

*Dear Young friends,  
Ignited youth is the most powerful gift to the  
nation.*

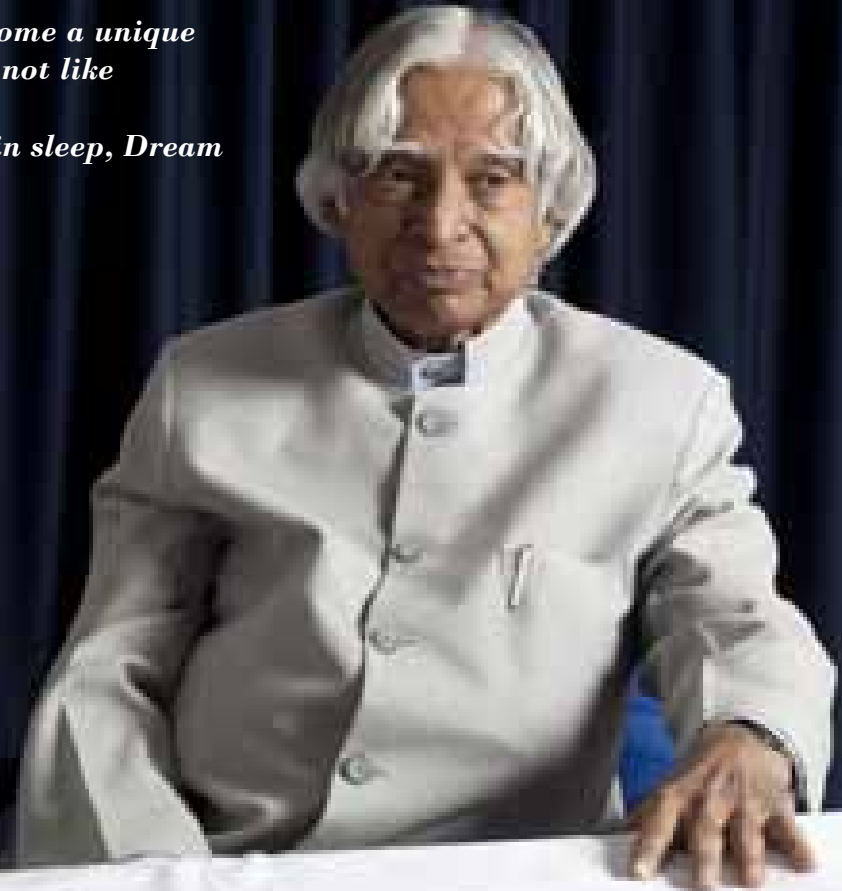
*Dear young friends you aim to become a unique  
personality in India and definitely not like  
everybody else.*

*Dream is not the one which comes in sleep, Dream  
will never allow you to sleep.*

*My best wishes for your success.*

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**National Innovation Foundation-India**



# IGNITE 11

*The annual national competition of students' ideas & innovations*

## **What is the IGNITE contest?**

IGNITE is a national competition to harness the creative and innovative spirit of school children. Students are invited to send their original technological ideas and innovations for the same.

## **Why the IGNITE contest?**

Creativity among children is almost in-born, every child is creative, degrees may vary, but not the basic manifestation. Then what happens during the growth and maturation? Why should children stop asking basic questions? Why do they agree to do repetitive science projects instead of being original? Why do they learn to live with unsolved social and professional problems? We should not allow our children to live with such problems rather urge them to come up with solutions to these. We want to promote originality, creativity and innovative spirit among our children so that when they become leaders of our society, they ensure an imaginative, inclusive and an innovative future for the country. We want our children to be more sensitive to the problems faced by not just them and their families or neighbors but also other socially disadvantaged sections of the society.

The IGNITE 11 contest (October 16, 2010 to September 10, 2011) saw participation of students from 25 States and Union Territories of the country. Over all 4104 entries were received, which ranged from sectors like energy, environment, transport, general household utility items etc. The awards were announced on October 15th, the birth day of children's favorite Dr A.P.J. Abdul Kalam, celebrated as the Children's Creativity and Innovation Day by NIF.



[dst.gov.in](http://dst.gov.in)



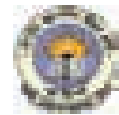
[honeybee.org](http://honeybee.org)



[gian.org](http://gian.org)



[sristi.org](http://sristi.org)



[cbse.nic.in](http://cbse.nic.in)

R. A. Mashelkar, F.R.S.

Chairperson, NIF

President, Global Research Alliance

Bhatnagar Fellow, National Chemical Laboratory

Former Director General, CSIR

## Foreword

I am extremely happy that NIF is able to bring out the creative potential of our children with such dedication and vigour. What makes me most optimistic about our future is the impatience that the children show towards the problems that have stayed with us for long.

It is very gratifying to learn that this year NIF could mobilize more than 4000 entries from all over the country. The children are going to have a pleasant surprise, when they will see the prototypes made by NIF with the help of the fabricators. I am confident that the children will feel highly enthused and trust that the country cares for their ideas. There could not have been a better grooming of future leaders of our society. The fact that NIF is also filing patents for as many cases as feasible will further strengthen the faith in the nurturant institutions of our country.

I congratulate the NIF team for once again proving that with commitment and creativity it can continue to create new benchmarks of efficiency, inclusion and delivery. I wish to warmly congratulate all the winners and hope that they will continue to think about the unsolved problems of India.

In this Indian decade of innovation, we have to reinforce our resolve to get more out of less for many, in every endeavour, in every aspiration.



R A Mashelkar



### Seven lessons we can learn from creative children

When Dr A P J Abdul Kalam, our former President of India honours the creative children from around the country on Nov 11, 2011 at Ignite function at IIMA organized by NIF and Honey Bee Network, he would underline the need once again for rethinking the pedagogy for future India. There is no doubt that children are generally born creative. Why should then schools and colleges work hard to stifle their creativity? May be, because otherwise, the offices and companies will not have compliant, congruent and conformist workers. Should we not worry if in the process we lose diversity, and sap the seeds of innovations that can make society more creative, collaborative and compassionate?

