



राष्ट्रीय नवप्रवर्तन प्रतिष्ठान - भारत  
National Innovation Foundation - India



**IGNITE**

*curiosity, compassion, creativity*



# **IGNITE 12 Award Book**

*featuring young ideators, inventors and innovators*

November 2012

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## **National Innovation Foundation - India**

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Learning gives creativity  
Creativity leads to thinking  
Thinking provides knowledge  
Knowledge makes you great

- Dr. A. P. J. Abdul Kalam





R. A. Mashelkar, F.R.S.  
Chairperson, NIF  
National Research Professor

## 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



### Impatient children and the inverted model of innovation

Education is not just about learning facts or developing logical skills. It is also about empathy, imagination, inclusivity, collegiality, and playfulness. It is not surprising that a large number of children, who may be academically bright, feel lost when faced with ambiguity, ambivalence and uncertainty. The purpose of the IGNITE competition, organized by NIF every year is to uncover the creative talent of these children. The unprecedented response to the competition this year has created new benchmarks of curiosity and creativity among children. On November 10, when Dr. Kalam honours twenty-odd creative children, we will also meet some of the kids who sent absurd ideas and others who were also very imaginative. We decided to recognize the children capable of absurd thinking by giving them 'Kite Flyer Idea Awards'. Who knows? What seems absurd today may become reality tomorrow! Many of these ideas might just become technologies in the future.

Let me briefly share the ideas of the children starting with the youngest one, a student of class II. Mohammed Usman Hanif Patel from Jalgaon, Maharashtra thought of a fan inside the house, which will be powered by a windmill on the rooftop. He also thought about a sorting machine for different sizes of oranges.

Rajashree Choudhary of Jamshedpur was perturbed with people using cellphone while driving. Therefore, she thought of having a slot in the car where a cellphone should be inserted. Only on inserting the cellphone can the car start. While children are concerned about this bad habit, adults simply ignore this basic etiquette of driving. How many lives lost by negligent driving will be saved by this innovation! Many children notice that elders don't carry their license with them while driving a car. Krishna Kumar, Tamil Nadu suggested that a car should not start unless a valid license is inserted. Durgesh and Varsha from Bihar and Jyoti,

Haryana as well as Ravi Ranjan and Shiv Shankar from Bihar were concerned about the same problem too. Apparently, children all over the country are voting against the irresponsible behavior of the adults. Aditya Joshi from Pune has conceived a spray, which can make gloves and socks waterproof when needed. The layer can be peeled off when not needed.

Traffic woes can be a thing of the past if the idea by Charisma from Hyderabad and Siddharth, Uttarakhand sees the light of day. Different times of the day observe traffic moving in one particular direction. If dividers in between can be moved left or right according to the direction of the traffic, then utilisation of space can be optimised. Kripesh Swain and Kumar Biswajeet from Bhubaneswar have thought of a solution to a very serious problem in our society. In flood-prone regions, there are times when all the wells and handpumps are inundated and there is a severe water shortage. Efforts have been made to raise the platform of the handpump by a few feet to address this problem. The idea suggested by the young duo is a handpump that automatically increases its height at the onset of flood. Even if such handpumps had to be raised to a higher level manually with some kind of retractable system, it still would be a great relief.

Lakshya, Naman, Manav, Utkarsh, Amrit and Sehaj from Delhi have come up with a modified headphone/ear phones with sensors to pick up sounds above a particular decibel limit. Essentially, this means that if you are listening to a song while walking on the road, your head/ear phone would be able to pick up the sound of a horn or any other loud noise. While people may not be able to get rid of their habit of listening to songs while walking or driving, this innovation would certainly reduce the chances of accidents.

Arnab from, West Bengal was pained by rickshaw pullers' plight on a steep road. He suggested a supplementary pedal for the passenger who may wish to share the burden and co-pedal the rickshaw.

Mansi from Jharkhand was equally empathetic. She noticed that while boarding the rickshaw, many old people and women face a lot of difficulty because of the height. She suggested adding folding steps to the rickshaw. Survesh, Tamil Nadu has suggested sunglasses with inbuilt camera to take the image of the person they meet first time and record the name. Next time, the image processing software will recognise the person and announce the name to the blind person. Jeevan Sidharth, Tamil Nadu did not like the burden that workers on the construction site had to face. He has suggested helmets with cushions inside. Ankita from Punjab and Himanshu from Gujarat have realised a very serious problem of modern times and that is increasing stress among children. They have suggested a device to monitor mental stress while studying so that they can take a break at threshold levels. Ideally, there should not be a stress but the expectations of the parents often rob children of their childhood.

Given the large pervasive use of mobile, isn't it strange that we don't have a device for transferring charge from one mobile to another? This is precisely what has been suggested by Ravi, Sanjay and Manoj from Haryana. A prototype is being developed and the patent filing is under process. Many people live in very small houses where sparing a separate space, say even a square metre for a toilet pot is not easy. People have to use common toilets. Shweta from Uttar Pradesh has suggested retractable toilets which can be folded into the wall like a closet after use and taken out when needed. It will need new fittings but will save space. Ektapreet from Punjab has suggested a new kind of painting brush in which, the same brush can have an arrangement for changing the number of hair at the tip. One doesn't need many brushes for the purpose. Rishab from J&K has suggested the use of solar panels embedded in the tents, which can turn into a raft when needed. The tents will also keep warm in the night and cool in the scorching heat.

It is so apparent from these ideas that our children are reacting constructively and imaginatively to the problems, we have learnt to live with. Many of the problems are well recognised but frugal innovative solutions elude us. These grassroots innovations by children demonstrate how empathy leads to perception. A better perception leads to a better problem definition. A comprehensive problem definition leads to



narrower classification, thus shredding the problem into smaller solvable parts. Creativity and perseverance can act upon these sub-problems, leading to a comprehensive solution.

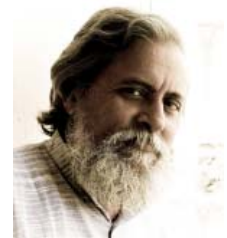
For their innovations, children will get a copy of the patent application filed in their respective names, apart from seeing the prototype, wherever feasible. The children are always advised not to make feasibility the enemy of desirability

The inverted model of innovation implies that children invent, engineers and designers fabricate, and companies commercialise. We welcome entrepreneurs, designers, fabricators and entrepreneurs to join hands with the Honey Bee Network and NIF so that the inverted model can be implemented fast. I hope more institutions come forward to support the platform and the purpose, thereby passionately looking to increase the national and international performance of our creative children. Let's not hesitate to make our children believe that their job is to imagine and invent. The rest of the steps in the value chain will be taken care of by the country. Impatient children are the greatest asset of our country.



Anil K Gupta

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



## IGNITE 12

*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 12 contest (October 16, 2011 to August 31, 2012) saw participation of students from 282 districts of 30 States and Union Territories of the country with 14889 entries being received. 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. These were given by at the hands of Dr. Kalam on November 10th, 2012 at IIM Ahmedabad.



