NITI Aayog

ATAL INNOVATION MISSION

The Ingenious Tinkerers

TOP INNOVATIONS OF ATL MARATHON 2019-20

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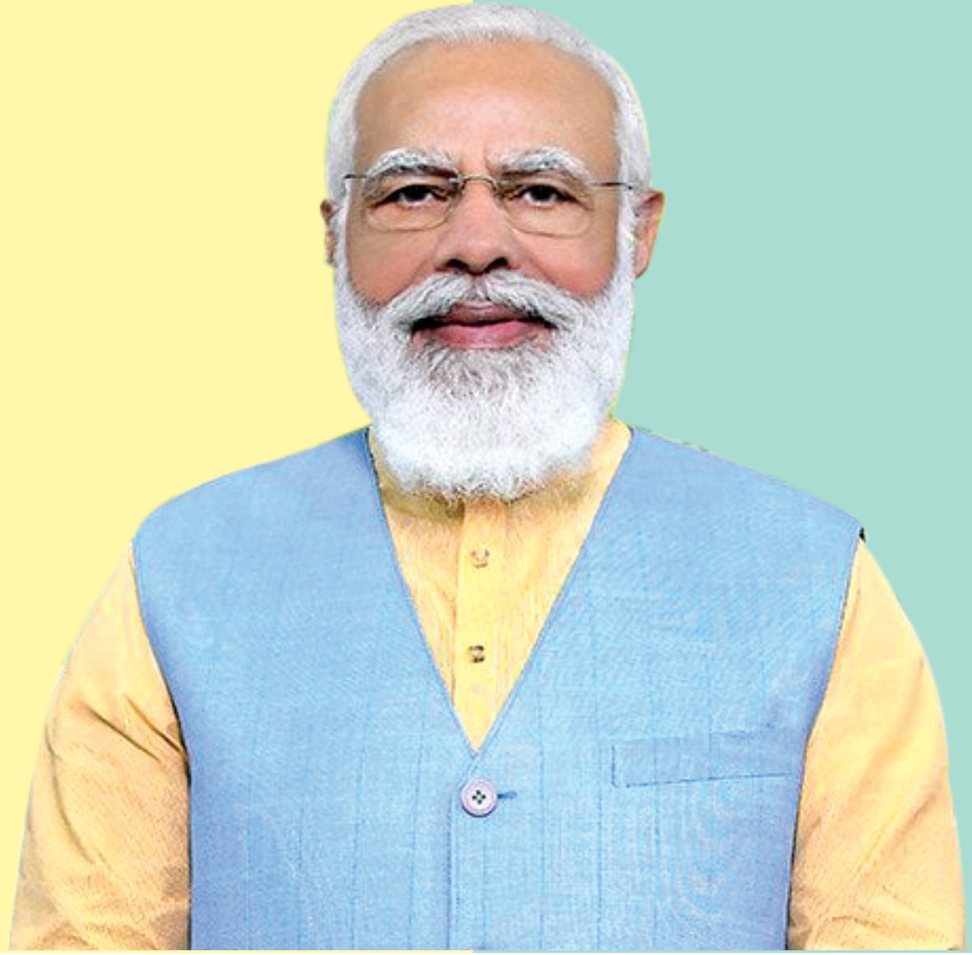
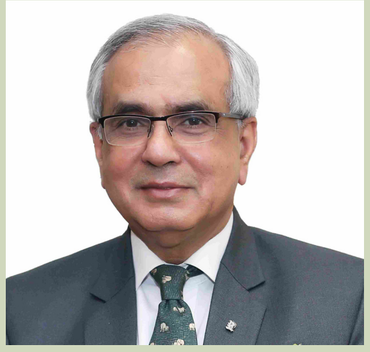


The youth of the country, through technology, through the Hackathons, are using their brains for solving thousands of problems of the country, searching for solutions, and providing solutions.

- Shri Narendra Modi
Hon'ble Prime Minister



Dr. Rajiv Kumar
Vice Chairman
NITI Aayog

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NATIONAL INSTITUTION FOR TRANSFORMING INDIA
NITI Aayog, Parliament Street,
New Delhi - 110 001

Message

India is a country known for ingenious innovations. The sheer heterogeneity and diversity of Indian society makes it a fertile ground for ideas and creativity. Essentially, innovation is a mindset, a vision. An innovative mindset empowers an individual to search for and deliver better solutions. It also unlocks the potential and speeds up the economic growth and development of a country.

The Atal Innovation Mission (AIM), NITI Aayog is an intervention by the Govt. of India to foster the spirit of innovation and entrepreneurship in the country. The Atal Tinkering Labs (ATL) program is an initiative at the school level transforming India's education system by introducing the students with the latest technologies at a very young age to tinker and come up with innovative solutions, bringing a change in the society and to articulate a vision for creativity and technology.

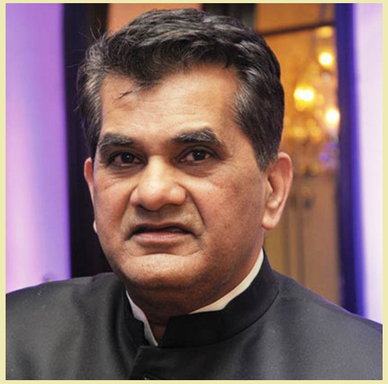
The Ingenious Tinkerers book is a compilation of the top students who participated in the ATL Marathon which invited budding innovators from all ATL schools to address a problem that they as students see on a day-to-day basis. Each participating student leveraged the up-and-coming, ground-breaking technologies available at ATLs to devise a solution. These young tinkerers took it upon themselves to identify their problem statements by interacting with the members of their community and designing a prototype in a manner that fits their needs and demands.

Their determination to make a difference in their community has paved a way for their innovation to reach the top innovations of India for this ATL Marathon.

I appreciate the efforts of AIM Team for leading the innovation movement in the country. It is a concerted effort with an objective of bringing a research and innovation mindset to students to make them more curious, creative, and empathetic to challenges around them.

I also congratulate the students, teachers, and mentors of the Atal Tinkering Labs and it is wonderful to see them put in their best efforts and make the country proud.

Rajiv Kumar



Amitabh Kant
CEO
NITI Aayog

अमिताभ कांत
Amitabh Kant
मुख्य कार्यकारी अधिकारी
Chief Executive Officer

सत्यमेव जयते

भारत सरकार
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Message

Education is the most powerful weapon for changing the world and it should not just fill the pail, but light fire in the minds of the learners. It gives me immense joy to witness the innovations from the young tinkerers from the Atal Tinkering Labs located in different parts of the country. The objective behind setting up the Atal Tinkering Labs was to foster curiosity, creativity and inculcate skills such as design mindset, computational thinking etc. which seem to be gaining momentum over the years. These young innovators will go on to play a vital role in creating sustainable solutions for a New Aatmanirbhar India.

The ATL Marathon conducted by Atal Innovation Mission invited applications from budding innovators from across the country where they were given the opportunity to design their marathon! All the school students of India got an opportunity to unleash their creativity and innovate for a better school environment and therefore a happier childhood. I am proud to announce the top innovations from across the country which has been identified for their excellent innovations.

The entire AIM team, teachers, principals, and mentors have worked relentlessly to nurture these young innovators who then get a chance to undergo the prestigious Student Innovator Program (SIP) with AIM's corporate partners and incubation centres to further enhance and hone their skills and prototypes. The Ingenious Tinkerers book is a compilation of such stories narrated by students themselves, who developed an agency for innovation and entrepreneurship at a young age. This is indeed an indication that the Atal Tinkering Lab program has become a key initiative toward the 'Tinkering' movement in India.

(Amitabh Kant)

Place- New Delhi
Dated- 16/12/2021

Abhishek Singh, IAS
CEO
MyGov

सत्यमेव जयते

ABHISHEK SINGH, IAS
CEO

mygov
मेरी सरकार

011-24364706
ceo@mygov.in

CEO/MyGov/2021/91
Dated: 17.12.2021

Message

I congratulate Atal Innovation Mission and all the young innovators for contributing to the "The Ingenious Tinkerers" which is compilation of outstanding grassroots innovations by students and their mentors. This journey of transforming ideas into viable products enables the young, bright minds to move up the ladder from being tinkerers to smart Innovators. This strength of Indian Innovation Ecosystem is leading to bright young minds coming up with exciting ideas and transforming them into prototypes and products. Atal Innovation Mission (AIM) has played a critical role in enabling this and helping school children become dreamers and mentoring them to realize their dreams. MyGov is proud of its partnership with Atal Innovation Mission and has used its citizen engagement platform as a launch pad for children to participate in innovate challenges and connecting with incubators and mentors for building viable products. Nurturing of this innovation ecosystem will go a long way in building the Inventors, Start-ups and Entrepreneurs of tomorrow.

The grassroots innovations featured in this compendium are brilliant and reflects the ways our young innovators think and I congratulate all the participants for conceiving of such ideas and developing the innovations with so much of creativity and enterprise. I am sure these ideas are going to make a huge difference in already evolving market of India and the world. The Ingenious Tinkerers are role models for all the budding innovators of India and will motivate them to develop their ideas to make a huge impact for India through technology.

I whole heartedly congratulate all the mentors, students, AIM team, teachers and all those who are working relentlessly towards making this initiative a grand success. With all these disruptive ideas, the future of India is going to transform rapidly, only towards a positive side exponentially.

Once again, My Best wishes to all the young student innovators.

17/12/21

(Abhishek Singh)

Ministry of Electronics & Information Technology, Government of India
3rd Floor, Electronics Niketan, 6 CGO Complex, Lodhi Road, New Delhi - 110003

Website: www.mygov.in @MyGovIndia

Dr. Chintan Vaishnav
Mission DIrector
Atal Innovation Mission
NITI Aayog

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सत्यमेव जयते

मिशन निदेशक, अटल इनोवेशन मिशन,
नीति आयोग
भारत सरकार
संसद मार्ग, नई दिल्ली
Mission Director, Atal Innovation Mission
NITI Aayog
Government of India
Sansad Marg, New Delhi

Foreword

Atal Innovation Mission (AIM) has been at the forefront of creating and promoting a holistic innovation and entrepreneurship ecosystem throughout the country. The success of Atal Innovation Mission initiatives will be eventually measured by its outcomes and impact across the length and breadth of the country, starting with the young students in the schools, universities to the professionals, researchers, and start-ups in our industry.

Making rapid strides on the innovation front, AIM is setting up Atal Tinkering Labs (ATL) in schools across the country where students are free to experiment, explore ideas and learn future technologies. Being the Government of India's flagship initiative, the priority of AIM has always been to encourage innovations from both grassroot levels and fast-growing cities, promoting it not only throughout the country but also over international platforms.

The dedication and hard work of the people associated with AIM, be it the young innovators from our Atal Tinkering Labs, the mentors of change, ATL in-charges and the AIM team – every small effort of theirs goes towards making AIM initiatives a grand success.

The ingenious Tinkerers showcases the creative and innovative talent and capabilities of our young school students throughout India. All this makes one thing clear that Indian innovations have the power to create a global impact.

This book is a reward for our top innovations of ATL Marathon 2019-2020. I hope the stories and ideations behind every innovation inspire millions of other students and young minds across the country to create new promising sustainable solutions with socio-economic impact, leveraging the emerging technologies accessible in more than 9300 Atal Tinkering Labs spanning across 722 districts nationwide as of today.

We do envision exponential growth in this innovation ecosystem created by our ATL schools and the remarkable contribution of its students.

Heartiest Congratulations to the top teams and million others out there passionate to research, ideate, innovate, and implement.

Chintan Vaishnav

Dr Chintan Vaishnav

स्वच्छ भारत
एक कदम स्वच्छता की ओर

PREFACE

Our former Prime Minister late Shri Atal Bihari Vajpayee Ji believed that the future of this country lies in the hands of youth and the Atal Innovation Mission (AIM), named after his legacy, is an effort towards translating his dreams into reality. AIM is a flagship initiative set up by the NITI Aayog to promote innovation and entrepreneurship across the length and breadth of the country. At the school level, AIM is setting up state of the art Atal Tinkering Labs (ATL) in schools across all districts across the country. It is systematically honing young students on crucial 21st century skills including Creativity, Innovation, Critical Thinking, Social and Cross-Cultural Collaboration, Ethical Leadership and so on.

The Atal Tinkering Lab program has become a National movement which is revolutionizing the Education Ecosystem of India. The goals and vision of the ATL program ties in beautifully with the National Education Policy and will play a pivotal role to implement 'Experiential and Project-Based Learning' model in India.

AIM is encouraging students with this wonderful compilation of the Top 41 grass root innovations by the students and their mentors. It captures the stories that showcase the growth and mindset of our young generation which have been collated in the shape of – 'The Ingenious Tinkerers'. The book is an attempt to celebrate and boost the students who came up with exemplary ideas for problems put forth to them in ATL Marathon 2019-20 and their overall tinkering journey. I congratulate them all and wish them a wonderful future ahead.

