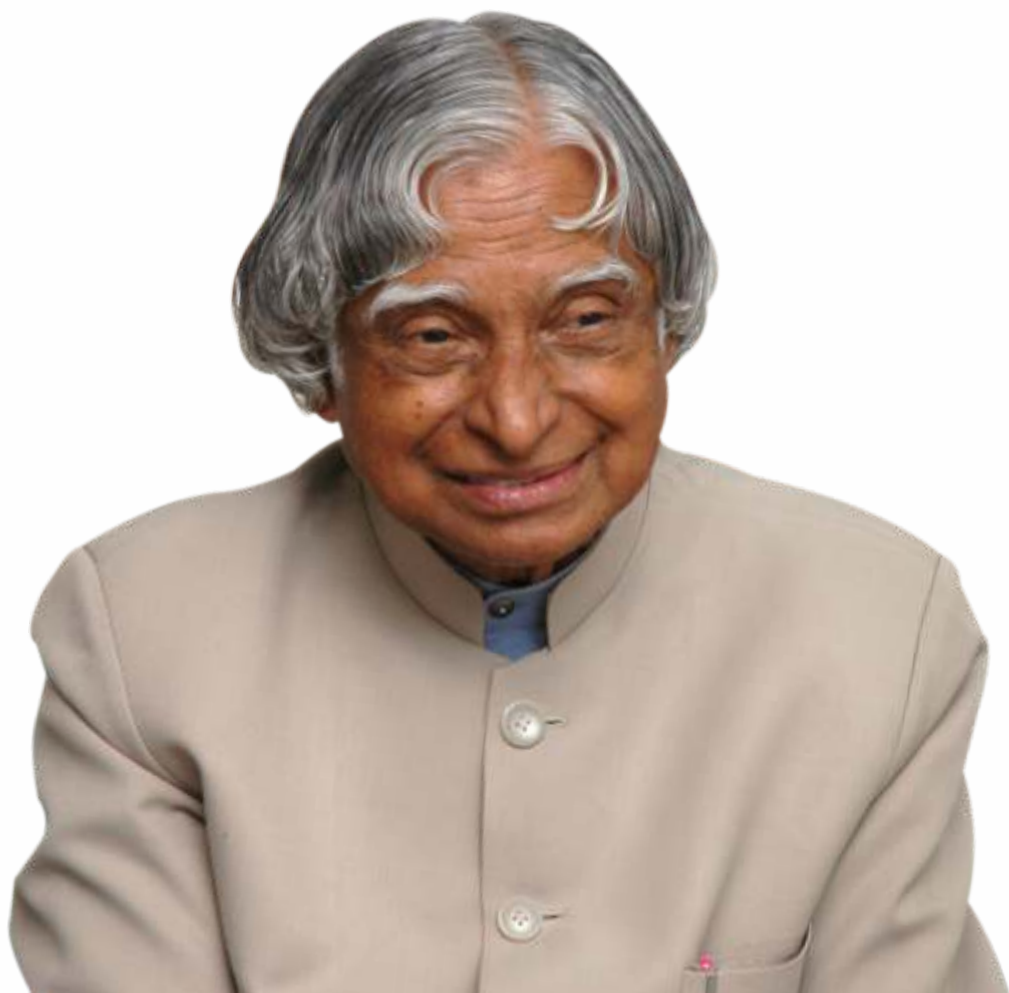
ignite

Awards 2019





**Dr APJ Abdul Kalam IGNITE Awards at the hands of the
Hon'ble Former President Shri Pranab Mukherjee
November 30, 2019**



Remembering Dr APJ Abdul Kalam
Former President of India
1931-2015

Preface




Dr. PS Goel

Chairperson

National Innovation Foundation-India

Dr APJ Abdul Kalam IGNITE Awards 2019 will mark the fifth consecutive year of conferment of the awards to innovative and creative children at the hands of Bharat Ratna, Hon'ble former President of India Shri Pranab Mukherjee. As I compose this note for the IGNITE 2019 Award book, a bunch of 21 young and creative children will be preparing to witness one of the finest days in their lives till now – the Dr. APJ Abdul Kalam IGNITE Award function on November 30, 2019. Their wait for the day is different in the sense that it is driven by hope and enthusiasm. The day would eventually generate precious memories characterized by a sense of professional accomplishment so early in life for those winning the awards. I take this opportunity to thank all those who participated in the competition for their spirits and continued focus on Innovations.