[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)

**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))



## Spray-on gloves and socks

**Aditya Joshi**

Class 8, Bal Shikshan Mandir  
Pune, Maharashtra

### *What's the Idea?*

A fast-drying, non-abrasive, water-proof solution filled in a spray can. Just spray it on your hands or feet to get snugly-fitted gloves or socks that can be easily peeled-off after use! Aditya's idea does away with problems like a missing sock or glove, or not finding the perfect size.

### *How does this help others?*

Since it is water-proof and self-sealing, it provides excellent protection for anyone working with their hands and feet. So it can be used by a factory worker handling dangerous chemicals, or a farmer standing bare-foot in water-filled paddy fields, and so on.

### *What made him think of this idea?*

"I had noticed people like garbage collectors, or even farmers, work in unhygienic conditions that made them vulnerable to diseases. It made me think of this idea that gives protection and could be made easily available at an affordable cost," he replied when asked how he came up with the idea.

### *Just for fun*

He loves reading but it irks his mother when this habit eats into the family time at dinner. She says, "Aditya and his elder brother love reading P.G. Wodehouse and sometimes when they start discussing it at the dining table, I have to interrupt and ask them to also speak to me!"



## Preventing driving without a license/valid documents

*Alarmed with an ever increasing rate of accidents caused by teenage drivers and those without proper training, these children have conceived similar ideas to prevent this. The basic idea is to prevent a vehicle from being driven if the authorised license is not present, is invalid or has expired. To know how each one of them tried to achieve this, please read on!*



**Varsha Kumari**

Class 10, Indra Prasad Singh  
Gangstahliya Balika Gyanpith  
Patna, Bihar

Varsha proposes a system where the driving license is swiped, like a credit card machine. The vehicle starts only if a pre-authorized license is swiped. This also protects the car against theft. The idea came to her a friend's car was stolen and never found.

She loves everything related to fashion. She says, "I like to wear new dresses and try out new styles and designs. Whenever I think of a new design, I quickly sketch it." She wants to become a fashion designer. She is also a good choreographer and has won dance competitions at school.



**Durgesh Kumar**

Class 10, DAV HFC Barauni  
Begusarai, Bihar

Durgesh's idea has a mini scanner fixed on the steering wheel to compare the driver's license with an authentic license stored in the scanner's database. The steering wheel is unlocked only if they are correctly matched.

He likes watching television, especially the detective series CID. He says it "helps in learning ways to explore things and investigate." He loves reading general knowledge and science books like Physics Today and G.K. Today. He aspires to become a scientist because "they work to discover new things."



In 2010, he won the first place at the state level in Science and Mathematics Olympiad. His mother has many hopes for him and shares, "He is quite talented and I really believe that he has the potential to do something big."





**Jyoti Dhillon**

Class 10, Shishu Shala School  
Rewari, Haryana

Jyoti, who aspires to be a doctor, wants an automatic sensor inside the vehicle that prevents driving without a valid license. She enjoys math as it keeps her mind fresh but feels bad on coming across a problem that she cannot solve. Her favourite subject is Hindi, and she loves to read stories given in her textbook.

Watching television is also a favourite pastime, and something that she shares with her mother. When she was told about her idea getting selected for IGNITE, she initially couldn't believe it. She says, "I thought my family was making fun of me. I could believe it only after seeing the email. Everyone at school and home is happy for me."



**Ravi  
Ranjan**  
Class 8



**Shiv Kumar**  
Class 6

Gandhi Madhya Vidyalaya, Patna, Bihar

Ravi and Shiv were troubled by daily cases of vehicles getting stolen in their neighbourhood or accidents caused by people without valid licenses. Working together, they came up with the idea of a slot near the ignition for inserting the driving license. The onboard system would check the validity of the inserted card and allow the vehicle to move only if everything is in order. Such a system can also check theft.

Ravi, who lost his mother recently, is one among six siblings. Life has changed after her sad demise. The children have to get up early, finish household tasks and leave for school by seven. Returning home in the afternoon, they serve themselves lunch before settling down for a



couple of hours of study. Their father works as linesman in the electricity department who leaves early and returns only in the evening. He is proud of Ravi's achievement and shares, "Ravi is a quiet child who doesn't get involved in fights. He is also good at studies. I wish that he does well and gets a good job later.' Ravi's favourite way to unwind is watching Ninja Hatori, a popular cartoon featuring a Ninja, or a Japanese fighter.

Shiv's desire is to become an engineer so that he can "make new models of vehicles." He feels proud of winning his first award and says, "My teachers said that I had done a great job. I concentrated and applied myself completely." His father shares that "he wants to learn new things. He thinks a lot and lives in his own world."





**G Krishna Kumar**

Class 12, Govt Boys

Higher Sec School

Thiruvarur, Tamil Nadu

Krishna suggests using a smart card that contains electronically all the documentation required to drive a vehicle. A device fitted inside the vehicle will allow it to move only when this smart card is inserted. It also makes it easy for the police to trace missing vehicles.

This idea came to him during discussions at school on traffic regulations. He feels, "Many people forget the license at home. So there should be some system to make it mandatory that without license, the vehicle will not start."

His mother shares, "He is curious about how things are made, even when he buys something new." Both science and maths are equally liked

by him. While mathematical calculations are "challenging, energising and refreshing", science helps him to "understand and create new things." He reads news paper daily and likes watching professional wrestling (WWE) on TV.

## Headphones with Sensors to Detect External Sounds



**Lakshya Kaura, Naman Jain, Manav Mitra, Utkarsh Hora, Amrit Dang, Sehaj Kataria**

Class 8, Vasant Valley School  
New Delhi

Most people take off their headphones while on road to avoid accidents. But one young boy loved his music too much to part from it. He wanted to listen to it while walking on the road, but not at the cost of safety. He shared his anguish with his friends and all six of them put their heads together to come up with an innovative solution: headphones fitted with sensors to pick up external sounds. So, if a vehicle honks within 10 metres, the headphones automatically stop playing and sound an alert.

### *Just for Fun*

This gang of six has different interests. Naman is passionate about sculptures and has got a



proficiency award in school for sculpture making. Manav is an expert 'tabla' player who is also learning to play the piano. Sehaj prefers listening to music, especially instrumental or trance. He also plays golf, which is something of a family tradition with both his father and grandfather being avid golfers. Amrit likes doing abstract paintings because "they do not reveal emotions easily". While Utkarsh unwinds with football and tennis, Lakshya finds it relaxing to work with a potter's wheel, turning out beautiful clay pots and candle holders.

### *Science Lovers*

Their interests are different but the love for science and innovation brings them together.

They believe, "Science is everywhere. It is all around us – in the air, in body or even in muscles." This same team has won multiple awards for different projects. For example, placing a fan inside a computer to generate electricity or making a bomb by mixing baking soda, vinegar and Eno in a closed bottle. One member has started a science club that conducts experiments in schools without science labs.