What are the lessons we learn from children innovations over the last decade or more. **First** lesson is that they are far less patient with the unsolved problems than our generation has been. We knew about various problems, but instead of trying to solve many of them, we learned to live with them. It did not bother us. Inventing reasons for not solving was easy. Once we learn to live with say ten problems unsolved, living with the next ten similar problems becomes easier and after that, we don't even notice many of these. Shalini from Patna, Bihar saw that older people having problem in walking use walker but these are not flexible enough to support climbing on stairs. She conceived spring-loaded self-locking front legs so that when user pushes front legs on upper stairs and rear legs rest on lower stairs, the walker will be very stable. It can be taken to next step easily and facilitate the climbing by the person. A very empathetic innovation indeed. Sajid Ansari from slums of Ranchi saw his mother cleaning rice. We had all seen our mothers doing the same. But he did what we did not. He invented a desk top rice cleaning machine. **Second** lesson is that children can easily connect the separate solutions unconnected so far. Intelligence is defined often as the ability to connect seemingly unconnectable. Mayank Walia from Jalandhar saw that we already had scanner which connected printed text into digital text. He also saw that an open source

solutions existed for converting digital text into speech. The breakthrough followed soon after. Once these were connected, we could easily help blind people read any book, not just braille ones. I knew these two solutions as well but this thought did not occur to me. I had, may be, learned to live with this problems but Mayank was impatient, thank God. **Third** lesson is that we should not make feasibility an enemy of desirability while promoting creativity and innovations by children. If Mayank or many other children like Mohit from Sidhi, MP such as were expected to make a working model of every idea that they proposed, then they would imagine only what their existing repertoire of operational skills made possible. Mohit found what many readers must have noticed that people who are advised medicines sometimes forget to take them on time. He imagined a medicine box with reminder alarm about various medicines so that people will not forget to take advised medicines. Shweta and Jaskiran from Jalandhar, Punjab thought of another related idea which is to get an indication on the medicine foil itself about the expiry date so that one does not consumes time expired medicines. Would we have got these ideas if we insisted that we will accept only those ideas about which proof of concept had been developed?

**Fourth** lesson is that many of the ideas that children think are about making life of elderly or women better, and reduce their drudgery. For example Dhavala from Udupi suggested a solution for squeezing a bed sheet after washing. Everyone in middle class or lower class families has faced this problem but did we ever try to find a solution. In general, we know that the problems faced by women tend to be solved by formal institutions and even grassroots innovators less often than the ones faced by men. In that context, this kind of sensitivity is highly appreciable. **Fifth** lesson is that gender balance among children innovators is much better than among adult innovators even at grassroots, certainly at institutional level. Why should not we use this evidence of last so many years at NIF and Honey Bee Network to make a difference to the opportunities we provide to creative children, particularly girls. **Sixth** lesson is about increasing concern among children about conserving natural resources and environment. Mohit saw the enormous wastage

of water when we keep bucket for filling water under the tap and get busy with other work. He could not stand it and thus suggested a meter in the tap with an alarm so that when preset volume of water (say 14.5 litres has flown), it will give an alarm and close the tap to prevent the water loss. How much water saving can thus be made worldwide when such a solution becomes available. **Seventh** lesson is that most of the creative ideas are coming out of small town, cities and locations and not metros. And yet if you look at the public policy, there is much higher thrust in providing facilities and support to people in bigger institutions, town and places. May be children in bigger places are being groomed to administer and run this country while the ones in smaller town with bigger minds and heart will generate enterprises, trigger new ideas and thus unfold creative resistance. Through this tension, hopefully, identity of new democratic India will emerge which will be irreverent, imaginative, inclusive and innovative.

Government is thinking about providing innovation scholarship to children and I hope that scheme will draw upon these lessons and not straightjacket the conditions for recognition, reward and resurgence of the creativity among Young Indians. May the Fireflies of creativity illuminate our path ahead. Write back about your experiences in nurturing children creativity.



Anil K Gupta  
Executive Vice Chairperson, National Innovation Foundation  
Professor, Indian Institute of Management, Ahmedabad



**Dr. APJ Abdul Kalam**  
*Seven Point Oath for Students*

1. I realize I have to set a goal in my life. To achieve the goal, I will acquire the knowledge, I will work hard, and when the problem occurs, I have to defeat the problem and succeed.

2. As a youth of my nation, I will work and work with courage to achieve success in all my tasks and enjoy the success of others.

3. I shall always keep myself, my home, my surroundings, neighbourhood and environment clean and tidy.

4. I realize righteousness in the heart leads to beauty in the character, beauty in the character brings



harmony in the home, harmony in the home leads to order in the nation and order in the nation leads to peace in the world.

5. I will lead an honest life free from all corruption and will set an example for others including my home to adopt a righteous way of life.

6. I will light the lamp of knowledge in the nation and ensure that it remains lit for ever.

7. I realize, whatever work I do if I do the best, I am contributing towards realizing the vision of developed India 2020.

(Source: [http://www.abdulkalam.nic.in/address\\_airindia\\_pres.html](http://www.abdulkalam.nic.in/address_airindia_pres.html))



## **Rice grain sorting/cleaning machine**

Mohd. Sajid Ansari

7, Gurunanak School, Ranchi, Jharkhand

When Sajid would come home from school he would see his mother very hassled while cleaning the rice. He wanted to make a device, which would help his mother. This is how he created the rice grain sorting/cleaning machine on 25<sup>th</sup> December 2010. This automatic electric machine separates broken rice grains and other physical impurities from unbroken rice grains.