There are some distinctive facts about the IGNITE competition that continue to amaze me every year. The first is the innate sense of creativity the children express through their wide range of ideas. What is astonishing to note is their ability to identify problems in ubiquitous things, activities and situations, which appear normal to most eyes, and then come up with ingenious solutions for those. The second is the ever pervasiveness of creativity. Over the years, IGNITE has identified young innovators from far flung hills of Jammu and Kashmir and Arunachal Pradesh, villages in Andaman and Nicobars, interior villages of Tripura, Chhattisgarh, coastal areas of Karnataka, Tamil Nadu and Kerala to name a few and from other remote and backward regions.



The third is the ever - increasing enthusiasm of the young ideators who continue to participate in the IGNITE competitions in huge numbers. To have generations of keen, curious and creative young minds augers well for our country. I particularly like and appreciate the IGNITE award exhibition where the NIF team showcases the prototypes of the award winning ideas. When young children come and see their ideas converted into reality, they feel that the nation cares! The next natural step, I would like NIF to take, would be to ensure the diffusion of some of the useful ideas/innovations among relevant people and regions so that these could be tried, tested and improved based on the feedback received. I hope that adequate steps will be taken in this regard by the NIF. This would contribute towards impacting life of human beings for their well-being by virtue of innovations by students.

With its rich experience in the promotion of innovation, NIF has been an integral part and one of the most important pillar of the innovation ecosystem of the country. In a few months' time, NIF will celebrate two decades of its existence and at this juncture, a bigger role and a bigger mandate awaits the organization.

My congratulations to all the winners of the Dr. APJ Abdul Kalam IGNITE Awards 2019 and compliments to the team NIF for putting in all the effort to make this campaign a great success.

With my good wishes to everyone

PS Goel





प्रो. आशुतोष शर्मा

Prof. Ashutosh Sharma



सचिव
भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
Secretary
Government of India
Ministry of Science and Technology
Department of Science and Technology

FOREWORD

Over the last eleven years, through the Dr. APJ Abdul Kalam competition, the National Innovation Foundation – India (NIF) has been very successful in identifying young creative talent from all parts of the country, from remote and backward areas and from the disadvantaged sections of the society, thereby maintaining a continued focus on diversity and inclusion. There is a high level of awareness among children on IGNITE Competition in the country. This results in NIF getting thousands of creative ideas from children, about 60000 being collected and received this year for the Dr. APJ Abdul Kalam competition 2019. More importantly, the ideas and innovation given by students through the competition represent a variety of solutions useful for the length and breadth of our nation.

As a country, the expectations of rest of the world from India continues to be on a rise with respect to Science and Technology based innovations. It is evident in country's constantly improving performance in indicators like Global Innovation Index (GII) and others. This could be accomplished because innovative citizens including children and now coming forward to share their innovations. As a result, innovations get the much needed voice and attention, which gets them heard at a national level. I congratulate the team at National Innovation Foundation (NIF) – India for institutionalizing the process of scouting, value additional, IPR protection and social and commercial dissemination of innovations in the country, which gives common people including children an unspoken assurance and underlying confidence that their ideas are in safe hands and if they merit, then no stone would remain unturned to incubate.

I am happy by the fact that high quality prototypes developed at NIF that constitute the exhibition on the day of IGNITE award function are developed in a matter of merely a month and a half. Not only it tells us about preparedness in terms of in-house facilities and infrastructure at NIF, but more importantly the commitment to deliver under tight deadlines. At the same time, it also enforces an underlying understanding that "ideas and innovations that win are indeed feasible to implement" which is an important attribute for any given selection process. A step further, these are ideas and innovations that secure patents in future which makes us believe there is a less visible but in existence novelty that specialized institutions like NIF could decode ahead of times while selecting the winning ideas. While the entries are in thousands the awards are only a handful every year, which illustrates the high standards of shortlisting being adopted by NIF. As a result only the most unique of the lot get recognized. This year as well only 21 students have been identified for their 18 innovative ideas.

The Department of Science and Technology (DST) itself continuously brainstorms on developing program and schemes that foster a culture of promoting science and technology based innovations in the country.