## Preventing Mobile Usage while Driving & Unique Doorbell to Identify Visitors

**Rajashree Choudhury**

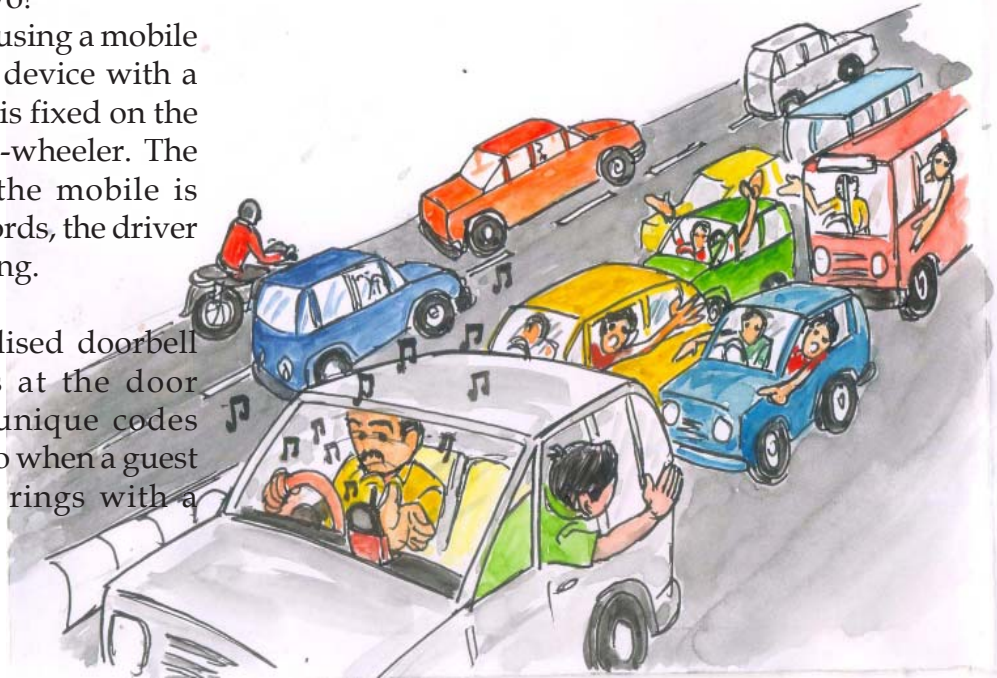
Class 5, Little Flower School

Jamshedpur, Jharkhand

*What's the Idea?* Well, there are two!

The first idea can stop people from using a mobile when driving. How? Well, it is a device with a place for inserting a mobile, and it is fixed on the car dashboard or handle of a two-wheeler. The vehicle moves forward only if the mobile is inserted into this device. In other words, the driver can't talk on the phone while driving.

Her next idea is to have personalised doorbell ringtones so you know who is at the door beforehand. The doorbell has unique codes assigned to different individuals. So when a guest presses their code, the doorbell rings with a specific sound.





### *Nature Buff*

11-year-old Rajashree is a nature-lover who believes in action, whether it's shooting off letters to her principal on eco-friendly pencils or presenting at Tata Motors on water conservation. She is part of a group of 100-odd children who have started the Jharkhand Children's Green Club where children work for protecting the environment.

She is actively involved in Tunza, a project run by United Nations Environment Programme (UNEP) for youth and children. Her idea 'garbage to garden' where waste from the kitchen is decomposed and mixed with soil and used as fertilizer was selected by Tunza and she was invited to visit Seoul to share it.





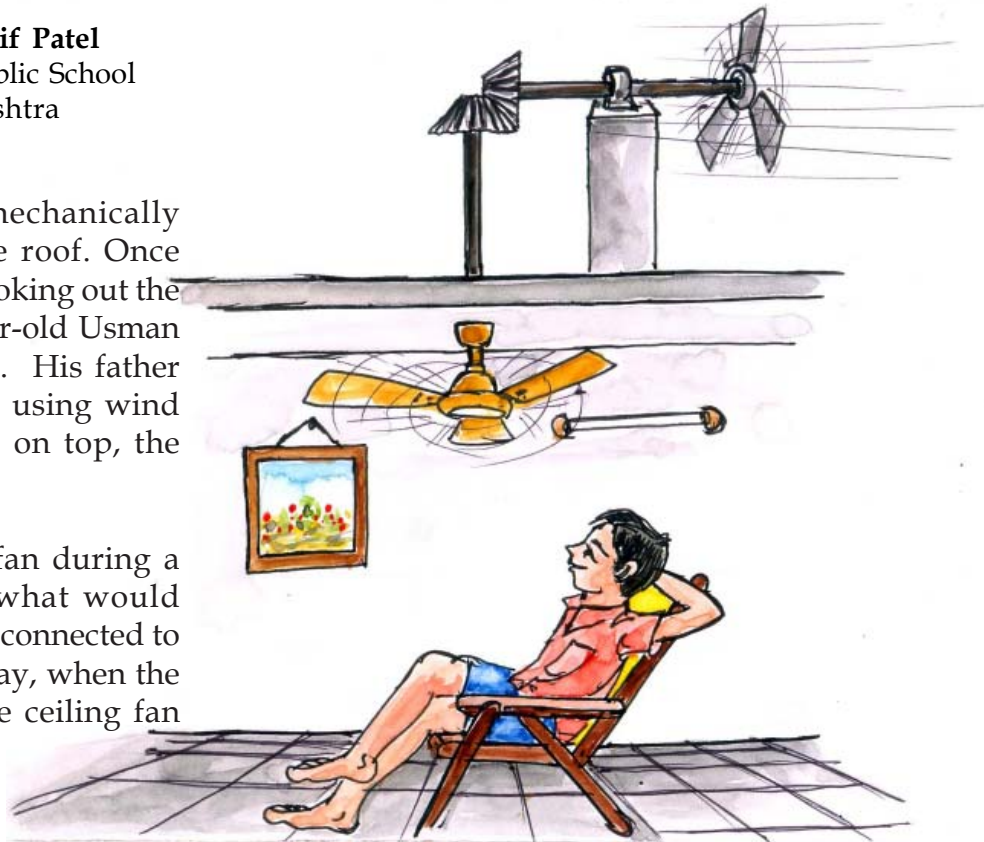
## Wind-Operated Ceiling Fan

**Md. Usman Hanif Patel**  
Class 2, Tapti Public School  
Jalgaon, Maharashtra

### *What's the Idea?*

Ceiling fan inside the house mechanically powered by a wind-mill on the roof. Once travelling towards Nandurbar, looking out the window of a moving train, 6-year-old Usman saw some windmills zipping by. His father explained that a windmill turns using wind energy and as the blades move on top, the bottom attachments also move.

One day, staring at the ceiling fan during a power cut, Usman wondered what would happen if the ceiling fan could be connected to a fan placed on the roof. That way, when the wind moves the fan outside, the ceiling fan would move in synergy.



Usman, along with his elder sister, designed a basic model with thin cardboard. Fans and gears were taken from a toy helicopter while a rod connecting two car wheels was used as a shaft.

### ***Budding Mathematician***

Usman enjoys science but absolutely loves maths. Why? "Because it is easy and I can do it quickly. Subtraction, addition - even division is not that difficult. In other subjects, you have to write a lot but not in maths," he replies.

### ***Mother's Thoughts***

His mother feels that he is a responsible child "who can do things without being told. He is very mature that way." She also sees him as a

child filled with curiosity. She shares, "Sometimes when I am rushing with the household work, it becomes difficult when he follows me with his questions."

### ***On Winning the Award***

On winning his first award ever, he says - "I feel good. I am happy. But I am also excited that my father has promised me an ice cream and a visit to the Ahmedabad zoo once we are there."