At first, he faced problems while making the prototype. Inexperienced, he used 4 motors of 12 volts each and connected them directly to 220 volts, which burnt them out. Then he used 8 motors instead of 4 but those too burnt out. Then he finally used a transformer, which started working and he could finally start working on the model. Sometimes the motor would not fit so he had to cut glass bottles to make it fit. Finally the model started coming together.

His role model is Dr. A P J Abdul Kalam and he aspires to become a scientist like him and wants to do something for his country. He says, "I want to find a solution to most problems and simplify things so that no individual faces any problems". Science being his favourite subject, he admires his science teacher very much who makes the subject fun to learn for him. Apart from football, which he plays in free time, he enjoys reading, his favourite author being Shri Maithli Sharan Gupta.



Sajid feels proud of the fact that because of IGNITE now his entire school knows him. His parents have always been supportive of him. He says, “My parents have always encouraged me though sometimes they have had to leave their work to help me even. As a young child I used to recite Urdu poetry and would give performances as well. My father has been very supportive and encourages me to perform well every time”.



He also attended the 27<sup>th</sup> Shodhyatra in Ranchi in May- June 2011 and impressed everybody with his ingenuity. When his house was demolished in anti-encroachment drive in Ranchi city, he had to go 20 km away to live in a village. His case was mentioned by the shodhyatris to the Chief Secretary for a sympathetic consideration. An action remains to be taken.

*An idea to have rice cleaner was also mentioned by Nilofer Jaan, class 10 student from Kashmir.*

## **Adaptable poster writer pen**

Rimjhim Baruah  
8, Pragjyotika English School, Jorhat, Assam

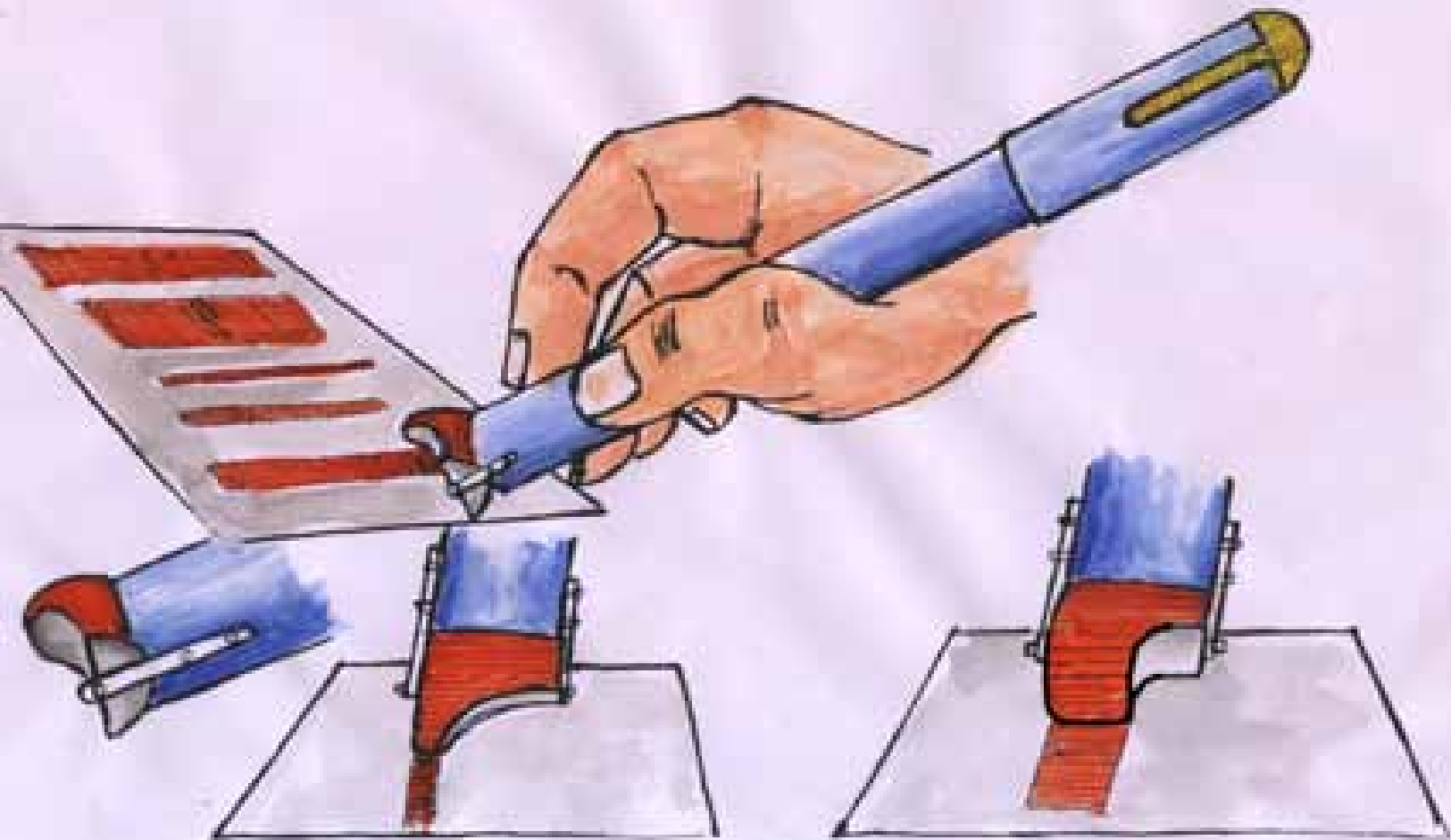


Rimjhim, while pursuing art, found it difficult to write letters with a brush, a task taught at her school. She also found it difficult to write in a uniform size. So she came up a poster writing pen, using which one can easily write in different thick and thin strokes between a certain range (mm).