I congratulate all the award winners of the DR APJ Abdul Kalam IGNITE 2019 Competition. I hope that many of them will take up a career in Science and Technology and make our nation proud.

With my best wishes to all.

(Ashutosh Sharma)

Director's Message




Dr. Vipin Kumar

Director and Chief Innovation Officer
National Innovation Foundation-India

I am indeed very happy to state that like previous years, this year as well, the Dr. APJ Abdul Kalam IGNITE competition has been very successful in its outreach with over 60,000 submissions being received from 544 districts of all the States & Union Territories of India. In addition to the efforts of the NIF team and some collaborators, a number of State Boards/ Councils/ Directorates/ Departments of Education/ Secondary Education/ Higher Secondary Education of the states of Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, Kerala, Maharashtra, Nagaland, Telangana, Meghalaya, Mizoram, West Bengal, Rajasthan, Karnataka, Punjab, Tamil Nadu, and Chhattisgarh also supported the IGNITE 2019 campaign. I sincerely thank all of them for their support.

On 30th November 2019 a total of 21 students from 9 States and Union Territories will be awarded for their 18 ideas and innovations at National Innovation Foundation – India's Gandhinagar campus. An exhibition showcasing improved prototypes of the award winning ideas will also be organised at the venue. These prototypes have been developed by the engineering team at the NIF, which will also file patents in the name of the children.

Bharat Ratna Shri Pranab Mukherjee ji, the former President of India, who will give away the awards, has been a constant source of inspiration for the NIF. Getting awards from his hands is a blessing for the creative children and a once in a lifetime opportunity. With a deep sense of gratitude, I express my thanks to Shri Pranab Mukherjee ji for his continued engagement in our cause.



I remain grateful to our Hon'ble Minister of Science & Technology and Earth Sciences, Dr. Harsh Vardhan ji for his unstinted support and guidance to NIF. My sincere thanks to Dr. PS Goel, Chairperson NIF, Prof. Ashutosh Sharma, Secretary, Department of Science and Technology, and NIF's Governing Board Members for their continued support. My appreciation to Shri Hari Om Ashram, Surat for constituting the Poojya Mota Prerit awards at NIF for best student ideas and for the innovative children coming from tribal and far-flung areas.

I acknowledge the efforts of my colleagues at NIF and others in our extended family for their support and good wishes to make the Dr. APJ IGNITE campaign successful. My compliments to all the young award winners, their parents and teachers.

With my regards to all

Vipin Kumar



Index

1. Solar ironing cart	1
2. Visually challenged friendly toilets	3
3. Expandable food plate	5
4. Insect killing dustbin	7
5. Modified broom with dust collector for cleaning ceiling	9
6. Plate with inbuilt detachable glass	11
7. Quick finger duster for whiteboards	13
8. Fast drying shoes	15
9. Intelligent staircase	17
10. Innovative shading tool for drawing	19
11. Easy cleaning water tank	21
12. Manual Cole crop harvester	23
13. Stapler for leaf plate making	25
14. Spill-proof Kaangri	27
15. Perspiration absorbing shoe	29
16. Sickie housing first aid kit	31
17. Sleep-walking detector and preventer	33
18. Semi-automatic flower garland maker and packer	35