## **Hand pumps that rise automatically in flood affected areas**

**Kripesh Swain & Kumar Biswajeet**

Class 8, DAV Public School

Bhubaneswar, Odisha

Kripesh & Biswajeet were very irked by the fact that during the monsoons, especially in flood affected areas, muddy water would gush into the bore wells from the top, rendering the once fresh water unusable. To prevent this problem from recurring, they designed a hand pump such that it can go up with the rising water level, so that it remains usable.

“We couldn’t tolerate the extent of suffering in different parts of Odisha. Everybody deserves pure water,” they said.

### *Aspirations*

Both friends are driven by a desire to help others. Kripesh mentions, “At the end of the day, my goal is to do something good for my community. I hope

that through my knowledge of science, I will continue to make their lives easier in times of extreme difficulties.” Biswajeet’s father echoed this sentiment by adding, “My son is concerned about helping others. He will force us to support the poor. When he collects money for any social cause, he makes sure to take it separately from both me and my wife.”

### *Accolades*

At the district level, Kripesh has won awards for several innovations. Some of his scientific models have been exhibited at the Regional Science Centre in Bhubaneswar. In school, he is the president of the science club. Presently, he is in the process of legitimizing a special

type of fuel that will enable the water from the hand pump to rise without manual force. Biswajeet, getting his first award ever, shares, "My parents never thought that I can win such an award. They all are very happy now."





## Movable Road Dividers

### Sidharth Pal

Class 11, Sai Grace Academy  
Dehradun, Uttarakhand

All of us may have observed that vehicular traffic load on either side of the divider at different times during the day (specially during peak hours) varies. The children suggest having movable road dividers, which can be shifted to the left or right depending upon the incoming traffic from a particular side thereby easing congestion on roads.

Sitting inside a vehicle surrounded by loud honk while stuck in a traffic jam is a daily irritant for most commuters. Sidharth used to get annoyed when he would get delayed while on the way to an important class. He put on his thinking cap and came up with a simple but effective solution – movable road dividers.



### *Just for Fun*

He likes to spend his free time brushing up his English skills. “It is my favourite subject. I like talking in English as it improves my language proficiency”, says this aspiring banker. At other times, he can be found reading ghost stories or listening to music, especially by singer Atif Aslam who is known for soft, romantic melodies. He is also a football player who regularly participates in school tournaments.

### *Mother's Thoughts*

His mother reveals another detail about him. “Sidharth is very skillful with gadgets, especially if something's not working. He has a natural knack for it and can easily fix most electronic equipment,” she shares.



**S Charishma, Hyderabad**  
8, Bhartiya Vidya Bhavan  
Hyderabad, Andhra Pradesh

Getting stuck in traffic is the worst way to start the day but it is something experienced by mostly everyone, whether it is a kid going to school or a clerk going to his office. Charishma found an innovative solution to this problem. She noticed patterns in movements of vehicles. One side of the road has more traffic in the morning, which shifts to the other side in the evening. So she proposed a simple, but very creative solution: why not use movable dividers? Depending upon the incoming traffic from a particular direction, the dividers can be shifted to increase lane size. This would considerably ease traffic congestion, as there would soon be a balance between the lesser-used lanes and the more congested lanes.

### *Aspirations & Accolades*

Apart from science, the other thing that Charisma is really passionate about is painting. In fact, she has won the second prize at an international level for the Ratan Tata Painting Competition.

Charishma dreams of being a doctor. "I want to serve the people that need help the most. I also see myself holding public rallies to spread awareness about how we should stop exploiting the earth's natural resources," she said.







## Artificial Assistance for Blind People

### **B Survesh**

Class 10, The Hindu Colony Chellammal Vidyalaya SSS  
Chennai, Tamil Nadu

#### *What's the Idea?*

With a blind granduncle and grandaunt, Survesh has seen first-hand problems faced by the blind. Therefore, he thought of creating sunglasses that could help them recognise people and objects independently. The sunglass has an inbuilt camera to record the image and the name of a person met for the first time. When the person is met the next time, the image processing software recognizes and speaks out his/her name to the blind person. It can also search online to identify objects.

#### *Just for Fun*

Survesh loves to experiment in his free time. He shares, "Me and my cousin brother experiment with chemicals and observe physical properties. Once we mixed face powder and hair gel and we saw that the semi-liquid state transformed into a paste. And when we heated it, the blue colour changed to milky-white. We love doing these experiments to discover new things." He also likes reading William Shakespeare's poetry, and the following line from sonnet 55 is his favourite:

*'Not marble, nor the gilded monuments  
Of princes, shall outlive this powerful rhyme'*

### *Computer Wiz*

Survesh is passionate about computers. These days, he is spending his free time learning C++, a programming language. He says, "This is my dream project. I want to create a system that will seamlessly capture images and convert them to audio in a single chain. Learning C++ will help me create a working model."





## Cushioned-Helmets for Labourers

**G Jeevan Sidharth**

Class 9, ShrishtiVidyashram

Vellore, Tamil Nadu

### *What's the Idea?*

"While going to school, I often observed construction workers carrying bricks and cement on their head. I wanted something that would protect the head, reduce pressure and help to balance load. Just like how a helmet gives safety while riding, why can't a helmet protect these workers?" He thus went on to design a helmet to provide safety to workers at construction sites. It is fitted inside with a cushion that gives protection while the outer surface has a slight inward curve for easy balancing.

### *'Computer Engineer of the Apartment'*

This is the title given to Sidharth by an elderly neighbour because he is the go-to person for any

computer-related problems. His mother shares, "Whenever there is a difficulty with a computer, others in apartment call him and somehow, he fixes it without knowing technical details. I always wonder how he does it."

His father, heading the chemistry department in a college, takes his help to make presentations on the computer. He has also taught his parents how to edit photos using Photoshop.

### *Mother's Thoughts*

His elder sister has been bed-ridden for years and his mother appreciates that "he takes care of her like a parent and is her best and only friend."



She is proud of her son's achievement but feels overwhelmed when "he asks too many questions, some that I can't answer and others that I don't even understand. Once he asked me why don't we save energy by using 110 V appliances instead of 220 V. This energy can then be used in houses, which don't get electricity."

She feels he is an average student who doesn't take stress even during exams as he says that "they just test your memory or what you have understood of the theory. There is nothing new or practical."





## Device to monitor mental stress in students and others

**Himanshu Jiteshbhai Parmar**

Class 10, Pandit Nehru Vidya Vihar  
Ahmedabad, Gujarat

It disturbed 15 year-old Himanshu to see parent's single-minded focus on their child's studies. The catchphrase "padh, beta padh" (Study, child, study!), though well-intentioned, builds up pressure on the child. "I remember reading a news paper story about students who committed suicide because of failure in their class 10 board exams," he shares. This made him to think of a system to measure tension/mental stress. It would tell the degree of stress and if found high, students can unwind before going back to their studies.