While making the pen, Rimjhim faced quite a few difficulties with the cutting and joining. To her help, came an institution, Vision Science Academy, which has special teachers who help students like her wishing to do a creative project. They helped her build upon her idea, guiding her in making use of different types of materials and other similar things.

An active participant in athletic activities like races, shot put and discus throw, Rimjhim also likes studies specially the subjects, science and maths. She reads books on science and participates in competitions and exhibitions winning many prizes. She also enjoys drawing, painting and dancing.

Her friends and parents were very happy when they heard about her idea being selected for IGNITE. Her achievement was declared during the school assembly and she felt proud of herself. Rimjhim wants to become an aeronautical engineer like Dr. Kalam and she is very excited about the opportunity of meeting him in person!





## **Modified walker with adjustable legs**

Shalini Kumari

8, Hartman Girls School, Patna, Bihar

Shalini's grandfather uses a walker to assist him while he walks. But she noticed that he could only use the walker comfortably while walking on a level surface. Her grandfather enjoys walking on the terrace but he finds it difficult to walk up the stairs and he also finds it inconvenient to travel. Seeing her grandfathers' plight, Shalini came up with the idea of the modified walker with adjustable legs. She has also thought of including a folding seat so that the user can rest for a while when required and fitted a horn and a light to it as well.

Idolising Dr. A P J Abdul Kalam and admiring him for his support towards children, she wants to be famous like him. Apart from studies, Shalini enjoys playing badminton and cooks, sketches, paints, dances, reads and plays games in her leisure time. Her parents and school teachers are quite supportive of her. Her school periodically organizes creative events and encourages students to participate.

She mentions that her friends were happy when they heard that she will be felicitated at the IGNITE award ceremony. Fond of travelling, she is eagerly looking forward to her visit to Ahmedabad and receiving her award. While she hasn't made the model for her innovation yet, she says that she will need technical help and financial support for the same. Shalini aspires to be a good doctor someday and hopes that like a good doctor, she may help people in need.



## Device to assist low vision people

Jyoti Ranjan Sahu

9, DAV Public School, Bhubaneswar, Orissa



Jyoti Ranjan, a student of class nine, got the idea to make a device to assist people with low or poor vision by observing the students of a blind school close to his house. Some of them were suffering from glaucoma. He wanted to do something to help them.

He then developed a system to assist low vision people in their day to day life. His system makes use of a zoom camera and a LCD. The camera zooms in distant images, which get displayed on the LCD present in front of the eyes. This Camera and LCD arrangement is attached to a helmet worn by the person. This aids the low vision person in perception and motion. While making this device, Jyoti Ranjan faced much difficulty as he did not get all the material he wanted. He also did not have details about software programming but somehow managed to search the internet and move ahead. Jyoti has got this system tested at many Hospitals as well, where doctors have appreciated his work and suggested him to optimise the device. He is now planning to make it usable for paralysed patients.

Jyoti says that his friends and parents were happy when they heard that his project was selected for IGNITE Awards. While he spends time in developing interesting science projects, his parents want him to pay more attention to his studies though they are supportive of him. His idols are Dr. Kalam and Stephen Hawking and his aim is to research in the field of electronics. He wishes to make a project on Pervasive Computing Technologies for Healthcare (PCTH) someday as well.





## **Foldable water bottle, hoe cum spade and other ideas**

Refaz Ahmad Wani and Ishfaq Ahmad Wani  
10, Govt. Higher Secondary School, Anantnag,  
Jammu & Kashmir



Creative twins, Ishfaq and Refaz have a number of ideas to their credit. They have thought about a foldable water bottle where the size of the bottle can be reduced by folding-in as per the quantity of water remaining in the bottle. Carriage then becomes easier! They have also developed a spade, the scoop of which can be rotated at the hinge to be converted into a hoe.

As young children they used to make mud sculptures of peacocks, parrots, figurines and more. One day they saw a JCB vehicle and they decided that they too wanted to make a similar model. They were then in class five. They spoke to people at home and told them that they wanted to make this model. Then they pondered over the kind of material they would need to make it work. Realising that wood was the only available option in their home, they decided to work with it. That was how they started making wood models manually and while growing up, their experiments continued.

Each other's best friends and confidante, the brothers have created a small science club in their house in a small room. They have kept all their models, certificates etc., there. Both brothers meet there to discuss their projects. Their sister has also innovated a dish washer and has submitted it to NIF, they are hoping she can get some financial help to develop it further. Both of them wish to become scientists when they grow up. However financial constraints prevented them to take up science as a subject in the school, and



instead they had to opt for arts. But, determined, they want to make up the loss by polishing their hands-on skill and improving their aptitude for science.

Their parents have always support them and they too were eagerly waiting for a response from NIF for IGNITE. Their father has a heart problem and both Refaz and Ishfaq wish to make sure that their father is happy. They are determined to do whatever it takes for them to reach their goal in life.





## Change of colour in medicine pack to indicate expiry

Shweta Sharma

9, Police DAV College, Jalandhar, Punjab



While cleaning out the medicine box at her house one day, Shweta saw that a lot of medicines had already expired. She got worried that she or others in the family may have, at some point, taken an expired tablet, which may have caused some damage to her/ them. She thought that being a literate person if she could make such a mistake of not checking the expiry date, an illiterate person would face even more problems. This is how she came up with the idea of change in colour of medicine pack after the expiry date.

Wanting to be a scientist, Shweta wishes to undertake something, which will make people remember her long after she is gone. She enjoys watching cricket and reads books on inventions, physics and chemistry. When she heard that her name was in the IGNITE award list she was astonished as she had not expected it. She says she had to recheck the list just to make sure! Her parents and teachers were also very happy. She says, "I was also flying extremely high with this news, just as high as the petrol prices!"

She further says, "My main aim is to give something to the country; I want to develop a hydrogen based fuel for my country so that we won't need to depend on any other country for our fuel needs ever".