Solar ironing cart



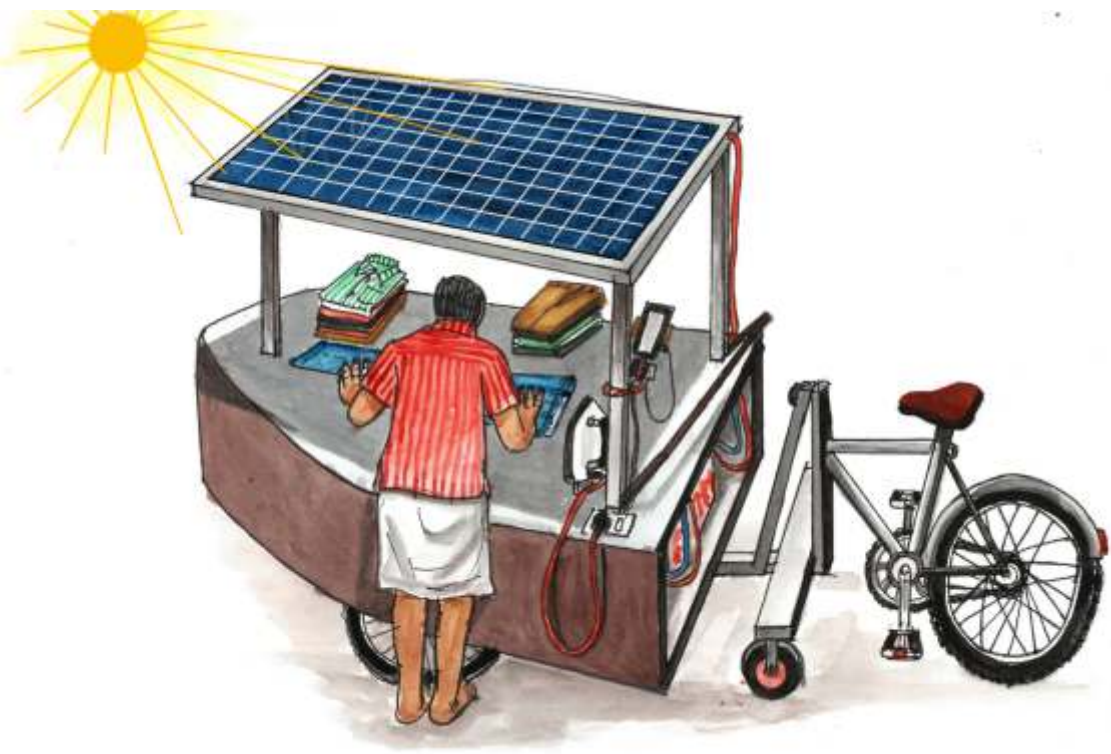
Vinisha Umashankar

Class 8

The Path Global Public School, Malappambadi
Thiruvannamalai, Tamil Nadu

Vinisha has designed a mobile ironing cart, which uses solar panels to power a steam iron box. This can be powered by pre-charged batteries, electricity or diesel-powered generator in the absence of sunlight. The most important benefit of solar ironing cart is that it eliminates the need of coal for ironing. The vendors can move around and offer services at doorstep for increasing their daily earning. For earning extra income, the ironing cart can be fitted with a coin-operated GSM PCO, USB charging points and mobile charging.

Liking science and technology, Vinisha looks at things in a different way. She has an inquisitive mind and likes to ask questions and find answers. Reading books is her favourite hobby and has a collection of over 400 books at her home. She likes to sing, dance, draw, write poems, yoga, gymnastics and swimming. She wishes to become a scientist and invent useful products, which can improve the living standards of people, increase their comfort level and make them happy.



Visually challenged friendly toilets



Baibhav Parida

Class 8

DAV Public School, Chandresekharpur
Khordha, Odisha

Baibhav suggests having a special toilet system designed for blind people, which can guide them using voice commands. The tiles could be designed to facilitate movements. The faucets could also be linked to an artificial intelligence system for controlling the flow of water.

He likes to read story books, and has a special interest in aeroplanes. He visualises himself as an aeronautical engineer in the future.

NIF acknowledges the guidance of Blind People's Association (BPA), Ahmedabad in the development of the prototype.



Expandable food plate



Padmashree G.

Class 6
GKHPS Doddabompalli
Kolar, Karnataka

Padamshree visualises a food plate, which can be compressed/folded when not required and expanded whenever required. She also suggests writing health related advisory at the back of the plate for people to read.

Young Padamshree likes singing, dancing and reading books. She also likes to help her mother in her various daily chores whenever possible. She wants to join Indian Armed Forces and serve the country.



Insect killing dustbin



Tanmay Kumar Sethi

Class 7
Delhi Public School
Rourkela, Odisha

In open dustbins and in closed ones as well, a lot of bugs/insects keep hovering. If a bug zapper is attached to the top of the dustbin, all such insects could be killed immediately preventing the spread of germs, ideates Tanmay.

He likes playing badminton and wants to become a civil servant to serve the people.



Modified broom with dust collector for cleaning ceiling



Swadha Krishn

Class 7

Delhi Public School, North Bangalore
Bengaluru, Karnataka

Swastik Subham Sith

Class 6

Kendriya Vidyalaya No. 1
Sambalpur, Odisha

While cleaning the ceiling with a broom, the dust falls on the person cleaning and on the ground. The idea is to have a broom with an inverted umbrella shaped attachment for collecting dust so that dust doesn't fall on the person or ground, and can be easily collected.