I thank all our ATL Teachers and Mentors of Change, who have inspired our young innovators, and supported them whole heartedly in their innovation journey. My special words of praise and thanks to the entire ATL community - the students, ATL In-charges, teachers, principals, and parents for being a continuous source of inspiration to the AIM team.

I would humbly like to thank NITI Aayog Vice-Chairman Dr Rajiv Kumar, CEO Mr. Amitabh Kant, and Mission Director Atal Innovation Mission Dr Chintan Vaishnav, for their strong leadership which helped ATL to become a national movement across India. I also express gratitude towards all the members of the Mission High Level Committee (MHLC) for their spirited leadership and continuous support to the Atal Tinkering Labs.

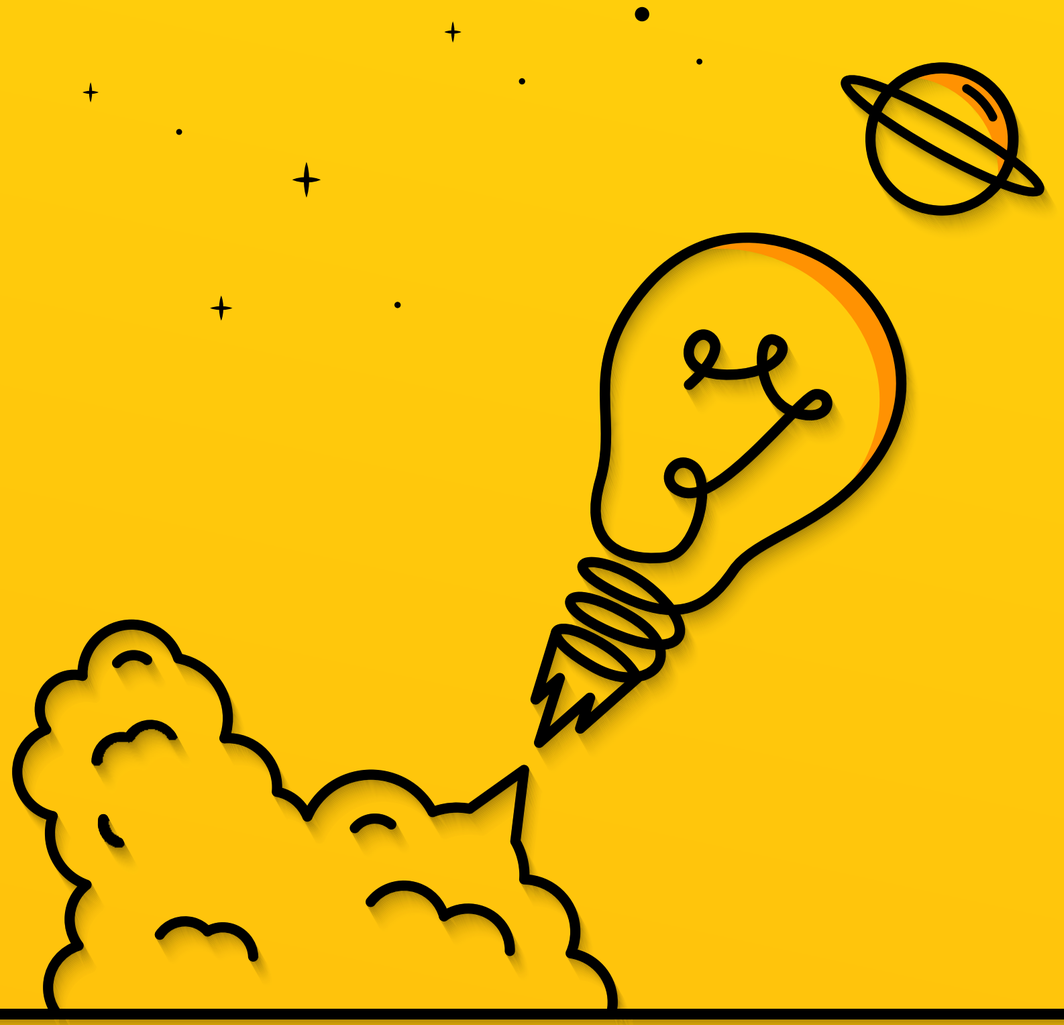
It has been a wonderful team effort that has resulted in some of these success stories of ATL. My special words of praise and thankfulness to the core ATL team – Mr. Ronak Jogeshwar, Ms. Swati Rao, Mr. Prateek Deshmukh, Mr. Shubham Gupta and Ms. Naba Suroor for supporting the entire ATL program. Ms. Vishnu Priya Bijapur and Ms. Tanvi Mishra have provided invaluable support in the creation and editing of this book.

From all of us at Atal Innovation Mission, NITI Aayog, Govt. of India, we pledge to work hard every single day and bring about a system which nurtures the creative and innovative mind and thereby create an ecosystem that is conductive to innovation for all of us.

Happy Tinkering!

Ms Deepali Upadhyay
Program Director
Atal Innovation Mission


INNOVATORS AT WORK
I AM AN INNOVATOR
Doon Public School, Bhuj
Science Project
Smart Cap
for
Blind People
Kamla Nehru Public School
WE #ACT4SDGs
SUSTAINABLE DEVELOPMENT GOALS
KNPS



Atal Innovation Mission (AIM), NITI Aayog is glad to honor the Top innovations of Atal Tinkering Lab (ATL) Innovation Marathon 2019-20. This book is a compilation of some outstanding grassroot innovations by students and their mentors evolving from their ideas to a viable product, graduating them from tinkerers to innovators.

Note: Innovations are presented in alphabetical order of their Team Names

About Atal Tinkering Labs (ATL)

With a vision to ‘Cultivate one Million children in India as Neoteric Innovators’, Atal Innovation Mission is establishing Atal Tinkering Labs (ATLs) in schools across India. The objective of this scheme is to foster curiosity, creativity and imagination in young minds; and inculcate skills such as design mindset, computational thinking, adaptive learning, physical computing etc. To date, 9300+ schools have been selected for the establishment of ATLs. After compliance, each school receives a grant of Rs. 20 Lacs over five years to set up and maintain the ATL.

The Atal Tinkering Labs are based on the philosophy of incentivising innovations, which nurtures the growth mindset of young school children across the country. These students, when nurtured with mentorship support, address community challenges and create innovations that address them. They further deploy and test them with potential users. The effort has been to build an inclusive model for innovation by providing an equal opportunity to all regions and to all children irrespective of the rural-urban divide and government-private divide, by a public-private partnership, events and challenges, mentorship from industry and academia.

BIRTH OF ATL MARATHON

Einstein believed that creativity is an output of a ‘combinatorial play’ thinking process. He constantly combined and recombined ideas, images, and other various thoughts into millions of different combinations. So, ‘Combinatory play’ refers to the process of innovation by drawing on new combinations of existing data, perceptions and practices. There are thousands of existing innovations which can and should be further developed to make them cheaper, faster and more durable. So, the question here is “How can we take what we have and make it better?” In our ever-changing world, there is a need to build on these existing structures and concepts in order to make them more accessible and appealing to the general public.

Atal Tinkering Labs gives a chance to all children to express their innovative spirit, and propose a novel, innovative solutions to India’s community and social problems, with the ATL Marathon.

The ATL Marathon 2019 - 20 conducted by Atal Innovation Mission gave the students an opportunity to design their Marathon. There were 4300+ ideas across Problem Statements which were received and 5000+ students voted for the area of their interest and the problems they were passionate to solve. The final themes around which the ATL Marathon was designed were – Quality Education, Equality for All, Peace, Justice and Strong Institutions and Good Health and Well-being. The solutions were designed under the categories – Techno Art Solution and Science & Technology Solution. Around 1200 innovations were received from across the country. This book brings to you the top 41 innovation stories.

Basaveshwara International Public School (CBSE) Vidyagiri, Bagalkot, Karnataka

ACQUAPHONICS TO CLEAN WATER AND AIR

TEAM NAME

A. S. A. CLEAN VEGETATION

TEAM MEMBERS

Shreya M.S, Aastha. V. Raikar and Sidharth

ATL INCHARGE

Tanuja Bai J. M

CLEAN WATER, AIR & FOOD FOR EVERYONE!
THESE YOUNG INNOVATORS HAVE A NOBEL VISION

Shreya M.S, Aastha. V. Raikar and Sidharth from team A.S.A Clean Vegetation were inspired by the objective of providing clean water, air, and food to everyone. After conducting detailed research on the subject, the team aided by their mentor Tanuja Bai JM started working on a novel model based on the concepts of recycling of water resources, energy consumption and production, recycling of organic waste, new landscape opportunities, incremental food production, utilization of unemployed labor and using of waste streams to meet energy needs.

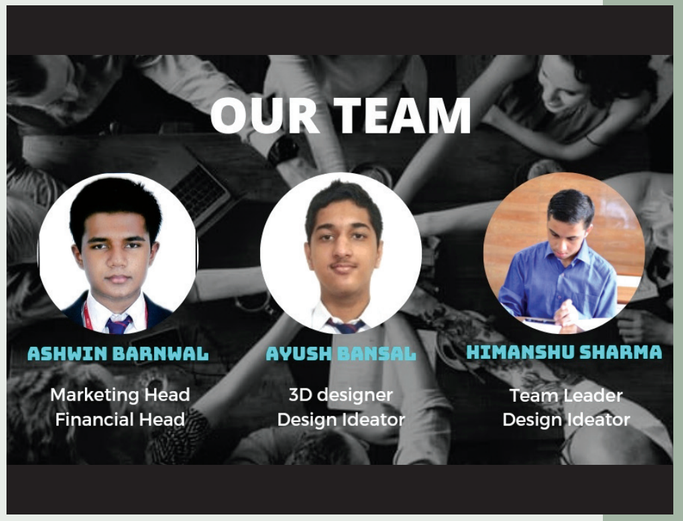
The outcome of their dedicated efforts was the ACQUAPHONICS TO CLEAN WATER AND AIR Solution. A self-sustained model which utilizes construction of the tank and tray with cement and metal stand for holding the tray, motor and pipeline connection, soil compost, organic seeds, bacteria, fishes for growing, and for fishing to carry on. Thus, an enriching model which gives a constant supply of food to the user and in a parallel vein cleans and purifies wastewater to make it fit for agro-use. The bacteria content and use of nitrogen in the process act as CO_2 eliminating agents resulting in enhancement of the air quality too.

This system uses 90 percent less than the water required in normal agriculture. The other advantages include no weeds, fewer pests, and no watering, fertilizing, bending, digging, or heavy lifting, etc. This project is inspired by the food costs, the undesirable genetic modifications of produce, and the indiscriminate use of chemical fertilizers and pesticides in the growing processes of most of our food, as well as the growing shortage of clean agricultural land that has not been contaminated by excessive fertilizer use and other pollutants.

All these will lead to solving the major issue of food scarcity, water scarcity and also resolve the financial crisis faced by the underprivileged. As it supports fishing with organic growth of vegetables, herbs, and fruits, it also supports a sustainable revenue model for the user.

The team implemented their idea by creating a sample piece and proved its worth as well as long-term workability. The one-time investment made, can benefit the family to feed themselves peacefully and also become economically stable and earn from it to become self-reliant. With a little bit of modification, this model can act as self-sustained support for life for the users and can be implemented on large portions of land. If the same objective is realized, it will become a wonderful innovation that helps in resolving the major issues related to food scarcity, water scarcity and provide financial stability. The portable tank model can be implemented with less cost just by spending 10,000 per model which can have a water capacity of 25 liters and a growth tray size of 5×8 feet.

Amity International School
South Delhi, New Delhi

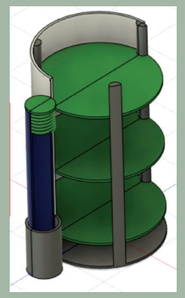


ADBHUT

TEAM NAME
ADBHUT

TEAM MEMBERS
Himanshu Sharma, Ashwin Barnwal and Ayush Bansal

ATL IN-CHARGE
Aravind Kumar Singh



CHEAP & EFFECTIVE PACKAGING FOR ABSOLUTELY SAFE FOOD!

In India, Front-of-Pack labeling on packaged foods was recommended in 2014 by an expert committee constituted by the Food Safety and Standards Authority of India (FSSAI). FSSAI is currently working on a draft regulation and has identified the following key parameters crucial for healthy dietary requirements – Fat content, sugar, and salt or sodium content, and the number of calories in the product.