## Making tablets not consumable after expiry

Jaskiran Goraya  
9, Police DAV College, Jalandhar, Punjab



“When a person stops thinking, he stops growing. So one must keep thinking” says Jaskiran who gave the idea of putting a layer of liquid that disintegrates the covering membrane and spoils the tablet once it has expired. The trigger for this idea was a TV serial in which she saw an illiterate person giving expired medicines to a patient, which worsened his condition. This made her mind start ticking and she finally came up with this idea.



She plays badminton in her free time and reads current affair magazines to improve her general knowledge. She says, “I think knowledge is important and I read anything from which I can gain more knowledge”.

Jaskiran is a passionate girl and says, “We must all be good and well behaved because we don’t know when others could be inspired by our goodness. We should always love everyone, just like a tree, which does not withdraw its shade from a woodcutter even though the woodcutter hurts it. We must be like tree which is bountiful for everyone, even to those who hurt it”. She aspires to be a lecturer or a chartered accountant.



## Medicine box with reminder facility, taps with different timer settings

Mohit Singh

10, Delhi Public School, Sidhi, MP

'Waste not, want not', that is the principle that inspired Mohit to innovate taps with different timer settings. Every day he used to watch his sister use the washing machines and other household gadgets. He saw the water wastage and thought he needed to do something to reduce it. His conscience told him that if there was so much water wastage in his house, then the community would also be wasting as much. Mohit's second innovation came about because he often used to forget taking medicines when ill. So he thought of putting a timer and an alarm on the medicine box, which would alert him of the time to take his medicines.

He aspires to be like none other than his father who came from humble beginnings and worked hard to become a successful engineer and a very good person. He admires his father and wants to be like him, but professionally he wants to become a doctor.



An avid reader, he doesn't put down a book until he has finished if it interests him. He also enjoys playing video games, badminton and basket ball. He is a good artist and dancer and he enjoys playing the tabla, guitar, piano and harmonium amongst other things. He also enjoys cooking Chinese cuisine with an Indian flavor, which is his speciality.

When his entry was selected for IGNITE, he was out playing badminton when his friends called his mother and gave her the good news. His parents are supportive but find it annoying that he does everything at the last minute, including submitting his entry for IGNITE! His Physics teacher was the one who told him to take part in the competition and was very supportive. Even his school encourages students to take part in such competitions.

Mohit says that while developing the idea was not a problem, he faced technical problems with his internet which was the only hurdle. He made the model by himself and did not take anyone's help.



## Healthy air machine

G Brahadees

12, The Velammal International School, Thiruvallur, Tamil Nadu



Brahadees noticed that the ceiling fans were not capable of throwing air to the corners of the rooms, especially if the room was bigger. Also the available air conditioners are expensive for the middle class person. This triggered in him a thought to develop something affordable, which could fill in the gap between a fan and an air conditioner. He further observed that in the case of an air conditioner, about 10% of the cooling was actually being used by a person while the rest was being absorbed by other articles in the room. It is also expensive in terms of cost of energy consumption.

This prompted him to make a portable 'Healthy Air Machine', which can be carried around in the house. This is an energy efficient, cost effective multipurpose machine, which can be used for all the air related function like cooling, heating, purification, and has air curtain and spot cooling effect, which saves energy. Additionally, it can also used for air blowing, winnowing and vacuum cleaning for domestic, commercial, industrial and agricultural purpose.

His idea was supported by his school and parents alike who encouraged him to build upon it. He mentions that it was not possible for the school to allow him to work on his projects daily as he had to also follow the regular curriculum. So he asked for permission to use the physics lab on Sundays to work on his project. They were supportive of him and gave him permission, which was a privilege. Since he did not know the



exact types of pipes etc., which he needed to use for his project, he had to take the help of the electricians and plumbers of his school.

Brahadees recalls that when he was in the 4<sup>th</sup> standard, Dr. Kalam had visited the Indira Gandhi Centre for Atomic Research. But as only the top ranking students were allowed to meet him, he missed out on the opportunity. Motivation to meet Dr. Kalam and the desire to make something useful, made him develop this project and participate in the Ignite competition.

He enjoys reading Chetan Bhagat novels as he likes his style of writing. He plays cricket and hockey, and likes watching science fiction movies in his leisure. Brahadees wants to become an IAS officer and continue coming up with something better and useful everytime.



## **Blind navigation system & System to detect Computer Vision Syndrome**

Vignesh R, Manoj Kumar, Raghav Simhan  
11, Padma Sheshadri BVB, Chennai Tamil Nadu

Blind navigation system with terrain mapper is a navigation system (further work is needed) where shoes can map the terrain using sensors and GPS. This information is shared thermally in specially designed gloves worn by the blind. Their idea was inspired from Dr. Dennis Hong's Car for blind people. After they saw his lecture they thought whether it would be possible to create a personal navigation and non-visual display, and that's where they got this idea.



Prolonged exposure of eyes to computers and television daily has given rise to many eye related problems. Their system to detect Computer Vision Syndrome can detect the number of eye blinks per minute. It gives an alert to consult a doctor, if the number of blinks per minute gets reduced below a medically accepted limit.



When asked whether they faced any problems while developing the prototype, they said, "Yes, lots but we solved all because we worked as a team! But we did need help and we approached Simple Labs, Chennai. Thanks to them for supporting our projects and helping us out".

The three friends in their spare time actually test out some new and random ideas. Vignesh mentions, "Many ideas actually tend to come in the weirdest places. The



idea about my project based on piezo electricity came to me during a school excursion near a river, which made me think of producing electricity from the river in a new way”.

Apart from working on the ideas, the trio enjoy working on the computer, playing video games and cricket. Their friends, teachers and parents are very encouraging but their parents also want them to equally focus on academics.