Swadha's interests include swimming, playing badminton, software coding, painting and reading and he wants to become an innovator/scientist. Swastik loves to spend time in the lap of the nature – strolling in the forest and swimming in the river. He wants to become a space scientist.



Plate with inbuilt detachable glass



Vishwa Goswami

Class UKG

Bhaskar Play School, Pethapur
Gandhinagar, Gujarat

It is difficult to carry a food plate and a glass of water/drink together using one hand. If both are carried separately then both the hands get occupied. Having observed this in many functions, Vishwa suggests having an inbuilt glass in a food plate so that both can be held/carried together using only one hand. The glass, which would be fitted in a slot on the food plate, can be detached and used whenever required. She likes reading books and dancing in her free time and wants to become a teacher.



Quick finger duster for whiteboards



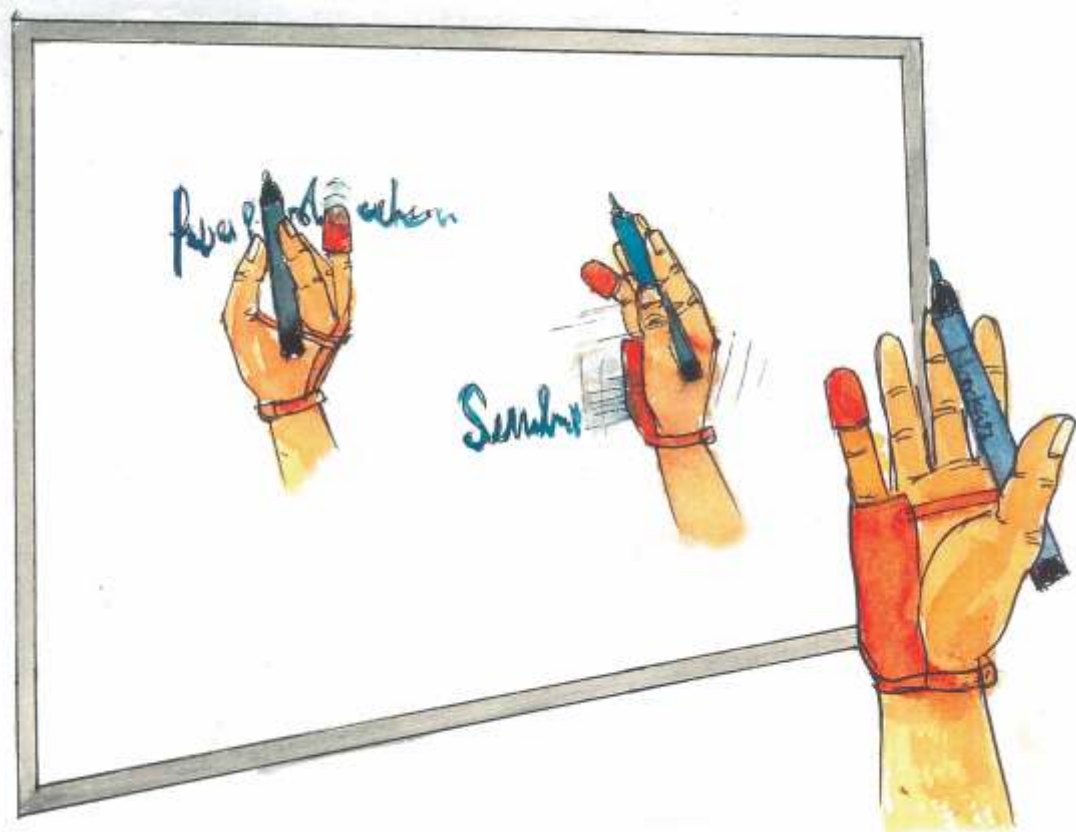
Archit Aryaman

Class 9

Army Public School, Narangi
Kamrup Metropolitan, Assam

While writing on a whiteboard, one often comes across situations where one makes a small mistake. To correct these many times fingers are simply used to wipe the ink without reaching out for the duster. As the whiteboard marker ink has harmful chemicals, doing so may be dangerous. The idea is to have a small duster attached to a person's hand to erase some minor mistakes while writing on the white board, thereby keeping the hands safe.