### *Shy & Stylish*

Probe him more on the idea and he softly replies, "I don't know how I got it. It came to me and I send it." His father, an auto-rickshaw driver, says about his son, "He is a good student who likes



**Ankita Arora**

Class 10, Police DAV Public School  
Jalandhar, Punjab

learning new things. But he always lives in his own world. He likes to be quiet and alone. He does not have too many friends - just two." But what interests Himanshu most are clothes! He likes being well-dressed, which is something he has loved since childhood.

### *Aspiring Civil Engineer*

Himanshu and his father share the common dream of him becoming a civil engineer. He says, "A friend and an uncle are civil engineers from whom I derive my inspiration. I like the profession very much." His favourite subjects are mathematics and science. He likes maths as he gets to do calculations while science is "easy to learn and is possible to study independently."

Ankita was distressed to see her mother struggling with acute back pain that confined her to bed for over a year. Her mother's agony gave her the idea of creating a device for detecting and monitoring levels of mental stress in an individual. This can alert patients and their families dealing with mental stress to take corrective steps.

### *Science & Other Interests*

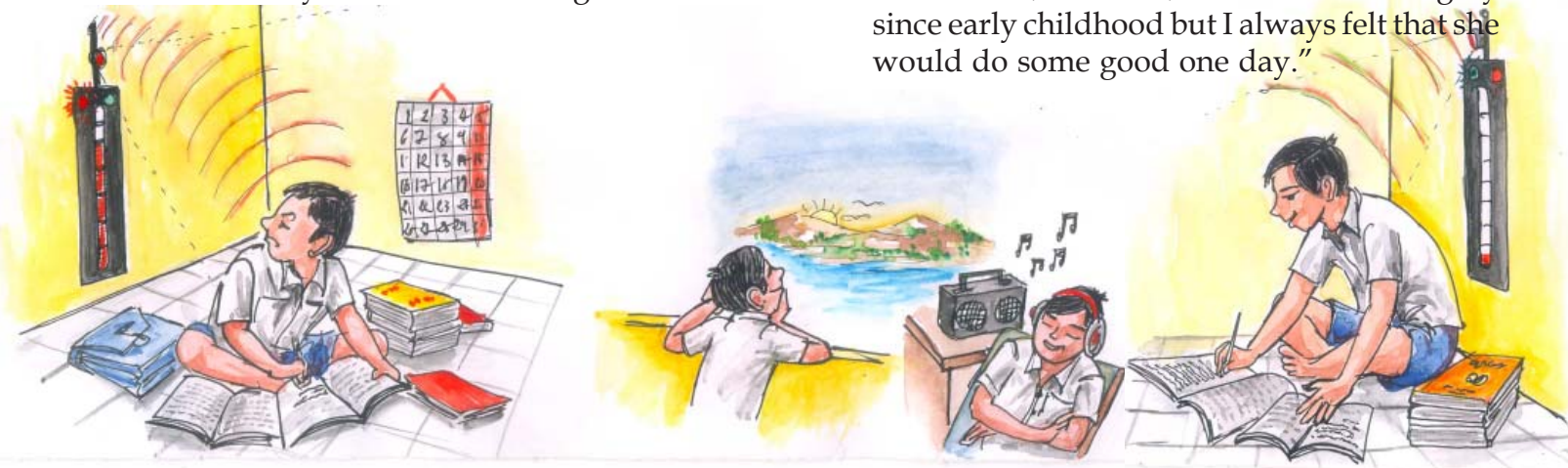
She aspires to be a physics or chemistry lecturer in the future. Science was not inherently her first love but she credits her teacher for arousing interest in the subject as she adds, "I wouldn't love science if my teacher wasn't so good!"

### *Dreams & Aspirations*

She believes in being a change-maker and claims, "Politics is a dirty game but I might join it anyway." She hopes to "meet Pratibha Patil and ask her what it was like to handle such a big country!"

### *Family Ties*

There is hardly a moment that she and her brother aren't fighting, Ankita admits and says, "I need to keep all my belongings under lock and key, including the key to my lock!" Her mother is of course proud of her achievement, and admits, "I know, she has been naughty since early childhood but I always felt that she would do some good one day."





## Mobile to mobile charging

**Ravi Duhan, Sanjay Raghav and Manoj Kumar**  
Class 9, SD SSS  
Rewari, Haryana

This group of three friends had seen files shared between mobiles through Bluetooth. Extending this further, they wondered why a mobile cannot be used to charge another mobile.

Brainstorming this further, they came up with possibly two ways of doing this – wired or wireless way of charge transfer from one mobile to another. The idea is especially relevant for rural areas with its erratic power supply.

All three study in the same school, which is situated in a rural area. Their Principal shares, “Most parents here are either farmers or labourers.” While Manoj’s father is a farmer, there are also exceptions like Ravi’s parents who

are both teachers. “All the three kids are good in studies and actively interested in sports and other curricular activities,” the Principal adds.

Ravi is an exceptionally good sportsperson who wants to make sports his career. Manoj enjoys playing cricket after school and enthusiastically participates in village matches. He also helps his family in farming. Not surprisingly, his favourite song is ‘*mere desh ki darti sona ugle, ugle hire moti*,’ sung in praise of the land that yields food to feed the nation. Sanjay prefers basketball and has played in many tournaments.







## Retractable toilet pot with cleaning system

**Shweta Verma**

Class 9, Gyan Sthali Public School  
Jhansi, Uttar Pradesh

### *What's the idea?*

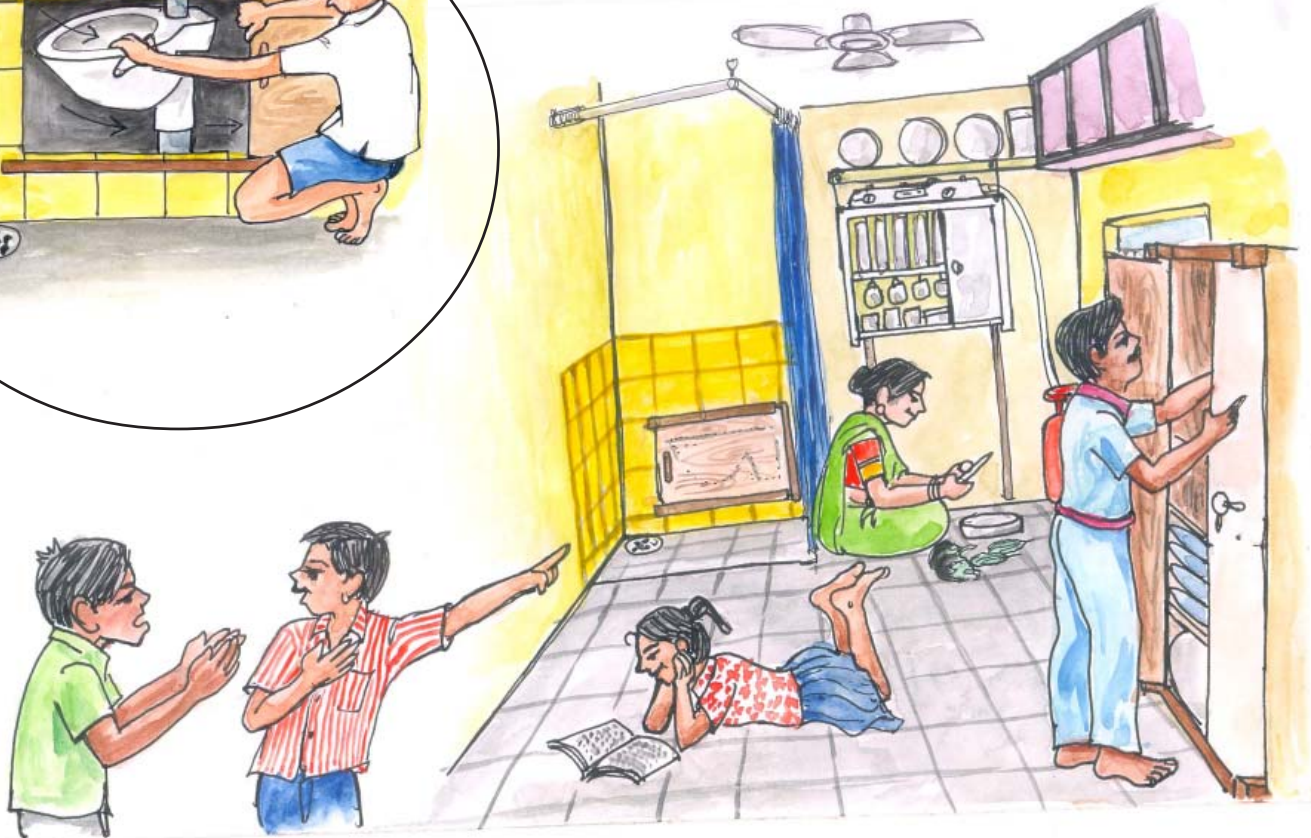
Retractable toilet fitted with sensors. The pot can be pulled inside the wall after use and taken out when needed. Shweta believes, "This will help people who have small homes with little space. It can also be used in other places where space is a constraint."