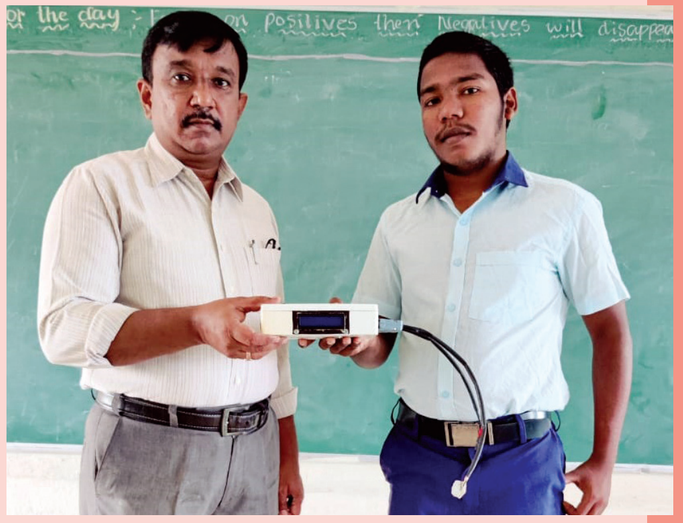
The team Adbhut comprising of Himanshu Sharma, Ashwin Barnwal, and Ayush Bansal from Amity International School, South Delhi innovated upon the problems of pollution, sustainability, and inefficient packaging of food. Most food packaging is made of plastic which is non-biodegradable and is mostly single-use, leading to their abundance in the form of pollutants in the environment. The solution to this problem comes in the form of an efficient biodegradable container that can be used multiple times and is fit for multiple purposes. Not only that but it is also an equally cheap alternative. The earlier approach to reducing pollution caused by packaging materials was resorting to other materials like cardboard, jute, or cotton. But all of these can at times be of bad quality and they prove to be expensive if produced at better quality levels. Bioplastics on the other hand are much suited to solve issues. Low cost, Biodegradable, and possessing high quality, the packaging material developed by team Adbhut ensures that there is no compromise on the consumer's experience or a restaurant's earning. Their mass production has also been taken into consideration to enable large-scale use.

Their material providers included Ecolife, Bioplast, KP Rubbers, and more. The manufacturers included Nikamal Ltd. and Supreme Industries. The logistics companies included TCI Express, NTL Logistics, etc. All of these are based in India thus rightly concluding this to be a product that thoroughly aligns with the ideals of Atma Nirbhar Bharat Mission.

With the government planning to ban single-use plastics in 2022, it will allow the team to expand operations and create a viable demand for their innovation. Widespread acceptance will mean a lot of economic gains but even from a social aspect, the product has been made with the very intent of helping to stop massive worldwide catastrophes like global warming.

Reflecting upon their ATL Marathon journey the team quotes: "In theory, our model looked functional and perfect. But after the prototyping, we found some clear flaws. We then started to find ways to solve the issues, how to present our idea to potential investors, learning to negotiate and formulate collaborations with businesses, How to incorporate professional design with the use of Auto-CAD and other key skills were major skill enhancements for each individual team member. Testing the prototype from as many aspects as we could be a key factor in designing a high-end product. Incorporating inputs from industry experts, working with and managing close-knit teams, correctly and efficiently gathering reliable information all mattered a lot in the long run. How to conduct a survey, refining our problem statement required knowing what the people want. Correctly holding a survey to ensure people from all social groups also aided us while coming up with an accurate resolution. Each problem in the design needs a solution which works in harmony with the rest of the design and the experiment results helped in doing so."

APSWR School Jr. College Boys
Anantapur, Andhra Pradesh



PATIENT MONITORING SYSTEM WITH AUTOMATIC SMS ALERT

TEAM NAME
AMBEDKAR TEAM

TEAM MEMBERS
P Thulasi Ram, E Babuji Naik and Abhyuday Sharma

ATL IN-CHARGE
M Bala Chandrudu

A MONITORING SYSTEM THAT SAVES LIVES THROUH SMS!

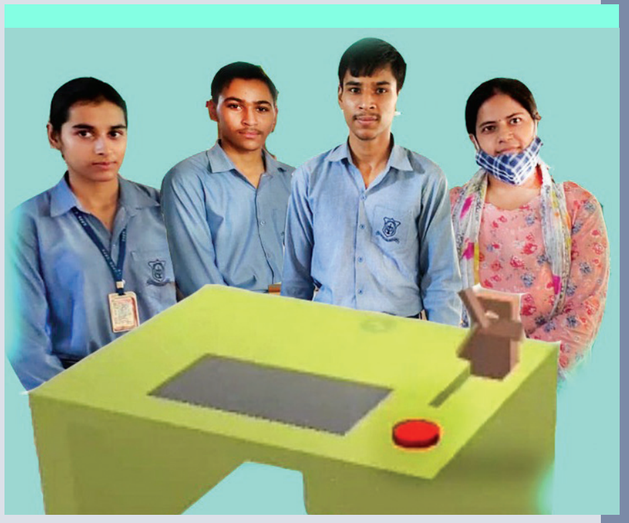
The outbreak of a pandemic, its resulting loss of human life due to COVID-19, and its after-effects have seen the entire world suffer. It has been a tragedy like never before. Moved by the pandemic our innovators at the ATL Marathon developed a monitoring system. E Babuji Naik, Abhyuday Sharma, and Palyam Thulasiram from the Ambedkar Team under the guidance of their project mentor M Bala Chandrudu invented a patient monitoring system that can sense heart rates, pulse rates, body temperature, and also oxygen levels. The system would then immediately send an SMS to the registered mobile numbers of the concerned people. Since the system utilizes a wireless technique, it serves as a real-time assistant for the doctors and the medical staff. During such an hour the real-time SMS-enabled patient monitoring system would be of immense help to them. Additionally, the ergonomic benefit derived from the system eliminates the use of multiple devices for monitoring a single patient as the integrated system is fitted with an LCD display that shows all the parameters at the same time and is economically viable.

When the patient or the medical staff touches the pulse oximeter the pulse levels, oxygen levels, heartbeat readings go through the Arduino Uno framework and corroborate a consolidated message to the concerned people on their registered mobile numbers. Similarly, when the people touch the temperature sensor their temperature reading is recorded by the Arduino and the corresponding readings are relayed. At the same time, the readings are also displayed on the LCD monitor making it an easy and hassle-free process to record hour-to-hour developments amongst serious patients. Team Ambedkar's aim is to supply this device to both rural as well as urban areas and to save the people during emergencies.

The device was presented in its Alpha stage that is the experimental stage at the ATL Marathon. The prototype itself provides a viable opportunity to the medical fraternity to weigh its strengths and gaze at the benefits. As it is during the Alpha stage we can test the hypotheses required to reach the discovery stage.

Team Ambedkar is very jubilant about the ergonomic utility of their innovation and acknowledges the contribution and guidance provided by their mentors Balachandrudu Sir, Sivakumar Sir, and Penchal Sir who kept motivating them during testing times and kept on fueling their research. The Team wishes that their innovation moves further from the Alpha stage and is funded by the medical fraternity to become a full-fledged life-saving product.

Golaya Progressive Public School
Palwal, Haryana



ENABLING OUTCOME DRIVEN QUALITY EDUCATION

TEAM NAME
ASCUAID (AUTOMATIC SCHOOL CONTROL UNIT AND INTERACTIVE DESK)

TEAM MEMBERS
Sagar Tanwar, Hatshita Tanwar and Harshit Tanwar

ATL IN-CHARGE
Priyanka Gaur

EVOLVING EDUCATION TO THE 'NEXT LEVEL'

Sagar Tanwar, Hatshita Tanwar, and Harshit Tanwar from Golaya Progressive Public School, Palwal, Haryana were motivated to take up the theme of providing quality education as they realized the acute need for such measures when the entire education system was challenged during the CoVID-19 lockdowns across the globe. The team was distressed to see how cumbersome the job of their teachers was who had to maintain all details of the students and take online classes.

Teachers are key in ensuring that students get the requisite lessons to keep their minds ignited for seeking knowledge. Students' likes and dislikes for attending classes or interests in a particular subject can be linked to their teacher and his/her ability & quality of teaching. The challenge of improving the quality of teaching by training teachers and supporting them with modern teaching aids, tools, and methodologies -- like smart classrooms and digital course content -- needs to be taken up, so that not only do the students get in-hand experience on new technologies that are running across but also, teachers keep updating their skill base to beam forward a much-evolved stream of knowledge amongst their pupils. With the sole objective of increasing the interaction and interests of students in the class, the team developed an interactive study table having advanced features that can easily solve some of the very simple and common problems faced by students in schools. The team included a simple interactive screen and a buzzer button to enhance student participation and a mini DC motor desk fan that runs on very low voltage. For the software of this system, the team included AI software that automatically manages all the student records and prepares their report cards automatically. To program all these features, the team used self-learning algorithms. The teachers are required to upload all the lesson plans in that AI software module. The software will automatically analyze the data and will provide homework to the students according to their record status. Thus, the same homework is not given to intelligent as well as weak students alike. This software will give them homework accordingly leaving no lags in the syllabus. The AI software won't only be on school servers but also on the cloud so that absent students can also take benefit from the provisional interface. It will upload the students' details on the cloud automatically even if he/she is absent.

The team has been registering its active participation in the ATL Marathon for the last 2 editions and considers it a great opportunity for developing self-knowledge and esteem. The team quotes, "We started our journey in Marathon series with the year 2018 in which we made an 'Automated Bus' for everyone to use. We were selected in Top- 300 schools. Then, gradually we kept on focusing on the same project's progress and finally, came in Top 50 schools. We were invited to IBM, Bangalore for an Internship. This was like living in a dream for all of us. We also got cash-prize of INR 5000/- rupees from the government. It gave us wings. Since then we have been giving our best in this project. Continuously, we have been doing good in the ' Marathon' series."

Government Multipurpose Higher Secondary School, Bilaspur, Chhattisgarh

KITCHEN GARDEN

TEAM NAME

ATAL TINKERING LAB, Dr KALAM SCIENCE CLUB, BILASPUR

TEAM MEMBERS

Harish Choudhary, Ashutosh Prajapati and Aditya Srivas

ATL IN-CHARGE

Dr. Dhananjay Pandey

AN INNOVATION TO ADDRESS THE MENACE OF MALNUTRITION

Malnutrition is a serious problem our country is trying to address. If the children in the area are affected by malnutrition, what should be the practices adopted to overcome taking the help of nature? Dr. Dhananjay Pandey put this question before Harish Choudhary, Ashutosh Prajapati, and Aditya Srivas of Team Dr. Kalam Science Club. He asked them to brainstorm an innovative solution implementing which, a family while achieving standard nutrition in food has to spend the least on the same and it should be something that cuts down their expenses on health majorly in the long run.

TThe other factors that were required to keep in the consideration set were:

- How to create a customizable and credible innovation model which can achieve Pan-India acceptability?
- Could the innovation bear the seed to creating a self-sustained economic proposition for the users?
- Before commencing with the innovation stage in their lab, the team conducted deep research in rural areas in and around Bilaspur. The results they discovered were too revealing to further steel their intent for creating a solution that addresses this menace.
- Almost 100% of the Guardian accepted that their economic condition was very weak and hence they were bound to work in agricultural farms or brick manufacturing units. Such status made it almost impossible for them to create a nutritious routine for their children.
- On the question of regular inclusion of vitamins, proteins, carbohydrates, milk, fats, etc., or their substitutes in the meals about 85 % of the guardians admitted that their wards were not taking much of any element. The problem of malnutrition was affecting expecting mothers as well and as a result, there was an incremental rise in the incidence of deficiency at the birth of children, children being born below average weight, and extreme weakness or chronic diseases amongst newborns.

The team members realized that the solution required an innovation that would need to have a universal ingredient and manufacturing procedure and should be viable enough to supplement the daily nutrition needs amongst the children.

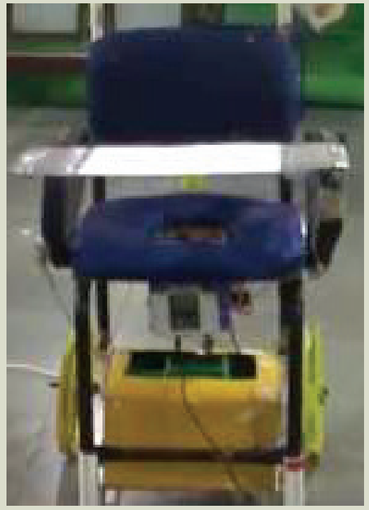
That is how the idea of Kitchen Garden sprung up amongst the members of Dr. Kalam Science Club. The team created a simple yet highly effective method of growing natural immunity boosters like Wheat Grass, Micro-Greens, Aloe Vera, and other such natural resources. The produce had double goal objectives of:

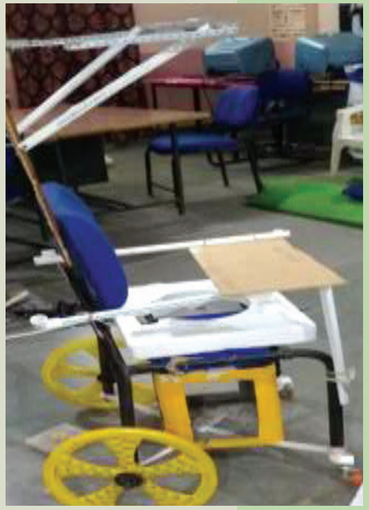
1. Being dried and converted into a pulp-based edible Sattu
2. Being crystallized and packed into bio-degradable packets as a health drink

Though the use of such products is prevalent in their raw natural form, the conversion of produce into such products makes them gain a substantially longer shelf life and they can be supplied to the remotest of places as well.