Archit has an interest in robotics and has participated at the national level in the World Robot Olympiad. He also likes playing tennis, cycling and playing drums. He wants to be a researcher to explore the unexplored and find solutions to scientific challenges.



Fast drying shoes



Devjit Prasad Majhi

Class 9

Buxi Jagabandhu English Medium School, Bhubaneswar
Khordha, Odisha

The student has conceived the idea of a fast self-drying shoe. The shoe body will be three layered with the middle layer having a heating filament to dry the inner and outer layer quickly.

Devjit likes playing football and wants to become an engineer to develop innovative products for the people.



Intelligent staircase



Anuj Mishra

Class 9

Vindhyavasini Public School, Bharuhana
Mirzapur, Uttar Pradesh

In this staircase, sensors and cushioned partitions are installed at regular intervals. If a random abrupt weight change (on the stairs) is noticed with/without random touch sensed on the walls/railings, the staircase infers it to be a fall. The cushioned partitions then close like a gate to prevent the person from rolling down and getting injured.

Anuj is a tinkerer and tries his hands in breaking and making things he sees around. He also likes to spend some time in playing games on his mobile. Idolising Dr APJ Abdul Kalam, he wants to become an engineer and develop useful products.



Innovative shading tool for drawing



Raktim Das

Class 10

Shankar Dev Sishu Vidya Niketan, Dadara
Kamrup, Assam

This small, portable and low cost tool can be used for shading in drawings in less time without any discomfort and drudgery. Students having difficulties in fingers and arms will be benefitted.

Unlike many other young ones today, Raktim does not like to spend time on mobile phone, rather he likes to spend time in outdoor activities like playing football and cricket. Most of his time is devoted to conceiving new innovative ideas and developing them. He wants to become an Electronics engineer and develop sensors based products to make human life more comfortable.



Easy cleaning water tank



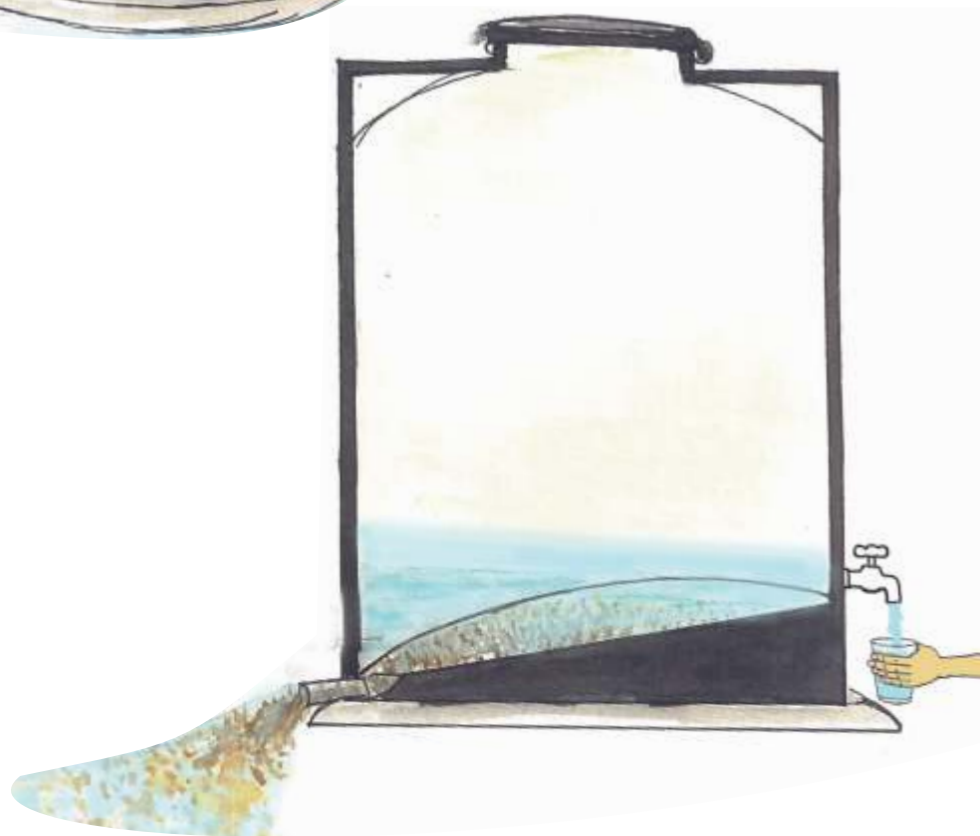
Siddhant Kumar

Class 9

Govt High School, Rana Bigha
Nalanda, Bihar

When water is stored in tanks, dirt gets settled at the bottom over a period of time. It gets difficult to clean and remove the dirt. Siddhant says if the base of the tank has slope inside leading to an outlet, cleaning will become quite easy. All dirt could be washed away easily whenever required.