They aspire to start a company and help millions of people by inventing new devices for the benefit of the people and also inspire other students to do more.





## **Foldable & Portable multipurpose device that can be used as chair, hammock, table, stairs etc.**

Pankit B Gami & Ekta Patel  
12, JNV, Tapi, Gujarat



Space is the primary constraint in most houses in urban areas these days. A number of devices for different purpose not only add to the procurement cost but also occupy space. Pankit and Ekta have developed a multipurpose device, which can be used in a number of ways like table, chair, stairs, hammock, rocking chair, relaxing chair etc. This device can foldable and portable. You can even attach your stroller to it and carry both along wherever you go.

The idea to develop this device came from a sofa-cum-bed they saw in a market. They bought it as a sample to do a thorough study of the parts and also bought books on technical engineering and finally started working on their project. Ekta and Pankit had to make three prototypes of their device to arrive at the final one. The final prototype was made of stainless steel to make it more durable.

While aeronautics interests Pankit a lot, Ekta wants to become a neurosurgeon. Parents of both of them are very supportive of their children's creative pursuits. Ekta says, "Without my parents support this project would not have been successful". Pankit mentions that while his parents do not take keen interest they have otherwise been a pillar of support to him always. Their school and teachers are also very encouraging and they promote such creative thinking.



Ekta likes trekking a lot. She proudly says that they have used their device to build hammocks, tables and chairs on their trekking sprees. She recalls that there was once an army camp set up near her house. Her father suggested that they give them the device to use while they were stationed there. The device would help the jawans and also the practical utility of the device be ascertained at the same time. The device was much appreciated by the users then.





## Use of Helmet as an ignition to start two wheelers\*

11, Government Girls High school, Tiruvarur, Tamil Nadu

SM Arthi, S Vinotha and Lailaa Banu

While there are laws preventing a two wheeler driver to ride without a helmet, yet the same is not followed properly. A lot of deaths in road accidents occur due to this. Arthi, Vinotha and Lailaa independently thought about this problem. They wondered if the helmet is so useful and is life saving, why it cannot be used for ignition to start two wheelers. It effectively means that until the rider has worn the helmet, the vehicle would not start.



Arthi has been brilliant in academics and has been a National Talent Search Scholar. She likes ancient history and loves to derive contemporary lessons from historical incidences. She likes being challenged in the game of chess and wishes to become a marine engineer. Vinotha gets inspired by reading about women achievers like Rani Lakshmbai of Jhansi and Kalpana Chawla. A good dancer and debater, she has represented her school at various levels. She desires to be part of the Indian Administrative Service and wishes to works on issues concerning public transport and hygiene.



Lailaa Banu has a collection of motivational public addresses by thought leaders and politicians, which motivate her to do well for her and the society. She likes drawing and enjoys playing carom board. She wants to become a software engineer and has already started working hard to achieve her goal.



*\*Similar idea by Shri Rajesh Saini, a self employed person from Haryana has also been received.*



## Bed sheet squeezer

Dhavala

7, Sagar Vidya Mandir, Udupi,  
Karnataka

Who has not felt troubled while manually squeezing washed bed sheets or denims to drain out water? Seeing her mother bending to squeeze bed sheet after a thorough wash, Dhavala got worried about back pain that this posture might cause. She started thinking about an idea to alleviate the suffering of her mother and other older people. She then conceived an idea about a simple machine, which has one fixed arm and another one with a handle. The bed sheet or any such cloth is attached to the machine, and as the handle is rotated, the water gets squeezed out of the bed sheet.

Good in studies, Dhavala also enjoys sports, her favourite games being kabbadi and volleyball. She is also fond of art, other sports and what she calls, 'searching for ideas'. She aspires to be an engineer or a scientist and help build houses for the poor, and help needy children through education.



## Easy car cover

SR Poobesh Gowtham

8, The Ashok Leyland School, Krishnagiri, Tamil Nadu



Covering a car is a very cumbersome process and thus mostly people leave it uncovered exposed to the elements. Once Poobesh was helping his friend put his car cover, which they both found very difficult to do on their own. He then contemplated over two-three ideas and finally narrowed down to the present design. He has thought about a simple idea of using covers rolled inside a rectangular frame. The frame is simply put on top of the car and the covers pulled out and down on the sides and, front and back. They are held to position by gear locks. Open zips are used to join the ends of the cover as a single piece. After unzipping, gear locks are released, which makes the covers roll back into the frame.

While he was working on his model he got doubtful about the gear ratio. He asked his teacher, who got him in touch with his friend working at CNC Operation Company. Both of them are now helping him to find the correct gear ratio and with the engineering drawings.

Poobesh enjoys reading Dan Brown novels and his favourite book is 'Deception Point'. He also likes cycling, plays handball and is a part of his school team. He is interested in creating new software and he spends a lot of time doing research on that. He aspires to become an Aero Space Engineer.





## **Shoes with device to calculate time spent in physical activity and regulate TV viewing time accordingly**

Chhavi Dutta

9, Police DAV College, Jalandhar, Punjab

Chhavi likes to watch television while her parents constantly tell her to go outside and play instead of sitting in front of the television. Understanding the logic behind their suggestion, Chhavi thought of an idea of making shoes communicate with the TV in such a way that it regulates and monitors TV watching time to match the amount of time that has been spent outside walking or playing. She says, "This way we will also be happy and so will be our parents!"

Chhavi enjoys reading novels but the genre depends on her mood. When she is in a philosophical mood she reads stories with morals, else she enjoys reading horror novels. She reads whatever she finds interesting at that time. She also likes playing both indoor games like chess, ludo, snakes and ladders, and outdoor games like cricket.

She adores her mother and says, "My mother has handled and balanced her personal and professional life very well and I wish to be like her". She also spends time learning how to cook from her mother. She cooks pizzas and sandwiches the best. Chhavi aspires to be a dentist or a psychiatrist when she grows up and wants to help people. She says, "There is a lot of corruption in our country and I want to help the leaders like Anna Hazare to fight corruption".