The team credits its achievement immensely to the exposure and knowledge exchange they received at the ATL Marathon and finds their innovation worth the support to gain a scaled-up and commercially viable avatar. They also opine that using the idea we can create a social change campaign for the government schools across India and aid up the mid-day meal campaign further.

Government Multipurpose Higher Secondary School, Bilaspur, Chhattisgarh





ATAL DIVYANG RATH

TEAM NAME

ATAL TINKERING LAB, Dr KALAM SCIENCE CLUB, BILASPUR

TEAM MEMBERS

Vimal Kumar Gond, Tarun Mishra and Nikhil Prajapati

ATL IN-CHARGE

Dr. Dhananjay Pandey

A SPECIAL EFFORT FOR THE SPECIALLY ABLED

Vimal Kumar Gond, Tarun Mishra, and Nikhil Prajapati from Government Multipurpose Higher Secondary School, Bilaspur while ideating a project for the Atal Tinkering Lab conducted a survey and research within their school, which focused on the reasons of children dropping out of the school in higher secondary classes.

Their study revealed that the drop out of the Specially-abled children is comparatively high in the schools. When the team interacted with some children regarding the same, they cited shyness as a major factor that stopped them from taking help from anybody in case they wanted to use the washroom. Hence to help these children a system needs to be developed so that these students can easily use washrooms without any constraint or shyness. This thought led the team to innovate a chair-cum -a vehicle that might solve the sanitary problems of specially-abled children.

After deep consultation with these students, mentors, and the society they designed the prototype of their chair-cum-vehicle that will help these students attend their nature calls while maintaining their secrecy and privacy and furthermore without seeking the help of others, taking the help of Electronic Gadgets.

Once they identified the problem, the ideation part and design process was taken up. The Prototype was tested in a phased manner amongst the core target group. The first test was conducted at Pt. Devkinandan Girls Hr Sec School and was showcased before a large audience. The response was a motivation for the entire team. A mother of one specially-abled girl approached them for developing this project for her daughter.

The second test was conducted at Burgess Hr Sec School Bilaspur. Here along with a large audience group, officials of the Education Department were also present. The results were equally encouraging for the team in their second phase as well.

They named their product the 'Divyang Rath' which involved a layered tank for residue deposition, a controlling section that uses IR sensors and microprocessors for mandatory functions such as lid opening and water discharge. Additionally, the prototype has sections for arrangements of pure drinking water for such children, and with the incorporation of communicable gadgets; the same can be converted into a traceable vehicle as well. Powered by a motor the Divyang Rath can move about at a comfortable pace to enable and empower the children immensely.

Their mentor Dr. Dhananjay Pandey played a positive role in the overall design and prototype development. He worked with the students in identifying the problems, enabling conducting a physical survey, and later in reaching a viable solution through design thinking and technical incorporation to reach the viable prototype. After deep consultations, the team arrived at a common solution and when it was in the testing phase all team members were present to solve the glitches in technicalities.

According to the team, "This was the collective effort of all in our innovation journey while participating in the marathon and all of us responded to the best of our abilities in the work assigned. The collective responsibilities and the positive responses from all have endorsed our project to be fit for being in the top fifty of the marathon."

Government Multipurpose Higher Secondary School, Bilaspur, Chhattisgarh

MATHEMATICS BOARD

TEAM NAME

ATAL TINKERING LAB, Dr KALAM SCIENCE CLUB, BILASPUR

TEAM MEMBERS

Vimal Kumar Gond, Tarun Mishra and Nikhil Prajapati

ATL IN-CHARGE

Dr. Dhananjay Pandey

A BOARD THAT CONVERTS MATHEMATICS INTO A THOUGHT PROCESS!

The effectiveness of teaching depends on equally good learning as the key outcome. It makes the learning process much more effective and easier. Therefore, considering the role of students as paramount in classroom teaching, Vimal Kumar Gond, Tarun Mishra, and Nikhil Prajapati from Government Multipurpose Higher Secondary School, Bilaspur, Chhattisgarh, under the able guidance of their mentor Dr. Dhananjay Pandey tried to develop the skill of mathematical learning by innovating the Mathematics Board.

The Mathematics Board was devised upon owing to the underlying issues:

1. Using the traditional lecture method of teaching mathematics by the teacher
2. Lack of students' active participation during the teaching of Mathematics
3. Lack of practice and supervision while teaching Mathematics

The Mathematics Board is based on the below objectives as a research subject:

1. Removing the fear of Mathematics in students
2. Arousing interest in students towards Mathematics
3. Detecting Errors did by the students while taking mathematics and procedure to eliminate it
4. Developing reasoning power in students

The team used unused cardboard, nails, set squares, and a rubber band to indigenously create an organic prototype of their Mathematics Board.

The team's mentor Dr. Dhananjay Pandey played a very positive role in making the journey happen. He worked with the students in identifying the problems by doing a physical survey in the locality. At every step of ideation and design thinking, his mentorship made the team members visualize the solution similarly. The team together approached a viable solution. After consultations and ideation, the team reached a viable product which included a pre-prototype survey, development, modifications as well as re-testing of the final proposed solution.

An instance shared by the team while validating their solution -

During the pre-test phase, the team was conducting an academic achievement class test for the chapter PARALLEL LINES AND COORDINATES. A total of 25 questions were allotted in this questionnaire mounting to a maximum of 50 Marks. After checking the answer books, the mark range 0 to 4, 5 to 9, 10 to 14, 15 to 19, 20 to 25 were assigned as grade parameters. 48 students out of 80 students in this pre-exam got 0-4 marks. The maximum Score was 10 Marks.

Post the conduction of this test, a few chapters of Mathematics were taught using the GOE Board in the class continuously for two periods, followed by regular evaluation every three days. Researchers and students self-verified the theorem of parallel lines and Coordinates by the GEO Board. In the End, Post Test was Administered. The lessons were also observed by the teacher, of Maa Bharti Higher Secondary School, Ms. Lormi Mungeli who had been taking the Mathematics Board classroom along with the students. She concluded that teaching through the Mathematics boards truly made an impact. In the post-phase test, 80 out of the total 94 students received above 60% marks. This improvement confirmed the assumption of the inherent aspect of Mathematical interest amongst the students.

St. George English Medium School
Chully, Ernakulam, Kerala

WASTE DEPOSITOR & PLASTIC PRINTER

TEAM NAME
ATL INNOVATORS

TEAM MEMBERS
Athul Varghese, Rijo Thomas and Arun Varghese

ATL IN-CHARGE
Sumi Poulose

CREATING COLORS OUT OF COLLECTED PASTIC WASTE!

Environmental pollution is a major issue affecting the very existence of society itself. One of the most dangerous pollutants is plastic. Plastic pollution is the most widespread problem affecting the marine environment. It also threatens ocean health, food safety & quality, human health, coastal tourism, and contributes to climate change.

The school where Athul Varghese, Rijo Thomas, and Arun Varghese of team ATL Innovators study is in an inland village in the Ernakulam district of Kerala. Plastic waste is a major problem in their school and village. When the team got an opportunity in the form of ATL marathon, they selected this problem to solve!

To ascertain the awareness and the reasons for such continuous and prevalent use of plastic, the team conducted a survey among school students, teachers, and parents. Consequently, the team understood that one of the major problems faced by the students of their school and the people of their village alike was the lack of a plastic waste disposal/collection system.

The project developed by team ATL Innovators "the Waste Depositor & Plastic Printer" is based on the idea of how to recycle plastic waste and make it a filament that can be used in a 3D printer without harming the environment and organisms. The waste depositor & plastic printer prototype has three main parts:

1. Hopper unit: Hopper, Screw and Screw Drive Motor
2. Heating unit
3. Die Production & Air cooling unit

The process of converting collected plastic waste to color filament for 3D printers includes:

1. Step one is the crushing of the plastic waste and its feeding into the hopper unit.
2. The plastic waste travels to the heater through screw-based mechanism with the help of an Electric motor.
3. The heater continuously melts the plastic waste and pushes it mechanically through the die pattern unit, which results in the formation of filaments matching the dimensions and the diameter specifications of the die.

The product created by ATL Innovators makes a good social impact by working out a concept that eliminates plastic pollution and adds immense utility to the output by converting the collected plastic into recycled 3D printer filaments.

The Waste depositor too requires less maintenance. If the simple, easy to install and operate machines such as the Waste Depositor & Plastic Printer gets to be produced on a mass scale and its use is made mandatory in public places, we all would benefit greatly from reduced plastic waste pollution.

On being asked about their plans to scale up their project in the future the team members quip, "Yes, definitely we will scale up our project. We have already built a working prototype of our product with the help of our mentor Ms. Sumi Poulose. Our product structure was made with the help of various mentors and their guidance received during the ATL Marathon. In the years to come, we will strive to move forward with this project, identify and address the shortcomings of our product and make it better."

Amrita Vidyalayam
Kannur, Kerala

ATL SONIC POWER SAVER

TEAM NAME
AV INNOVATORS

TEAM MEMBERS
Vrinda Dev, Aadhidev K and Sneha

ATL IN-CHARGE
Jincy

CONVERTING SOUND TO ELECTRICITY, CREATING FUTURE TECHNOLOGY!

The sound energy associated with the vibration of matter comes forth as an abundant source of noise pollution. Noise is the least explored amongst all types of pollution and is ignored by most of us for recycling and getting turned into electricity sources. In such a scenario, the idea to design and develop a device that can make useful energy from noise known as a noise pollution-based power bank with suitable architectural design, component design, code generation, and integration system would sound like a path-breaking idea. To fetch one such wonderfully unique idea we won't have to go further than Amrita Vidyalayam, Kannur, Kerala where Vrinda Dev, Aadhidev K, and Sneha from the team AV Innovators not just attempted to create such a device but also succeeded in being amongst India's top best at the ATL Marathon 2019.

The team conducted surveys among the teachers and staff from their school and while during their discussions, they realized that apart from other public places such as malls or public transports, a lot of sounds is produced in schools too. The school premises anywhere you may go, are always abuzz. This huge amount of energy produced is never utilized and gets wasted. The team concluded that people haven't yet realized the potential of sound waves as compared to solar or wind energy. The team focused on the issues of noise pollution, depletion of non-renewable energy, and wastage of electricity as the key problems to address. The mechanical prototype they came up with eventually was a sound-activated solution to produce and conserve electricity. They accomplished this solution by splitting the ATL Sonic Power Saver into three parts.

ATL Sonic Power Saver was tested in different noisy areas and has been tested in various places to prove the capability to work in a variety of noisy environments. The efficiency of the device in terms of charging the power saving system utilizing noise has proven effective especially in loud/ noisy places that enable the system to charge the battery continuously. Charging of batteries was also performed on different gadgets and was found effective and efficient.

The purpose of the ATL Sonic Power Saver is to produce electricity and at the same time conserve it too. The team captured sound from the noisy areas and then converted it into electricity through the speaker reverse process. The team also included AI sensors to manage the sounds and intelligently control the electrical supply to connected devices and appliances to conserve electricity. The team is now planning to install an AI-based system that collects sound data from classrooms and uses that data to compute the daily progression chart of the class, such as taking attendance, acknowledging teacher's presence in the class providing a power outlet to the class connected to the battery for charging of devices, operating AV systems, etc. The team further aims to work on packaging to make it a viable product with ample commercial value. and their foremost goal which they want to realize in the nearest sense of the future is to achieve a 'GREEN CAMPUS' in their very own school.

To summarize their ATL Marathon experience the ATL Innovators quote, "Teamwork, hard work, and a clear and systematic plan were our 3 main success factors in this journey. During the Student Innovator Program with our mentors from Amrita TBI, we were able to learn how we should do a business pitch to present our project as a product and learned how to illustrate the market potential and strategies."

Rainbow International School
Kangra, Himachal Pradesh

SMART CHAIR

TEAM NAME
BACK SUPPORTERS

TEAM MEMBERS
Apoorva, Daiwik Kashyap and Harshad

ATL IN-CHARGE
Shehnaz Khan

A CHAIR THAT CORRECTS YOUR POSTURE AND RELIEVES YOUR PAIN!