### *Just for fun*

She enjoys drawing sceneries. Being the youngest among four siblings, she ensures that she gets pampered and taken care of by her brothers and sisters. She says, "They support me in everything. They help in revision before the exams, my brother takes me out to play games and helps in any way that he can."

On holidays, she loves to head off to the nearby park with her best friends for a game of badminton. She also enjoys watching historical films, with her favourite being *Gladiator*, a popular film set in the Roman era. She shares, "I like to watch that film, especially the part where the hero battles single handedly with a lion. I find his bravery very inspirational." Closer home, she enjoys watching Salman Khan's movies. When asked on what she likes most about the actor, she immediately replies: "Everything!"







## Modified Painting Brush

**Ektapreet Kaur**

Class 9, Police DAV School  
Jalandhar, Punjab

Even though, Ektapreet has never been too fond of art and painting, she doesn't miss her fine arts class, which is twice a week. She observed how different paintbrushes were required for different kinds of strokes and paintings. "What a waste of money and how tiring to keep alternating from one brush to the other!" she thought.

This inspired her to think of a single paintbrush, which could accommodate varying sizes, just like a pen can have refills of many colours.

### *Study & Leisure*

It's hard to believe that a ninth-grade child would choose to study more than play. Ektapreet reserves five to six hours a day for study and has no complaints.

### *Aspirations & Role Model*

Dr. APJ Abdul Kalam has been her role model for a long time. What she admires most about him is his quality of perseverance. "I aim to be as hard working as Dr. Kalam and there couldn't be a better personality to receive an award from," she added.

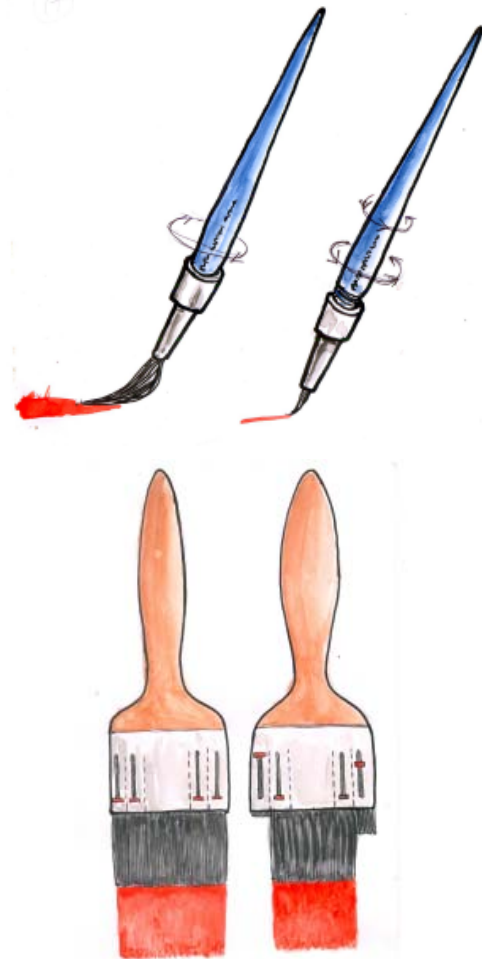
### *The world view*

An enthusiastic participant in Hindi essay writing competitions, Ektapreet shared her views on corruption and people's attitudes- "Everybody loves to pinpoint the Government in the name of corruption but that is not necessarily the root of corruption. People need to change their greedy ways and bad habits first and only then will corruption come to an end."

She has full faith that science will revolutionize the world. In fact, it already has! "I really do think that



everything is possible. If they have already found the god's particle, who knows what will be found in the years to come," she says.





## Multi-purpose tent & Load-Lifting Device

**Rishab Gupta, Jammu**

Class 10, DPS

Jammu, Jammu & Kashmir

It was in the middle of a mountaineering camp in Mussoorie that an idea to convert a tent into a raft struck Rishab. Why should more material go into a production of a boat when that used to pitch a tent could be reassembled into a boat?

His tent is creatively planned to be usable during both summer and winter with portable solar panels to provide light after sunset. The base is proposed to be made of rubberized nylon that can be inflated and the border along the base can be blown up to turn it into a raft.

His next idea is a portable shifter to easily move heavy things. With this device, heavy items like furniture and refrigerators can be comfortably shifted by attaching a set of wheels to slide them from point to point.

### *Science Passion*

While some tenth grade kids are uncertain about their future goals, Rishab knows exactly what he wants to do - aerospace engineering. He believes that today's technologies are the key to the progress and this can be achieved without harming the environment. "It is all a game of give and take. Science takes from the environment and will eventually give back to ensure sustainable development," he asserts.

### *How It All Began...*

When he was in the third standard, his favourite toy car had broken along with his heart. Refusing to let go of his prized possession, he toyed with a few permutations and combinations until he figured out how to set the car wheels into motion again!



### *Accolades*

Apart from his liaisons with science, Rishab releases his creative juices with the stroke of his paintbrush. He has bagged numerous prizes at state-level painting competitions and recently won a national level painting competition organized by Delhi Public School Society.