Siddhant likes to spend his time drawing and painting. He wants to be a police officer to serve the poor and the disadvantaged.



Manual Cole crop harvester



Yash Pramod Jadhav

Class 10

Shardabai Pawar Vidyalaya, Shivnagar
Pune, Maharashtra

Cole Crops (Cabbage, Cauliflower, Broccoli, etc.) are mostly harvested manually in most part of the country, which is a time consuming and labour intensive process. To make this process easy, time saving and less cumbersome for his father who is a farmer and others, he developed a Cole crop harvester.

Yash likes playing cricket and volley ball. He also likes to participate in debates and elocution competitions. Apart from chole crop harvester, he has also designed lemon and guava harvester.



Stapler for leaf plate making



Suyash Patel

Class 10

Sri Chaitanya Techno School, Kaggadasapura
Bengaluru, Karnataka

In villages a lot of people prepare plates and bowls from leaves like *sargi*. The leaves are stapled together using a stick. The correct placing of the stick is very important to make a good plate or bowl. Since this process is repetitive when a large number of such leaf plates/bowls have to be made, Suyash suggests to have a stapler like hand-held device where small sticks could be mounted. This can then be used to staple the leaves together and prepare the plates quickly.

Suyash like watching television, playing games and drawing. He has a Facebook page showing his art, the page already has a few hundred followers. He wants to be a cardiac surgeon.



Spill-proof Kaangri



Asim Sikandar Mir

Class 8

Shemford Futuristic School, Wanpoh
Anantnag, Jammu & Kashmir

Kaangri is the earthen pot filled with burning charcoal and held by its handle under the pheran, a long, loose woollen garment people in the Valley wear. This is modified/improved kaangri where it remains in an upright position even if tilted or inverted. It consists of hemispherical wooden outer wall made into the shape & design of traditional kaangri. It has an inner hollow hemispherical pot of terracotta for burning embers of wood. Asim wants to become a scientist.



Perspiration absorbing shoe



Syeeda Banoo

Class 9

Govt High School, Poyen
Kargil, Ladakh

Sayeeda wants to have odour free hygienic feet. She suggests using an absorbent material on the inner walls/lining of the shoe, in addition to the insole, so that sweat can be easily absorbed. This will not only take care of the hygiene but also keep feet odour free.

Apart from drawing and painting, Sayeeda likes collecting artefacts as memories. Since she comes from a remote region, she wants to become a doctor so that she could serve the people of her region.



Sickle housing first aid kit



Kishan Thakor

Class 12

Gramshala, Grambharti, Amrapur

Gandhinagar, Gujarat

Sickle is used for the harvesting and cutting purpose. While cutting the grass sometimes the farmers get injured. Most of the time, they do not have first aid available with them immediately or in their farm. The idea of Kishan is to place a basic first aid kit inside the handle of the sickle so that whenever needed it will be available for the farmer to use in case of a mishap.



Sleep-walking detector and preventer



Shivam Amritesh

Class 11

Sanskar Bharti Global School, Phulparas
Madhubani, Bihar

Shivam has designed a wearable device that can help people with sleep walking problem get over it. It is a watch like device, which detects motion (as walking) and gives a mild electric shock to wake up the person. This system can be paused if someone wants to use the washroom at night. It can also work as a morning alarm to wake up the user.

Loving outdoor sports, Shivam has played football the national level. He likes painting landscapes and participate in debates and essay writing competitions. He wants to be an inventor-entrepreneur.