Once Apoorva, Daiwik, and Harshad were discussing a topic together in their class when they saw their domestic help suffering from back pain and realized that it was apparently happening as she was sitting in the wrong posture. They wished that they could come up with some idea which would help people in general since most of the world's population suffers from back pain in adulthood or in old age. They researched about a few solutions on the Internet but except for pain relief medication, therapies, and gadgets such as heat belts, they could not find much information. Team Back Supporters thought of a simple and innovative idea and experimented with it successfully.

The experiment using an Artificial Neural Network classifier showed that broadly eight sitting postures are observable amongst individuals who eventually land up with a back pain complaint. The smart chair system developed by the team can monitor the sitting behavior of the human body and help in advocating better sitting habits of users. The chair incorporates a smart way to read, interpret and rate a person's sitting posture and accordingly advocate the most suited sitting posture for the individual depending upon his/her body type.

This sounds like a great innovation but reaching the solution was not that easy for the team. The problem was related to the smart casing and placement of the sensors which if left open could harm anyone; wrapping plastic casing around it or a 3D printed coating would make the sensors dysfunctional. So, to overcome the key barrier and to yet make their prototype cost-effective, the team used dense foam block casing which they designed with the help of their mentor Ms. Shehnaz Khan.

The chair uses Arduino technology and has an amalgamation of the age-old principles of acupressure to help users gain better benefits. The sensor-based readings and the sitting posture ratings make individuals conscious of the threats they face owing to their sitting positions.

Muscle tensions, incorrect posture, back pain, joint pain, reduced inflammation and lack of concentration arising in a person owing to any of the above ailments can be easily addressed by innovation such as the smart chair. The sensor system devised by the team can be customized to any chair shape or dimension and does not require any pre-defined framework or design. It would add immense value for people who are bound to sit for long hours on chairs owing to their profession, occasion, or physical condition. Plus, the product is portable and one of its kind, which makes it truly a very smart move on part of team Back Supporters.

On participating in the ATL Marathon and getting an opportunity to create such a viable solution-based innovation for the benefit of the people team B ack Supporters quote:

"We were truly glad to participate in ATL marathon 2019. It helped us in solving a lot of our very own individual problems as well. It encouraged us to not give up half the way and try our best till the end irrespective of the results. Our mentor and other ATL instructors encouraged us a lot. We would love to take up a profile of social entrepreneurs in the future as it would make us more diverse and would be way more satisfying for us than joining any tech corporate."

D B M S English School
East Singhbhum, Jharkhand

FACE RECOGNITION BASED ATTENDANCE SYSTEM

TEAM NAME
BORN TO CREATE

TEAM MEMBERS
Samarth Pandey and J Monish

ATL IN-CHARGE
Hirak Biswas

ADDING AUTOMATION TO SCHOOL ATTENDANE PROCESS!

As time moves on and technology progresses, things turn for the better in every sphere of life for us. Today organizations and offices are not dependent on manual record-keeping or attendance of their staff. There fingerprint recognition systems and face recognition systems not only make the process a more easily managed one but also add more accuracy and exactness to the entire process.

If we are contemplating a similar scenario for schools and educational institutes, we have a manual attendance system which has been the norm since time immemorial. A simple error in manual data entry can lead to an error in a student's total attendance percentage.

Samarth Pandey, J Monish, and Harsh Kalyamwar decided to overcome the same by developing an Artificial Intelligence-based "Face recognition based Attendance system" as their participation project in the ATL Marathon. This project is based on the principle of face recognition. It can be used to replace the time-consuming manual attendance system. The attendance of the students present in the class is recorded in the system automatically as soon as the students enter the class and take his/her seat. Data is stored in the central server, and a message is forwarded to the parent's mobile number registered in the system informing them about the presence or absence of their child in the school compound.

They consulted their mentor, Mr. Hirak Biswas, about the feasibility of the concept being converted into a viable project idea for them. On gaining an affirmation, the idea was probed further and the brainstorming sessions finally paved way for the creation of the initial prototype design, its technical development, and on-ground testing. The prototype worked out well and the idea of an "Automatic attendance system in school" was consolidated by the team as their official entry to the Atal Tinkering Lab.

According to the team members, the conviction to present their project at the ATL Marathon was triggered by the multiple benefits of a facial recognition-based attendance system which has so far not been employed by the mainstream educational system. Increased safety and security; reduction of human intervention and effort; easy storage and retrieval of multiple data and prompt feedback to the parents it all gets facilitated within a single framework and enables amazing accuracy too.

The Face recognition-based attendance system prototype was produced using Raspberry pi, a Camera, and a computer system. The face of the students present in the class was first scanned and the whole data was stored in a database. The system was trained using special algorithms. As soon as the student enters the classroom the system would scan the student's face and match the same with the registered database. Automated attendance would be marked, basis the database match, and the list of absentees and those present will get formulated in CSV format.

The team plans to install the prototype in their school and test the actual quality of output generated on a daily basis in order to further scale up their project. On gaining satisfactory results, the team would notch up the project by taking it to the pilot run phase by installing the devices in other school campuses as well. On successful completion of the pilot run the team would like to patent their idea and start to market it.

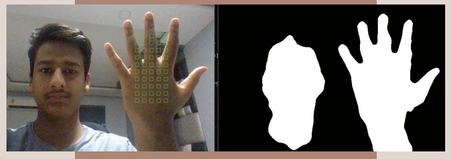
Bal Bharati Public School
Pitam Pura, North West Delhi, New Delhi

SIGN LANGUAGE TRANSLATOR

TEAM NAME
ByteX

TEAM MEMBERS
Satyam Ohlan, Nabh Garg and Aryan Mediratta

ATL IN-CHARGE
Namrata Alwadhi



THE SIGNS OF SUCCESS!

Satyam Ohlan, Nabh Garg, Aryan Mediratta from the team ByteX from Bal Bharti Public School, Pitampura, New Delhi sought out to bridge the gap between the hearing-impaired community and the common people. They develop an app that would help them communicate better on a personal as well as a social front. In order to achieve this, Team ByteX use a combination 3 integrated processes:

1. Computer-aided vision (For identifying and converting gestures into textual format)
2. Customized natural language processing (For understanding sign language and its syntax better)
3. Accurate translation of the American Sign Language into written English.

The Sign Language Translator can be installed on any smartphone as an easy-to-use app and helps the user to better communicate with other people fostering closely bonded collaborations and exchange of ideas which wasn't as feasible before.

Talking about the benefit of their innovation in form of enabling users as well as target groups to gain expertise in sign language translation. Product features like live-captioning videos using ASL, enabling sign language as a form of input in smart devices, and other such unique benefits would further expand the horizons of the communication universe for one and all.

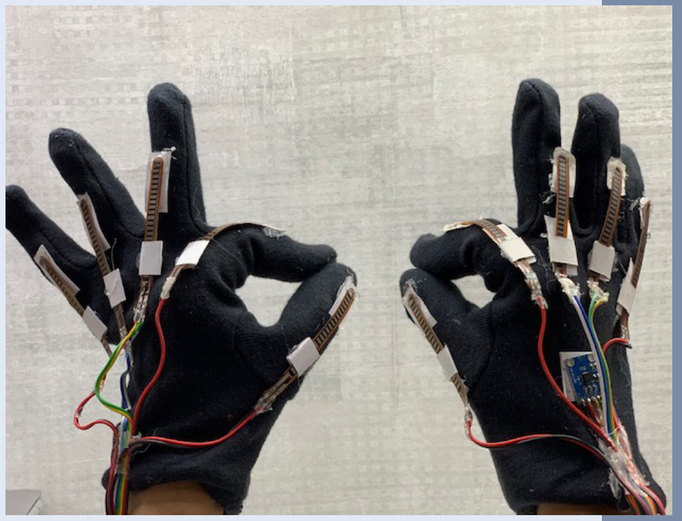
The team states that their product is attractive for businesses as well as individual consumers. Going ahead from the ATL Marathon phase they would want to scale it up by a benefactor corporate or investor providing them with an initial investment into the product. The addition of advanced machine learning models would add to greater value creation and rendition of a futuristic version of their present model. The team looks forward to also gaining guidance in product development from a panel of ASL language experts, who could deliver them the much-required insights for app feature enhancement, dialogue creation, and the building of a sign bank which would add to vocabulary-based enrichment of the app.

The team says that in addition to building their app, they also want to build a community focused on bridging this communication gap and helping people as much as possible. ByteX as an innovation outfit at the nascent level looks forward to collaborating with NGOs, social organizations, and schools for the deaf for promoting their App. They plan to run social media campaigns with a view to sensitize the masses and bring to the fore the much-needed attention towards the hearing-impaired community.

As we are reading these lines today, the team is on the move from the prototyping/proof-of-concept stage into actual product development and is fully engrossed in the process of developing a much more advanced, resourced, and feature-laden app. Rigorous app testing for auto eradication of bugs and prioritization of seamlessly connected features is achieved. The team members also plan on leveraging the entrepreneurship program that provided them with truly vital insight during the ATL Marathon.

On further amplification of their plans and ideas to create upgraded versions of their app the team members say, "We'll get more servers so that even with millions of users opening as many numbers as possible of communication channels through the app would not hamper its performance levels. We'll also add more languages to the app so that people can convert Sign Language into their native language. Lastly, we'll work on the suggestions of people, to make their experience better. The app is designed to help those in need. We'll do anything possible to bridge the gap of their inability. We need their support as well for that to happen."

Springdales School
South West Delhi, New Delhi



BREACHING THE WALL OF SILENCE, SMART GLOVES TO CONVERT SIGN TO TEXT AND SPEECH

TEAM NAME
CHANGE MAKERS

TEAM MEMBERS
Seher Taneja, Ashneet Sukhija and Dahale Om Jayant

ATL IN-CHARGE
Mandeep Kaur Sukhija

GIVING SIGN LANGUAGE, IT'S INDEPENDENT SPEECH!

A technology that provides effective gesture recognition can enable the deaf and mute to voice them and remove the communication barriers. With this thought, the members of the team Change Makers - Seher Taneja, Ashneet Sukhija, and Dahale Om Jayant decided to build their problem statement in the ATL Marathon around this. They also discussed their concerned-driven idea with Mrs. Mandeep Kaur Sukhija their project mentor and the idea of a smart sensible and talkative glove that recognizes signs and converts them into sign language sprung up.

The Change Makers created wireless data smart gloves by fitting them with flex sensors, the analog signals from which are converted to digital signals by microcontrollers. These signals are then passed to a smartphone through a Bluetooth device and converted into text and voice messages.

For the idea validation the team along with their mentor, approached Dr. Sanjay, an ENT specialist, and Dr. Marin, an Audiologist at Deen Dayal Upadhyay Hospital in New Delhi. The specialists approved of the idea and called it a 'the game changer' as it provides a viable and resourceful solution to the communication barriers without people having to learn any sign language to create a mutual dialogue. The team took up a stage of user validation with actual product testing. The team strongly asserts that this device will be a boon for the children with different abilities and they will feel integrated into the school systems. Their potential will not be subject to a shortcoming and they too will be able to read learn and write like other students. The team is planning to spread awareness about the device by reaching out to students in special schools, amongst the doctors and hospitals. They wish that the devices reach a greater number of trials and more and more people get to know about this innovation. Change Makers have already approached special schools virtually during the lockdown period and also many students have tried the device at clinics and have found it to be very useful.

Explaining their economic model, the team explains that it went through the management techniques of several companies who have started employing the deaf and mute for certain jobs but have to train them every time which costs around Rs. 15000 per person per job profile which is clearly not a long term sustainable model while their device can be customized for any job with a one-time investment of Rs. 16000 if incorporated into mass production. With Medical insurances covering a major portion of the expenses, collaborations between healthcare providers and insurance companies can be a viable possibility. A one-time investment for the device is far better than many long-term non-sustainable models. The team on its experience quotes that the ATL marathon gave them an opportunity to unleash their creativity and taught them that no problem is too trivial and every problem has a solution no matter what it is.

Throughout the program and the boot camps, the Change Makers got a better understanding of the topic which increased the range of their knowledge with hands-on experiences. This has been a golden opportunity for each team member and it's a great evolutionary process for them.

DAV Public School
Gurgaon, Haryana

ACCIDENT REPORTER

TEAM NAME
DAV SQUAD

TEAM MEMBERS
Manav Bindlish, Aryan Erry and Anshul Trehan

ATL IN-CHARGE
Tanvi Gosain

A SOS MESSANGER FOR SWIFT AIDE AT ACCIDENTAL SITES

To address the issue of the rising number of deaths caused by accidents due to lack of immediate hospitalization, Manav, Aryan Erry and Anshul Trehan from DAV Public School Gurgaon designed a device that automatically sends an SOS message and the location of the person to the Police/Hospital/Family.