## User-friendly pedal rickshaw

**Mansi Priya**

Class 11, DAV Kapil Dev  
Ranchi, Jharkhand

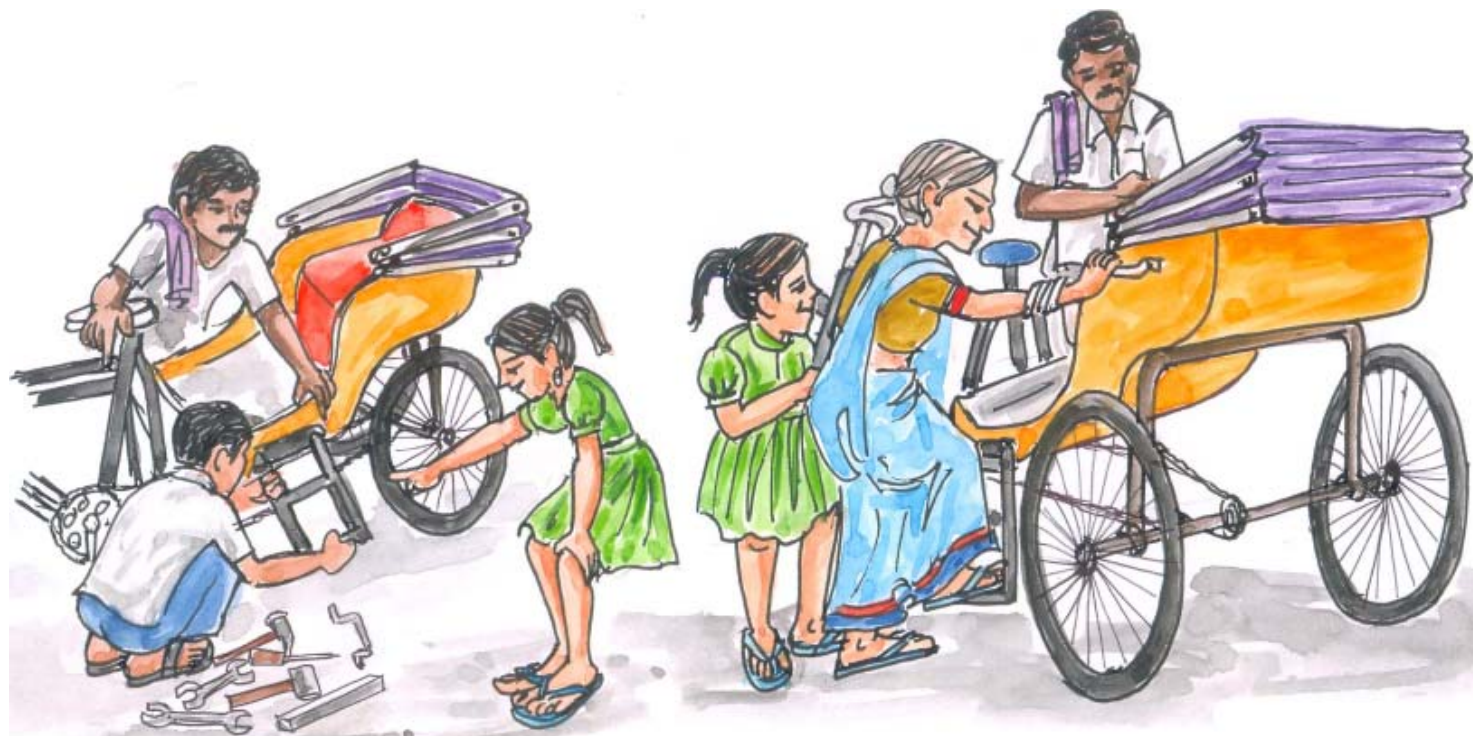
Watching her grandmother struggle to get down from a pedal rickshaw, got Mansi into thinking. She suggests addition of small folding stair in the rickshaw, which will help old people to climb rickshaw with a lot more ease.

### *Aspirations & Interests*

Mansi, a hardworking eleventh grader is determined to be an engineer. Her interests include dancing, reading thrillers and binging at various restaurants. After finding out that she won the IGNITE competition, she was immediately treated to a meal.









## Modified Cycle Rickshaw: Passengers Help Pull their Own Weight

**Arnab Chakraborty**

Class 12, Future Foundation School  
Kolkata, West Bengal

Arnab, who recently moved to Kolkata, was surprised seeing a large number of cycle-rickshaws plying on the city roads. It also disturbed him to see thin, frail men pulling such weight. So, he thought of a modified cycle rickshaw with extra pedals for passengers who may wish to share the burden and co-pedal the rickshaw.

Aspiring to be an IIT-ian, Arnab, wishes to undertake research in astrophysics as he has always been intrigued by space. He has also represented his school in many quizzes and debates, and is a state-level winner in math and science Olympiads and the National Level Science Talent Search Examination (NSTSE). His mother shares an interesting incident of Arnab's

flair for mathematics even as a child. She says, "This happened when he was very young, probably just two or two-and-a-half years old. We saw him adding double digits by himself. Surprised, we checked with the teacher who said that it had not been taught in class. It was something he just picked up on his own."

Although good at academics, he is an outdoor person who loves trekking, shooting or playing. He admits that he "can only sit down to study once I have played for at least a couple of hours." He likes mystery novels, especially the Sherlock Holmes series and has been inspired enough to pen down a few short mystery stories himself.



# Kite Flying Ideas:

Present Indefinite to Future Perfect



## Charging Mobile while Talking

**Gautam Kumar**

7, Rajkiya Madhya Vidyalaya  
Patna, Bihar



It is difficult to keep a mobile charged when living in an area with frequent power cuts. Gautam faced this problem himself and wondered why our voice (since it is energy – sound energy) cannot be used to charge the mobile. He feels, “In most villages, we have problems of power shortage. So it can be useful there.”

He dreams of being an engineer. Most of his free time is spent tinkering with things in the electric shop run by his grandfather. He is an artist who likes drawing religious figures, with goddess Durga being a favourite.



## **Machine to Suggest What to Eat and How to Cook It**

**Sharvay Harish Tiwari**

Class 5, Shri Shri Ravishankar School  
Pune, Maharashtra



Standing in the kitchen and don't know what to cook? Or feeling an urge to eat potatoes, but can't decide whether to eat them boiled or accompanied with some other vegetable? Sharvay's idea does away with these problems. In his machine, you simply select a particular vegetable, and the monitor displays a list of different ways it can be cooked along with the ingredients required and their quantity.

Asked on how he came up with such an idea, he simply replies, "Because I love food." His father won the Gandhian Young Technological Innovation Award in 2012 for his project on using engine exhaust for automobile air conditioning. He shares, "Sharvay is innovative and interested in things beyond studies." He credits his son's school for believing in stress-free value education and promoting out-of-the-box thinking.

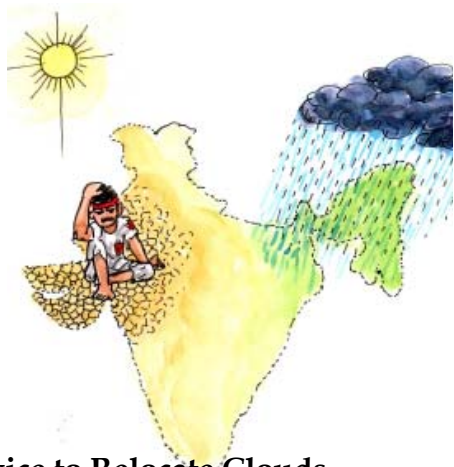




## Device to Relocate Clouds

**Shweta Sharma**

Class 10, Police DAV School  
Jalandhar, Punjab



Poor rainfall in Punjab made Shweta experience first-hand the problems caused by water shortage. At the same time, she read about floods in Assam. It got her thinking that if the clouds over Assam could somehow be sent to Punjab, it would be a 'win-win situation' for both states.