Semi-automatic flower garland maker and packer



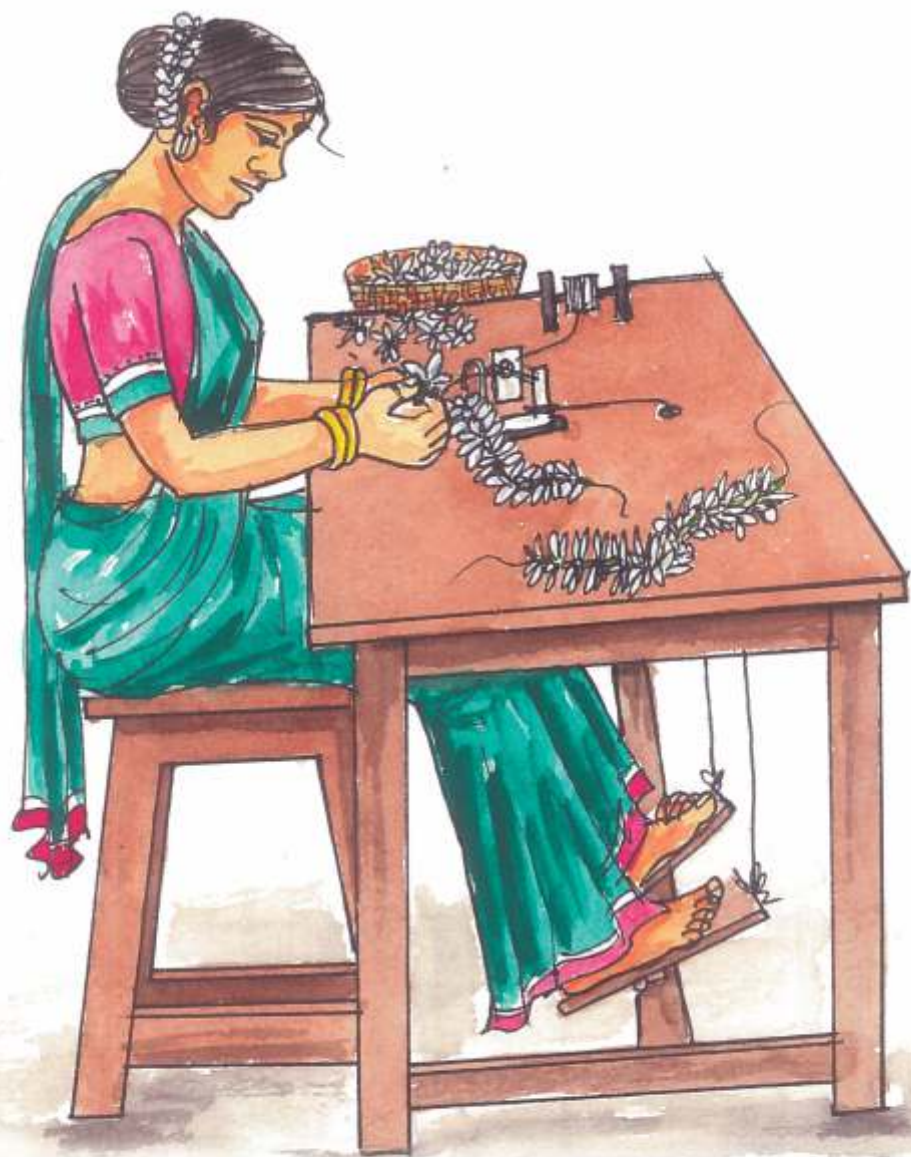
Surya A.J., Venkateswaran S. and Venuram R.R.

Class 12

Vidya Mandir Senior Secondary School, Mylapore
Chennai, Tamil Nadu

The semi-automatic foot operated flower garland knotting and packaging system consists of a knotting device operated by a foot pedal. The user needs to press the pedal with his feet and keep the flower against the thread and the flower garland will be knotted! This proves very easy for those who may have some problem in their hands and may find it difficult and painful to make flower garlands. The team has also designed a packaging system for the same.

Surya likes playing keyboard, reading Dan Brown books and has an interest in Macro-Economics. He wants to be a Chartered Accountant and a social entrepreneur. Venkateswaran plays table tennis, reads books and has an interest in art apart from coding and electronics. He wants to take up developing innovations as his career. Venuram likes listening to music and read story books. He wants to become a mechanical engineer.



Dr. APJ Abdul Kalam



Awards 2019



National Innovation Foundation-India
Amrapur, Gandhinagar-Mahudi Road
Gandhinagar, Gujarat-382650
E-mail: info@nifindia.org, Web: www.nif.org.in