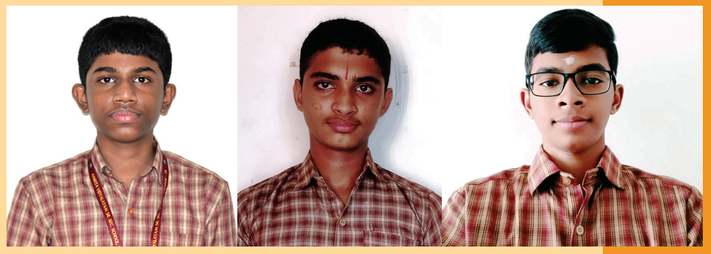
This device has a shock sensor that gets activated on experiencing large damage to the vehicle as the small shocks and collisions would not be detected as the shock sensor will work on the same principle as airbags work in cars. The device uses a GPS/GSM Module to activate the alert. Through the GPS module, the device will be able to locate the accident site and convert it into an electrical message that would be sent through the GSM module to Police/ Hospital/Family. Thus, the vehicle can send an SOS message automatically and the need for a bystander is eliminated.

The idea struck them for the first time, when one of our team members while traveling, considered the prospect of what would happen in case an accident took place with his vehicle. It was then he thought whether it would be possible for his vehicle to be able to communicate an SOS message. This is how the idea first originated. He shared the idea with the team members as a prospective concept for the ATL Marathon. They instantly vouched on its legitimacy and contacted their mentor Tanvi Gosain. Although they believe their idea is an anomaly, as the origin story wasn't through the principles of design thinking, yet in later stages and on their mentor's behest they evaluated the idea critically, the fundamentals were pretty much consistent with the principles they had gathered and learned in during their journey. The innovation development sessions were the first set of cohesive efforts towards creating the basics of the module. In the initial innovation phase itself, DAV Squad decided to take part in ICSM Ideathon Competition. They were able to make it to the final round and got to pitch their innovation at IIT Delhi, in front of renowned educationalists who gave the team immense confidence. With repeated tests, the device has now been fitted in all vehicles variants and the true measures of the impact of the Accident Reporter have been determined by the team effectively. To convert their potentially ready prototype into an installed product, the team is contemplating serious considerations like patenting the device to protect its intellectual property. For further exclusivity, they plan to license their patent to the automobile companies who are willing to use the technology. Going further, they aim to present the idea to responsible government authorities to make the use of our device mandatory in all vehicles. Gaining recognition and resources from business as well as administrative quarters, they would be eventually entering manufacturing too.

They are also thankful to Mr. Kaarthik Thota the mentor from the Adobe mentorship program as his active guidance had a profound impact on the project. They remain obliged to Adobe, Sirius Institute Russia, and the Ministry of Safety and Road Transport under the ATL Marathon.

One of the biggest takeaways from the ATL Marathon for the team has been that it has broadened perceptual horizons for each team member. They have always stayed open to more constructive criticism to achieve a better prototype.

Amrita Vidyalayam
Chennai, Tamil Nadu

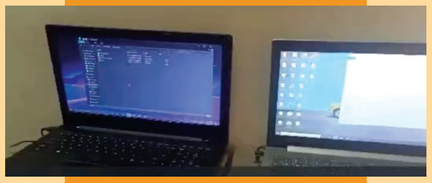


PANDA FILE TRANSFER PROTOCOL

TEAM NAME
DEVELOPERS CRAZY

TEAM MEMBERS
Sanjay G, Gowtham and Harsith Priyan S

ATL IN-CHARGE
Santhosh kumar



PEER TO PEER FILE TRANSFER MADE SUPER EASY!

It is a rare chance that a team participating in the ATL would change its idea and roll back an ongoing project to prepare another. But owing to a strange turnout of events, Sanjay G, Gowtham, and Harsith Priyan S of the team Developers Crazy while trying to transfer a document from one computer to another during the ATL realized how cumbersome the process would eventually become. They had forgotten to bring their pen drives and had to transfer files using Gmail even though there are a lot of protocols like FTP (File Transfer Protocol) and SFTP (Secure File Transfer Protocol), yet they could not utilize the same as their corresponding peer did not have access to the same. So, we had to use our credentials one of the team members had to log in to his personal Gmail account.

File transfer protocol is a way to download, upload, and transfer files from one peer to another over the Internet and between computer systems. PFTP allows you to move files back and forth between computers or via the cloud. Users need an internet connection to enable PFTP transfers. Technology has evolved and there are a lot of devices to enable such protocols, but there are no protocols that can be used by less technically qualified people who wish to transfer files.

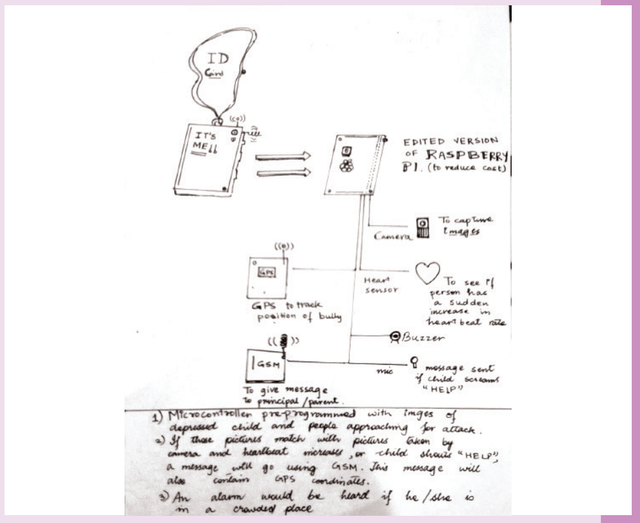
A useful protocol that eases out the process of local transfer of files from one peer to another without the use of any log-in or credentials or any physical device would be a better solution to this problem, they thought. They unanimously thought of creating a new project based on the very concept. After working at length to seek a solution, the team discovered a socket that allows computers to communicate over the local network. Using the socket, they made simple changes and modified the files being transferred using encryption from the peer end, and incorporated WhatsApp with similar encryption to securely transfer files without data leakage or data theft.

The team instantly found the solution to be reliable and secure and not at all like the many complicated protocols and applications which are not comprehensible by the common lot. They introduced a simple user interface so that even someone with limited knowledge of technology can use the Panda File Transfer Protocol easily. The security feature embedded in the protocol also plays an important role because it makes the transfer of encrypted files using the Internet safer and way more secure.

Many similar processors available in the Play Store are now banned by the Government of India owing to the security threats involved. Panda File Transfer Protocol is completely transparent and uses a built-in socket that does not require any evidence and is useful for transferring files locally. Not only does the socket facilitate communication with other peer computers on the local network, but it also utilizes the simple changes introduced into the Protocol to convert files on the lines of WhatsApp's end-to-end encryption.

Reflecting upon their ATL Marathon 2019 journey and the insightful inspirations they gathered during the tenure, the team quotes, "Participating in this competition was a great experience for us. We learned a lot about the process and tact that enables you to take your product to the next level. Participating and presenting our ideas on such a coveted platform helped us to discover the actual potential and value of our idea."

Delhi Public School
Golaghat, Assam



BULLY DETECTOR

TEAM NAME
DPS NUMALIGARH

TEAM MEMBERS
Abhinava Kalita, Om Ambarish Burman and Arkesh Bora

ATL IN-CHARGE
Vishwajeet Kumar Rajeev

BULLIES BY NATURE, BEWARE OF THIS INNOVATION!

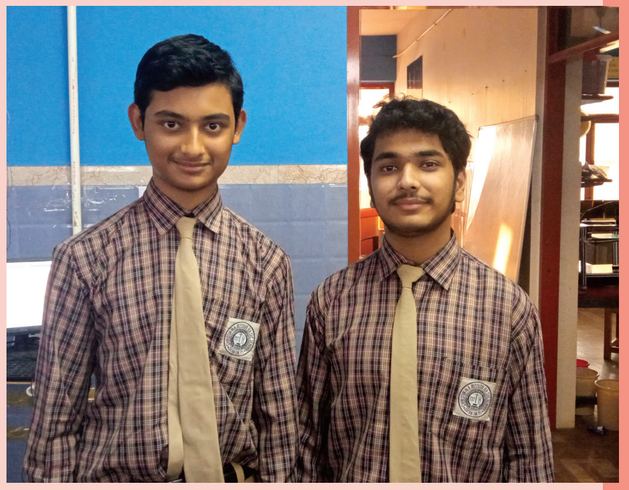
Abhinava Kalita, Om Ambarish Burman, and Arkesh Bora from Delhi Public School, Golaghat, Assam ideated upon the Bully Detector, a device that is to be attached to the ID Card of the victim. It can help detect bullying or torture with real-time alarm and reporting support. It is supposed to be pre-programmed with images of "people approaching an attack". Using the AI model, it is trained such that whenever someone tries to attack the victim, the ID Card captures his/her photograph and checks if the photograph is close to the pre-programmed ones. If so, the device will check for the victim's heartbeat. In case the heartbeat increases or the victim shouts "HELP", an alarm will ring; a call will be made to the nearest police station as well as the victim's guardians. Along with that, the GPS coordinates and the attacker's photographs will also be sent.

The whole idea came from the movie Table No. 21, which portrays how disheartening the impact of unabated college ragging can be. They felt the need of having some technology that would act as the source of rescue for such people. The team was learning about sensors, GSM, GPS, and Image Recognition during those days and thought it could be a good idea if they used these sensors and Image Recognition models to detect attacks. Image Recognition would help in detecting attacks by comparing real-time photographs to pre-fed ones. The heart sensor would check for anxiety. The GSM and GPS modules would help in calling the police and family members. To convert the idea into a potential project concept, the team researched all aspects of bullying and torture and created an image bank of what the scenarios looked like. The features getting synchronized and their avid testing through scenario re-creation was step two for the team. The team created an optimized design for the same and all stepwise functions were tested over a plethora of scenarios to pronounce the smooth functioning of the device. The handy prototype involves sensors, modules, and microcontroller boards as input resources.

On the question as to how the team desires to take their product to the different sections of the society, the team members stated, "We intend to distribute this to people in need first. We would like to give the device to such people who are regularly teased/bullied. We would then monitor if the innovation brought forth a positive effect. We would then, like to ask schools, colleges, and offices to allow us to give a presentation on the product. Interested people may contact us if they need the device. After keeping track of our client's feedback, we would like to introduce the product to the mass market. We will host surveys as well as track our clients' feedback to know the impact. We also plan to reach the National Commission for the protection of Children and NGOs all around."

It was the first time for the team to participate in such a competition and recounting their journey, the team says, "We were limited to a few sensors and Arduino boards at the beginning. We had no clear idea on how to make something innovative. We just knew that there are certain sensors that work in a particular fashion and can be coded likewise to bring out objective-driven results. We never thought of some project that hubs those sensors and are useful to people. We learned about how it should be done: How to build something, how to make innovation, and how to make something useful."

Christukula Mission Hr. Sec. School
Satna, Madhya Pradesh



DIET-O-BOT

TEAM NAME
DYNAMIC DEVELOPERS

TEAM MEMBERS
Soham Shaw and Tanmay Pandey

ATL IN-CHARGE
Jithin Lawrence

AN INNOVATION TO ENSURE MENTAL & PHYSICAL HEALTH AMONGST TEENAGERS!

Adolescence is a nutritionally vulnerable time when rapid physical growth increases nutrient demands. Dietary behaviors established in adolescence may contribute to nutrition-related problems that have consequences for long-term health. Soham Shaw and Tanmay Pandey from Christukula Mission Hr. Sec. School analyzed various data about the ill health of students as well as adolescents. Based on the research they identified the cause to be primarily related to an unhealthy diet among the target group. Their collected data revealed:

- Over 80% of adolescents also suffer from 'hidden hunger', i.e., the deficiency of one or more micronutrients such as iron, folate, zinc, etc.
- Over 50% of teenagers in the age group of 10 to 19 years in India are, short, thin, overweight, or obese
- 66% of premature deaths and around 30% of all diseases in adults are associated with behaviors and habits that people followed in the youth.

The school-level data on the health issues of the students helped the team in realizing the gravity of the situation. As a pilot case study, their school, which has more than 3200 students from Class 1 to 12 cleared the picture before them and made them further cement their resolve to come forth with an innovation which would be their project for the ATL Marathon 2019. The Dynamic Developers created a tendency report out of the attendance data of the school on a set of alternate days over a few weeks and found that there were more than 200 students on average who were unable to attend the school due to the reason of ill health. Further, the class-wise data was also alarming.