She was hesitant to share this idea as she thought that it might be laughed upon. But she discussed it with her mother who told her the story of the great musician Tansen whose raag Megh Malhar was said to have the power to bring down rain. Encouraged, Shweta sent her idea reasoning that "if a sweet melodious voice can bring rain, then this is also possible; maybe not today, but tomorrow." She is fond of chemistry and physics and likes looking up new words in the dictionary.





## Glove with In-built Mobile Phone

**Rohan Jolly**

Class 7, Angel School  
Delhi



Rohan's grandparents live in Kashmir and he visits them during vacations. The cold weather made gloves indispensable, but Rohan found it difficult to hold the phone while wearing gloves. There was another problem as well. "The mobile sometimes get covered with snow and water entered inside, damaging it," he explains. He thought of solving these problems by fixing the phone within the gloves, so you can talk comfortably while remaining warm.

He loves watching Discovery Science, especially the show 'How It's Made,' that shows how everyday objects are made. He also draws sketches and claims to be able to draw anyone "from Rani Mukherjee to Amitabh Bachchan".



## Shirt that Wakes You Up

**Jatin Kumar Bhoi**

Class 9, KK High School  
Sundergarh, Odisha



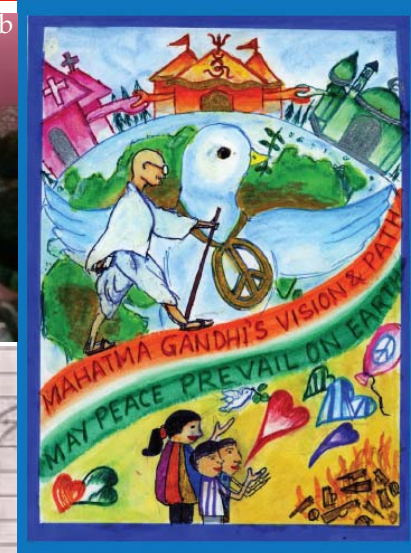
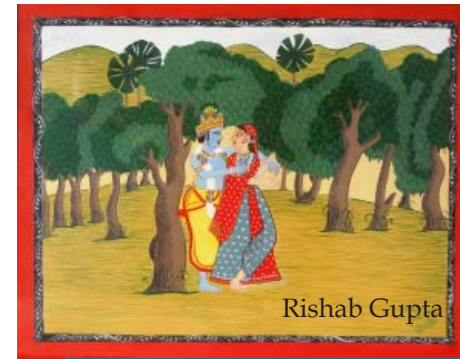
Jatin found it difficult to remain awake while studying. It landed him in problems, especially during exams. To overcome this tricky situation, he suggests a special shirt with a mechanism for making sure that the person wearing it remains awake. He also wants it to have buttons that can tell time. When probed on how he will make this, he replies, "I don't know right now but will think of something once I grow up." He wants to become a scientist so he can invent something new. He loves cricket and is a big Sachin Tendulkar fan.

# From the lives of some award winners.....



**The Sun follows!**  
 If I go here,  
 Or I go there,  
 The Sun follows me every were!  
 I turn left ,  
 I turn right ,  
 The Sun keeps me,  
 In his sight!  
 For the whole day,  
 To hide from his sight,  
 I fiercely fight,  
 But at least he leaves me,  
 At night!

- Aditya Joshi

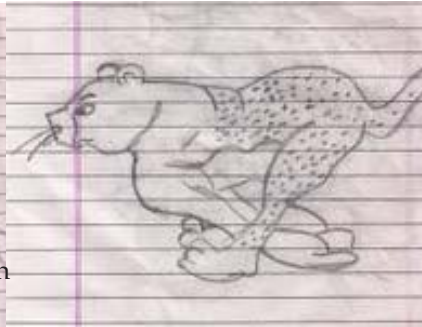


**2012 Peace Pals International  
 Art Exhibition & Awards  
 First Place Winner**

**Rajashree Choudhury + Age 10**



Mohd. Usman





## 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

Foundation ([www.nifindia.org](http://www.nifindia.org)) and Grassroots Innovation Augmentation Network (GIAN, [www.gian.org](http://www.gian.org)).

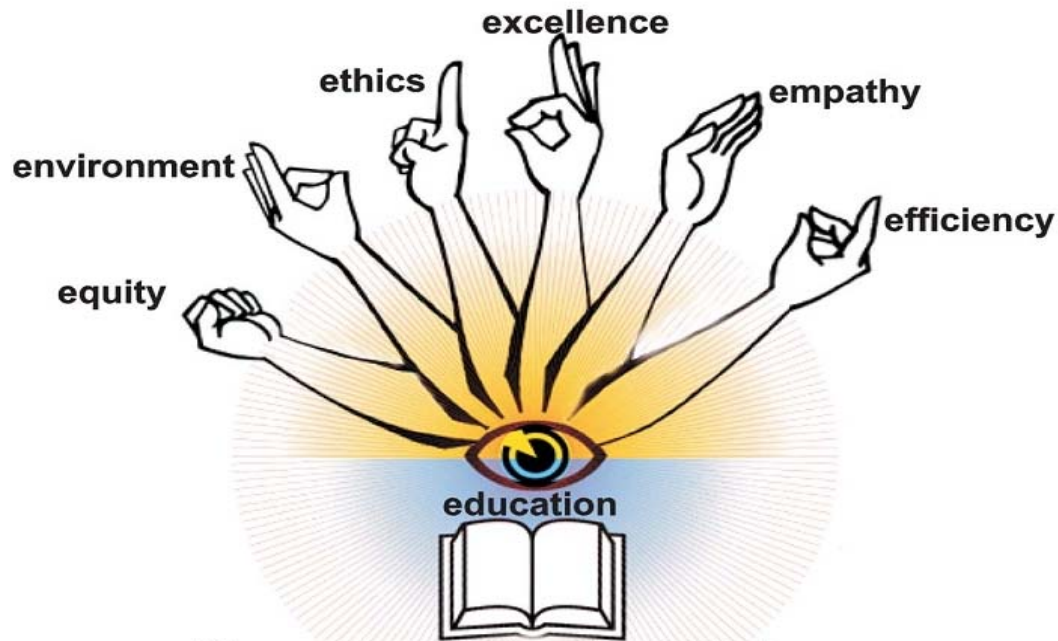
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Individual	150	20
Supporter	500	50
Institution/Library	2,500	200
<b>Subscription for Life (15 Years)</b>		
Individual	1,500	500
Institution/Library	10,000	800
<b>Back Issues of Honey Bee (1990-2009)</b>		
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* Postage extra for each		
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## **Honey Bee Network Values**



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



## 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.

### IGNITE

National Innovation Foundation- India, Satellite Complex, Premchand Nagar Road, Ahmedabad 380015 Gujarat  
Toll Free No 1800 233 5555 Tel: (079) - 2673 2456/2095, 2675 3501/3338 Fax: (079) - 2673 1903  
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