## Stapler that indicates pins are finishing

Ankita Nagarkar

10, St Ursula High School, Pune, Maharashtra

This problem has been faced by most of us. Every time pins in the stapler get finished, we are caught unaware. Ankita was sitting and stapling some papers one day when suddenly the staple pins finished. Her father asked her why she didn't know that they were about to finish? He asked her to think of a way to ensure that the next time she knows beforehand that the staples were coming to an end. This got Ankita thinking.

She came up with the idea to paint the last three staple pins with nail polish. But the paint was too thick. Then she substituted that by using a permanent marker and that worked well. This worked well and it helped in indicating that the pins were coming to an end. It saved on time, is easily adaptable and easy to use at no extra cost.

She too wants to be a scientist like her father and is interested in the research field. She enjoys reading autobiographies. She likes to read things which she can learn from and implement in her own life. Ankita enjoys playing badminton and basket ball in her free time and reads books and watches informative channels on TV as well. She is fond of travelling and visiting new places as she is interested in learning new cultures. She prefers places which are close to nature. She also cooks in her free time and tries new recipes.



# Stroller with foldable luggage carrier and many other ideas

Himanshu Verma

11, Mayoor School, Gautam Buddh Nagar, Uttar Pradesh



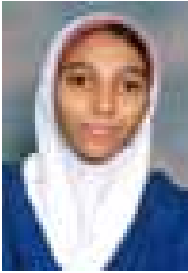
Travelling with multiple luggage bags is quite troublesome often especially when you are travelling alone. Strollers are the easiest luggage carriers, so Himanshu thought if a stroller can be modified so that other luggage may also be loaded.

also, then it would first of all reduce the number of articles to be taken care of and secondly, will make it easier to move the luggage.



For the Ignite competition, he submitted over 115 ideas, many of which have been prototyped by him as well. Himanshu says, "I like to make working models, either for play or some useful ones, using cardboard and other materials, usually electrical". In his free time he enjoys making working models and also enjoys photography.

Himanshu says that he would like to form a Honey Bee club in his school as many of his friends are also interested in coming together to think of new and creative ideas. He says, "I want to become an electronics engineer and work in any field related to science and technology".



## **Jacket that senses body temperature, blood pressure and alerts**

Sheikh Sipai Farhinbanu Makbul Ahmad, 12, FD Girls School,  
Ahmedabad, Gujarat

Amlan Anupam, 10, DAV Public School, Bhubaneshwar, Orissa



Both the students have thought to develop a jacket that could monitor some basic physiological processes like temperature, blood pressure, heart beat etc and store all the parameters in a digital device like a mobile. This device then can be programmed to send an alert signal to a doctor/hospital if there is a marked deviation in the parametric readings from the normal.

Farhin has always been a good student with a keen sense of observation. She says that ideas come naturally to her but sometimes converting them into a model become difficult due to financial constraints and lack of technical knowledge. She is quite confident of her ability to come up with a reasonable solution to any challenging problem she gets confronted with. Far away in Orissa, two deaths in his family due to heart attacks motivated Amlan to conceive this idea. Amlan, who aspires to be an Orthopaedic Doctor, says, "You can't get anything unless you say Yes!" That's his mantra in life.





## **System to prevent drunken drivers from driving**

Satyam Agarwal, 11, BIC Inter College, Jhansi, Uttar Pradesh

Priya Rawat, 11, Saigrace Academy International, Dehradun, Uttrakhand

R Laxmi, 12, Atomic Energy HS School, Kalpakkam, Tamil Nadu

Arpna Verma, 10, SRKSVM, Jalaun, Uttar Pradesh

The four students have independently conceived their own solutions for the problem of drunken driving. One idea is that the system would be able to ascertain the alcohol level of the driver through palm contacts on the steering/handle grip. Sensing that the driver has consumed alcohol, the onboard system is going to ask the driver some questions. If the driver is not able to answer the questions correctly, then the system will prompt for the password. If still the driver does not manage to get it correct, the system will lock the ignition. Another idea to achieve this is to use an on-board breath analyser to find out alcohol content in the breath and accordingly jam the ignition, if the detected range is beyond a certain limit.





## ***Bhama* auto diagnosis machine**

Akshay Sivadas

11, Indirapuram Public School, Ghaziabad, UP

Akshay has thought about a standalone medical diagnosis machine that would be able to diagnose common ailments, take blood samples and give reports of the same. The machine would also be capable of testing other basic physiological parameters as well. His idea for the *Bhama* auto diagnosis machine came from his own personal experience of falling ill with viral fever and trying to do self medication which did not work. He had to eventually consult a doctor. He had to pay a fee of Rs. 800/- for the consultation and said, "Paying so much fees pinched my pocket as I come from a middle class family. If I felt this way millions of others may be feeling the same way too. I started thinking and came up with this idea of the auto diagnosis machine." The way the machine works is like an ATM machine. The person has to stand in front of it and it asks you certain questions like a doctor would during a consultation and then runs the required tests. This way it can diagnose the problem the patient is suffering from and prescribe medication accordingly. He adds that this service would be more useful for rural areas where doctors may not be available. He acknowledges that making such a machine would not be easy as there are many technical and medico-legal issues involved.



Akshay has been training in classical Bharatnatyam since he was in 4<sup>th</sup> standard. He plays the synthesiser and guitar as well. Soccer is favourite game and he represents his school at the national level. He likes swimming and playing snooker as well.

He shared that recently a telecom company had come up with a service wherein one can dial a given number, which will connect via voice call to a doctor where one can mention the symptoms and obtain the diagnosis. Akshay proudly shared the fact that he was told by someone that his innovation was better than this technology.