The team consulted their mentor Jithin Lawrence and presented their findings. After deep analysis sessions and post a lot of propositions and rejection of ideas, the team zeroed in on the idea of developing a machine that would create individual records of the health and nutritional requirement of school students. They named their innovation as Diet-O-Bot, which primarily works to improve the mental and physical well-being of students. It analyzes the student's health record, based on the data provided by the individual. Diet-O-Bot would crunch the data and propose the perfect diet recommended for the body type of the individual along with other valuable suggestions to help create better health conditions for him/her.

The Diet-O-Bot analyzes the health situation of a person based on the following parameters: height | weight | age | gender | whether the person is veg. or non-veg. | past Diseases | basic diet | family history | physical routine. Basis the input provided, the Diet-O-Bot would reveal the actual status of the individual by indicating his/her, body-mass index including the ideal weight and height, the recommended calorific values, and nutrients the person needs to include in his/her present daily diet. A model diet plan is also prescribed. The Diet-O-Bot gives special advice to adolescent girls to follow during the menstruation cycle along with methods to tackle diseases and tips on physical activities.

The Diet-O-Bot aims at improving the health of teenagers and youth as the right diet will make a healthy community of students who can attend school regularly and can improve their health and wealth. The team is now working on the lines of developing an android app that would make the Diet-O-Bot reach every discerning user through their smartphones and are considering the aspects that would need to be addressed to convert their idea into a profit-making business venture.

DAV Public School, Amritsar, Punjab

STUMPED STUBBLE- 'SMART SYSTEM FOR STUBBLE MANAGEMENT'

TEAM NAME

ECO-INTEGRATORS

TEAM MEMBERS

Hemaang Gupta and Vasu Mehra

PROJECT MENTOR

Dr. Resham Sharma

MONITORING STUBBLE FOR CLEANER AIR AND HAPPIER FARMERS!

The air we breathe and its quality hugely impacts our health and environment. One major air pollution contributor identified by major environmentalists, scientists and social change-makers has been the burning of stubble after the harvesting season, a practice followed by the agricultural community since long, especially in the Northern regions of India. If the aspect of stubble (Parali as it is commonly known) burning is contained and if a smart solution could be devised to make it a profitable and easy venture for the farmers too it would benefit everyone.

One such smart solution that effectively addresses this burning issue was devised by the members of the team Eco-integrators at ATL 2019. Terming it Stumped Stubble- 'Smart System for Stubble Management' the team created an innovative and self-sustained practice mechanism that would effectively monitor, identify and utilize the various re-cycle worthy, upgradable or utility based elements contained in the stubble and incorporate the evolutionary process on the same to convert the stubble waste into a profit making proposition.

Eco-Integrators developed an integrated system, which would cover the following aspects:

- Device a smart monitoring system so that stubble burning in rural India can be checked at al large scale,
- Recycling the stubble into bricks, paper, bio-fuel, animal feed supplement etc.,
- Scale it up to a product - service technology,
- Make it accessible to the agricultural communities.

The innovation focused on the minimization of the total cost of transportation logistics for stubble from the fields to recycling centers. This study began with developing an estimated stubble yield forecasting model in the Rabi and Kharif seasons which was presented as a way to sustain the agricultural transportation under stochastic environments. The stochastic environment includes variation in weather conditions, precipitation, soil type, and randomness of natural disasters. The yield forecasting model developed uses Normalized Difference Vegetation Index (NDVI), Geographical Information System (GIS), and statistical analysis.

The second part of this study focused on the economic model to calculate the total cost associated with the stubble harvest and transportation. This model utilizes the GIS analysis to calculate the distances traveled from member Cooperative farms during harvest and the transport to processing facilities/ industries in various locations. This sheds light on the critical cost factors associated with the total economic analysis of stubble harvest, transportation, and production.

The third part of this research focuses on minimizing the total costs of the monitoring device and its IoT interfacing to create an alert and preventive technology. A two-step algorithm, based on the GIS with global optimization method, was used to solve this problem.

The team further aspires to ensure the development of a local/ indigenous agricultural technology that doesn't need any foreign investments/ technological back-ups/ etc. The projects hold the prospect of being an initiative that would magnify its prospects and contribute towards bridging the gap between agricultural communities and small-scale industries. This research will provide a primary stepping stone for farmers, planners, and engineers to develop a data-driven analytical tool, which will help to minimize the total logistics cost of stubble management and recycling.

APSWR School For Girl Gundlakunta
YSR District, Kadapa (Cuddapah)
Andhra Pradesh

COLLECTION OF CO_2 AT JUNCTION POINT

TEAM NAME
GREENERIES

TEAM MEMBERS
Manvitha and Divya

ATL IN-CHARGE
Rajeshwari

CREATING CLEAN AIR BY CUTTING OUT THE CO_2 CONTENT

Manvitha and Divya from Team Greeneries resolved to address the issue of rising CO_2 in the environment and sought the help of their mentor Smt. Rajeshwari. They wished to create a viable and noteworthy project for the ATL Marathon and deeply contemplated the possible topics that could attribute to a viable project during the brainstorming sessions.

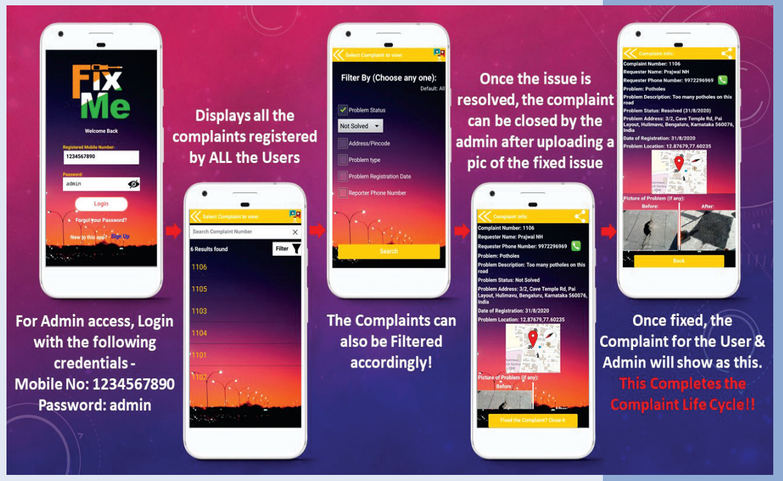
The team always had in mind the existing problem in close vicinity to their school. The atmosphere around their school gets polluted due to a cement factory which is approximately 5kms away and planting more trees in the institutional area so that the pollution reduces was not a solution that would yield immediate effect. The big idea struck the team members when they came to know about the effect on CO_2 when it gets passed through slaked lime. It was in their Biology class when they did an experiment with carbon dioxide being passed into slaked lime it turns the slaked lime into a milky color.

The change of color was due to the carbon absorption by the water content present in slaked lime. It is the oxygen present in water that enables aquatic animals to live. In the same way, the team members started thinking of ways to how can they mix carbon dioxide into water. It was after multiple trials and errors that the team eventually got to find that carbon dioxide, when immersed into sodium hydroxide solution, converts the same into sodium carbonate.

Smt. Rajeshwari advised the team that it may be a good innovation and would stand a good chance to make it amongst the best of ATL entries. The prototype of the innovation involves a box as a cabin. This box is separated into two parts, one part allows the emitted polluted air containing the dust, CO_2, and the other to enter into the cabin the other part filters the same and then allows it to mix in the atmosphere as purified Air. At the inlet and outlet, 2 fans are attached. Through the inlet fan, the air enters the cabin and gets immersed into NaOH solution. This process converts the CO_2 into sodium carbonate. The air with substantially reduced carbon dioxide will then enter into the atmosphere through an outlet fan. The team also used 2 sensors at inlet and outlet points, which display CO_2 values present in the air both before the filtration process and after it in respective LCD displays. This validates the use and implementation of this organically inclined and cost-effective air purification process. Furthermore, this innovation holds immense ergonomic as well as economic value as its per unit cost comes to approximately 5,000 rupees.

Innovations such as the one proposed by Team Greeneries are vital in creating a sustainable and scalable impact on the shape of our future. Not only saving humanity but also bringing a positive change on our environment and earth conditions by checking upon the factors responsible for climate change.

BGS National Public School
Bengaluru, Karnataka



FIX ME MOBILE APPLICATION

TEAM NAME
IIMB (INVENTORS INVENTING MACHINE BUSINESS)

TEAM MEMBERS
Prajwal NH and Yash Chandra S

ATL IN-CHARGE
Rajasree V R

AN APP TO IMPROVE ROADS !

Prajwal NH and Yash Chandra S from BGS National Public School, Bengaluru along with their mentor Rajasree V R thought of a smart way to render some corrective measures to improve roads. Their smart solution came in the form of an easy-to-use, a free mobile application called “Fix Me”. Using “Fix Me”, citizens can voice their complaints or give suggestions effectively to the concerned Government body to initiate further action. All you need to do is log in with your mobile number and click on the button with the labeled problem you are facing in your current which gets intimated through manual feed as well as GPS. The app will register your complaints with the concerned Government Department and will update their complaint database (Firebase Db). The data from the database (app) is analyzed by the Government body to initiate needed action. Hence, this smart solution incorporates the adoption of a new-age digital technology that supports government-led campaigns like DIGITAL INDIA and SWACCH BHARAT ABHIYAN!

Recounting his story on how the team was able to achieve such a smart innovation, Prajwal states that one fine day while he was traveling back home on his two-wheeler, it was extremely difficult for him to sit still without moving. My father who was driving the vehicle had to apply the brakes repeatedly due to the extremely worn-off roads and potholes. This extreme braking resulted in him almost falling off the vehicle and getting hurt. Such problems can cause major harm to thousands of people, yet they are ignored. Prajwal discussed the thought that had been eating his head with Yash and Rajshree.

After research, they found out that the government did not instantly gain knowledge about these issues and it here that the journey of Fix Me began and that road has taken them to the Top 20 of the ATL Marathon 2019!

The “Fix Me” mobile app is proudly built using MIT App Inventor 2 that addresses problems creating an extensive impact in the traditional system, therefore, disrupting it for the good. We intent to measure the impact through the number of downloads, active users, the complaints registered and the complaints solved. IIMB has used an all-encompassing design thought to model Fix Me, which makes users whether government officials or users, an important part of the process and ecosystem where their views, ideas, and feedback are essential in improving the overall credibility of the app.

IIMB extends its gratitude towards the Atal Tinkering Labs (ATL) program, AIM, and NITI Aayog who fostered the spirit of creativity and innovation at the school level. It is initiatives such as these that give students an opportunity to experience 21st-century skills such as ideation, design thinking, IoT, rapid prototyping, etc. Through ATL Marathon 2019, the team got the opportunity to be part of the Adobe Student Mentorship Program 2020 and successfully completed the Indo-Russia Bilateral Youth Research-based Innovation Program organized by Educational Foundation “Talent and Success” Sirius, Russia & Atal Innovation Mission (NITI Aayog, India). IIMB was awarded as the National Level Winner - “Top 20 Innovators of ATL Marathon 2019” and their success story was published in the Russian Educational Foundation “Talent and Success “- Sirius portal along with the national daily, Times of India.

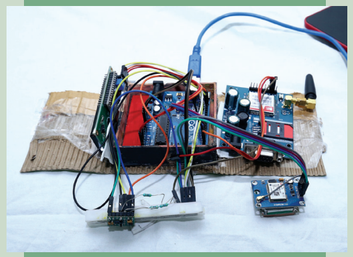
SNEH International School
East Delhi, New Delhi

HYDROSONIC BAND

TEAM NAME
INNOVATIVE WANDERERS

TEAM MEMBERS
Prisha Pahuja, Nysa Pandey and Kashish Gola

PROJECT IN-CHARGE
Komal Dhingra



A BAND TO SAVE DIRE THREATS & HAZARDS!

Prisha Pahuja, Nysa Pandey, and Kashish Gola from team Innovative Wanderers of Sneh International School, East Delhi while brainstorming for a subject to base their project on came across drowning as a hazard which was gradually getting rampant and there was nothing much in terms of life-saving equipment or technology that could abate such incidences.

They discussed their idea with their project mentor Komal Dhingra. Being a noble thought which needed a motivated direction to turn into a concept, they were encouraged and introduced to various life-saving theories. The idea was to put a stitch in time so that the grave disasters could be averted within time. The other factor was that the concept had to be affordable and provide a secure environment to people by giving them timely guidance to take appropriate measures. The team was made to think beyond drowning as a standalone situation and various such hazards which call for similar immediate rescue. Thus, it had to be a device that would communicate the danger at hand to a select group of pre-identified people. That's when the idea of the Herzonic Band struck team Innovative Wanderers. Prisha, Nysa, and Kashish zeroed in on creating a wearable band that could be used as a communication device as well as a health monitoring equipment which would not just enable a person to contact his nearest help while fighting off a dire situation but would also keep him aware of his current health situation such as his heart rate, blood pressure, oxygen levels, etc.