## **Anti molestation device for women**

Manu Chopra

11, GD Goenka Public School, Delhi

'Better safe than sorry', that could be a good tagline for Manu's innovation of the Anti-Molestation Device. He says, "In Delhi it is a known fact that it is unsafe for women to travel by themselves at night. I don't allow my sister also to go out at times because of this. Being the national capital this should not be the situation."

Manu has come up with an idea to make an anti-molestation device. This is a watch like device capable of monitoring pulse rate and nerve impulse. Any significant increase in both the parameters (due to an emergency especially when someone is trying to trouble) will activate electricity in the upper portion of the device. When the person trying to molest will catch hold of the wrist, he would get a shock that would give sufficient time to the girl to run away.

Manu's idol is none other than his father. He says that his father came to Delhi with meagre resources and with his sheer hard work today has managed a comfortable life for the family. So whenever he faces a difficult situation he thinks, "What my father would have done?" and gets the solutions with some thought. He is an avid reader and even has a library in his house of 200 books. His favourite author is Ramesh Tripathi. He plays badminton and football. In his leisure, he surfs the internet. He also loves walking and walks 5-6 km a day. Manu aspires to be like Steve Jobs and says, "I cannot work for someone else and I cannot take orders from anyone else so I want to start my own company!"

When Manu's innovation was selected for IGNITE, it was published in local newspapers with reference to him as a 'girl' who has made this gadget. "My friends had a good laugh over this but they were happy for me," says Manu- the boy :)





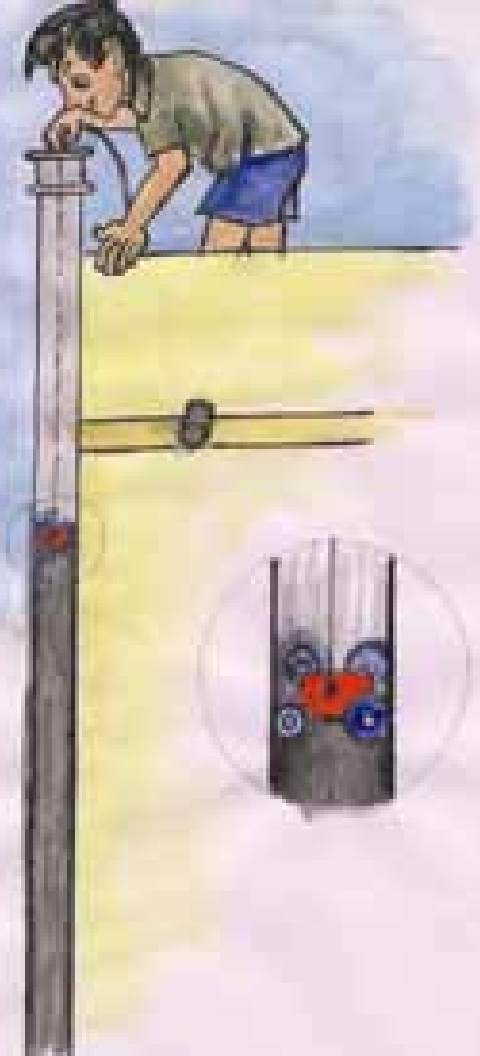
## Pipe cleaning device

Bhanwar Malviya

12, Babulal Shivilal Jogatar Rajkiya Uchcha  
Madhyamik Vidyalaya, Sirohi, Rajasthan

Bhanwar used to see water pipes outside his house get blocked with dirt, cloth pieces etc. They used sticks attached with iron anchors to try and dislodge the obstructions in the pipes. But as the pipes were curved, the sticks would get stuck around the bend. So he thought of a small robot like device with brushes and water outlet, which could negotiate the turns and help clean out the blockages. He also thought of putting a mini drill device at the front in case there were any stones or concrete that was blocking the pipes. Bhanwar realised that if no device was innovated to deal with this problem the only other solution would be to break the pipes and replace them.

With practically very little interest in sports, Bhanwar enjoys reading science books, astrology, and autobiographies of scientists. He makes mechanical and electronic models and repairs electronic gadgets out of interest. He wants to become a Mechanical Engineer.





NIF- India

**Companies Commercialise**

**Engineers Create**

**Inverted**

**Children ideate**

**Inno ation model**



## A Newsletter on Creativity and Innovation at the Grass Roots

### What is Honey Bee?

The name *Honey Bee* signifies a philosophy of discourse that is authentic, accountable and fair. A honeybee does two things which many of us do not. It collects pollen without impoverishing the flowers, and connects flowers through pollination. The idea is that when we collect people's knowledge, we should ensure that they do not become poorer for having shared their insight with us. Further, we should connect one innovator with another through feedback, communication and networking in their local language. We have to let the providers of knowledge know what we would do with their knowledge. If we generate consultancies or other sources of income by writing on people's knowledge, a fair share of this income must accrue to the providers in as transparent a manner as possible.

*Honey Bee is an experiment in people to people learning:* We write in English language which connects us globally but alienates locally. We are unable to reach the people from whom we have learnt. Thus, while we grow in our careers, achieve wider recognition and reap professional rewards, the people suffer, often silently. The ethics of knowledge extraction, documentation, dissemination and abstraction into theories, institutions or technologies, is thus one of our central concerns. *Honey Bee* is brought out in seven languages through collaborators. Write to us if you would like to contribute to this network by paying your annual/life subscription fee as suggested in the table or in any other voluntary way. The Honey Bee Network supports the National Innovation

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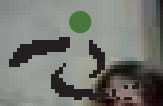
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# NATIONAL INNOVATION FOUNDATION - INDIA



Seeking entries from students upto class 12 for IGNITE - the annual national competition of original technological ideas and innovations of children. Results declared on October 15- the birthday of Dr APJ Abdul Kalam celebrated as Children's Creativity and Innovation Day every year.

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