Without further ado, the team got back to working on their prototype under the guidance of their mentor. It was the knowledge of Arduino which helped them to come up with such innovations. Once the prototype design was ready, they assembled the components with the help of their teachers and engineers. The band not only comes as a utility device for the common folk but also as an essential tool for people involved in sports, Medicare, security, and other such areas. This innovation can validly be considered as the next-level avatar for today's smartwatch and would be a great resource for people who are conscious of their safety, health, and commitments.

This whole experience concluded with a boot camp, a session organized by Link Foundations for schools all over India. It showcased different prototypes and taught the participants useful skills such as teamwork, communication, planning, organizing, managing time, problem-solving, and more such essential traits. Next up, each team member was called for a virtual interview in AIM-CNPNYC (SIRIUS) Innovation program 3.0 wherein Prisha Pahuja got selected. This campaign was held in collaboration between AIM India and SIRIUS Russia.

The team now plans to scale up the project and add some basic features to the band, like a watch, a pedometer that helps us track the number of steps per day, a calorie meter that will keep people updated on how much calories they have burnt. As the market base for wearables continues to increase even in the pandemic, adding more features as that a watch and viewing notifications from the phone will be incorporated as the next step forward.

Christukula Mission Hr. Sec. School
Satna, Madhya Pradesh

REVERSE VENDING MACHINE

TEAM NAME
INNOVATOR'S CLUB

TEAM MEMBERS
Shreyansh Chaturvedi, Sandarbh Soni and Naman Singh

ATL IN-CHARGE
Jithin Lawrence

HELPING CREATE A CLEANER, GREENER AND 'PLASTIC FREE' ENVIRONMENT

Shreyansh Chaturvedi, Sandarbh Soni, and Naman Singh under the guidance of Jithin Lawrence from Team Innovators were presented with the challenge to create a solution that would impact society and give a suitable and scalable breakthrough leading to the greater good. They mulled over various issues related the waste management. Accumulated waste and its consequences were identified as one of the major social issues. Among the accumulated waste, the team found plastic to be the most harmful waste element, which is very difficult to segregate and process from the accumulated waste.

Plastic is a non-biodegradable waste and is very difficult to segregate from other waste products. Post intense research and findings, the team came up with a solution titled - Reverse Vending Machine. They created the prototype of the machine, which demonstrates how plastic waste can be collected separately and on deposition carry out steps that enable its recycling.

The solemn idea for people to follow is to develop a habit of collecting plastic waste and depositing the same at the Reverse Vending Machine. The machine weighs the collected plastic and in lieu of the same, the machine rewards the person with money. The plastic collected in the vending machine is then segregated into categories and is sent to recycling units.

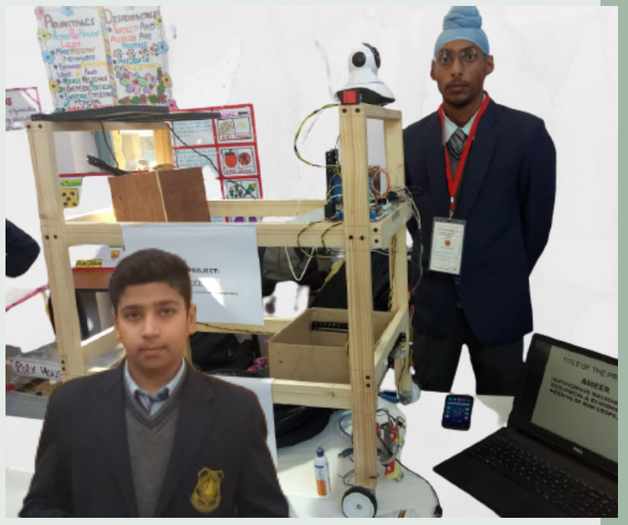
The idea of creating a plastic waste-based Reverse Vending Machine came to the members of Team Innovator's Club while observing the amount of plastic waste that would accumulate on a daily basis at their school. The plastic would be mixed with the other waste material by the cleaning staff and would be deposited in the collection van of the Municipal Corporation. Whatever waste would be left (including the mixed plastic) would be dumped in a big pit on the school premises.

This was an evident example for them. A similar problem would be prevalent in almost all such establishments, institutions, and organizations. Even if there would be awareness amongst people, the plastic reaching the recycling units is a farfetched reality. The idea of the Reverse Vending Machine posed various challenges before the team. After several design thinking sessions, the team solved the issue at the school level itself. The team innovated upon the Reverse Vending Machine design and proposed that the students will not throw the plastic waste on the floor or school premises but collect the same and deposit it in the machine. The ones, who do so, will get a reward for the plastic waste they deposit. The lucrative aspect of the proposition was that the machine dispenses money based on the weight of the depositor.

The Reverse Vending Machine promotes the culture of waste management. It encourages us to collect plastic waste separately at the unitary level in our homes and get rewarded for the same as well.

If scaled up and converted into a real-time project, the use of Reverse Vending Machines will slowly and gradually encourage the citizens of our country to develop the culture of waste segregation and help create a cleaner, greener, and 'plastic-free' environment.

Kamla Nehru Public School
Kapurthala, Punjab



AI CLEANER FOR HOSPITALS

TEAM NAME
INNOVATORS

TEAM MEMBERS
Gurjot Singh, Raghav and Nallamothu Sesha Sai Krishna

ATL IN-CHARGE
Shefali Chaudhary

AN INTELLIGENT CLEANSING SYSTEM FOR DISINFECTED SURROUNDINGS

The first step towards the prevention of dangerous diseases like dengue, typhoid, hepatitis, and other diseases is maintaining cleanliness. In a bid to achieve this, Gurjot Singh, Raghav, and Nallamothu Sesha Sai Krishna from Kamla Nehru Public School, Kapurthala, Punjab came up with the idea to build a machine that can be used for cleaning purposes with significant features like brooming, mopping, and usage of disinfectants.

When the team was introduced to ATL Marathon 2019 and was asked to submit an innovation-led idea that would aim to address a social issue, they were asked by their mentor to analyze their surroundings and find out a problem that would give them the conviction to work upon as a project concept. While contemplating about the various problems they could point out within their school premises, they saw that the sweepers have to literally work round the clock to ensure cleanliness and hygiene of the premises. They were on their toes all day and it was a strenuous routine that would wear out even a healthy person.

The team decided to reduce their unstoppable workload. Initially, their idea was to make a prototype that would effectively address the cleaning process like brooming and mopping, so that frequented and tiring haul can be eased out. The machine could prove to be a viable asset for schools, offices, and hospitals. However, in response to the rising health issues because of CoVID-19 and the concern of enhanced immunity amongst the general mass, the Innovators affixed their focus only on Hospitals and added the disinfectant feature to their present prototype.

Controlled by an Artificial Intelligence System, the machine swiftly inspects, analyzes, and interprets the state of cleanliness in and around pre-defined areas within its operational universe. As soon as some litter is spotted by the machine, its categorization as dry or wet waste is determined by the AI system and the corresponding action is induced within the machine. The aspect of deploying the disinfectant system is time-based and a routine drill for the machine, which it is expected to perform at regular intervals. Various sensors and micro-controllers are involved in the proper functioning of the machine. The team is now working towards an evolved and upgraded version of the prototype.

Speaking on their overall experience while participating at the ATL Marathon 2019, the team quotes, “Our experience was amazing. We learned many new things that helped us to think beyond the obvious and create a scope for considering every possible way to solve the problems at hand. The idea we came up with eventually, was a result of this evolved approach towards finding solutions. We got a chance to participate in the AIM-SIRIUS innovation program 3.0, where we learned many new things and interacted with other people. During the AIM sessions, we made many new friends from across the globe and it felt really great to share our culture with them. These sessions also helped us to overcome the fear of public speaking and added immense self-belief in us to build up our confidence ATL Marathon help us to gather new insights about marketing strategies, product diversification, product USP creation, etc. through SIP 3.0, which enabled us to think out of the box and give our best in everything.”

Jawahar Navodaya Vidyalaya
Karaikal, Puducherry

MODIFIED MASK AND HELMET COMBO

TEAM NAME
NATURAL PROTECTORS

TEAM MEMBERS
S Sabarish, Robin Samuel and R S Chandramohan

ATL IN-CHARGE
R Srinivasan

THE MAGIC MASK THAT MAKES YOU BREATHE LIFE!

The industrial revolution and rapid urbanization have disturbed the natural balance and increased pollution levels to an all-time high. S Sabarish, Robin Samuel, and R S Chandramohan from Jawahar Navodaya Vidyalaya, Karaikal, Puducherry resolved to solve the problem of air pollution for their research and project submission in the ATL Marathon 2019. The team members wished to make a mask that would effectively protect the user from the gaseous pollutants mixed in the air. The only solution was an automated decomposition of the pollutant gases. But how could an organically or synthesized mask with a filtering surface do it on its own? They needed an apparatus along with the mask to make it workable. After repeated brainstorming sessions, as to how could they introduce an integrated element into the mask, the golden idea of a helmet being the best alternative for providing a framework-based purification unit struck. And, since the people driving two-wheelers were the ones most affected by the gaseous pollutants the idea was a double whammy for them. They quickly set themselves towards deeper research and data collection to realize the dream of creating the first prototype.

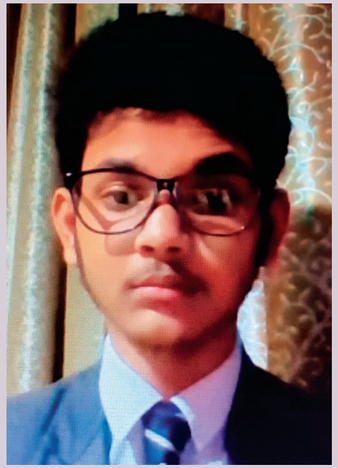
Natural Protectors performed numerous interviews and collected extensive data from weather stations to correlate the clinical data with atmospheric pollution levels. Team leader S. Sabarish presented his investigations at National Children Science Congress 2019. And they cohesively joined their minds towards making an evolved and modified mask which would filter gaseous pollutants. A study of science journals indicated that transition metals are good surface mediums that decompose ozone. The modified mask created by them has layers of copper meshes. Copper is found to be an oxidized metal that transforms slightly to become cuprous oxide, which will readily oxidize the carbon monoxide. Thus, the idea of creating an effective oxy-rich air supply to the user is achieved.

The team integrated the mask within the helmet so that the person gets to benefit from it the most while he is exposed the most. In addition to this, they have included sensors to judge the increased level of pollution and alert the users through the speaker system installed in the helmet. A person wearing this modified mask and helmet combo will have less concentration of gaseous pollutants as most of the gaseous pollutants are decomposed within the mask. Further, the inbuilt sensor will alert him when he is exposed dangerously to a polluted place for an extended period. The helmet mask will achieve success in negating the probability of getting adverse health conditions gets minimized.

The team wishes to develop the business model pertaining to two viable aspects and further scale up their project. While the first prototype of the mask has used transition metals to remove ozone and carbon monoxide as key pollutants, but they have so far not been able to find any solution to remove nitrogen oxides and sulfur oxides from the air through a mask which is essential as well.

The team is investigating the ways by which nitrogen oxides can be filtered through additional transition metals or other natural combinations to the mask which would combine with copper to effectively negate the presence of these two gases as well. The team is dedicatedly involved in making inroads into this deficiency of their present product USP. Finding a single metal or metal alloy to filter all or at least most of the atmospheric pollutants is their present quest. The team with its ambitious plans in place is also looking to create a bot-based virtual assistant service in the helmet to assist the person mapping, intelligent traffic information and weather conditions, etc.

NPS International School
Kamrup Metropolitan, Assam



AUTOMATIC WASTE FOOD DETECTION SYSTEM (USING AI)

TEAM NAME
NPS INTERNATIONAL SCHOOL GUWAHATI, ATL TEAM

TEAM MEMBERS
Rahul Barman and Bitopan Das

ATL IN-CHARGE
Anshuman Mohanty

CHECKING ON FOOD WASTAGE & ADDING PRODUCTIVITY TO OUR SOIL!

The problem of food waste is a relatively modern one. India is an ancient civilization and we have been prudent about food for millennia. However, because of fragmented food systems and inefficient supply chains, there is a loss that occurs even before the food reaches the consumer.

Rahul Barman, Bitopan Das, and their ATL Marathon In-charge Mr. Anshuman Mohanty innovated upon a solution that will use waste food to increase the fertility of the soil by converting the waste food into compost. The practically adaptable area where such a solution can be incorporated was chosen to be canteens, mess halls, restaurants, hotels, and eateries.

They created an automated machine that collects leftover food. Once a person finishes his dish, he will have to put his dish into the machine. The plate will rotate automatically and the food present in the dish will drop into the container placed below. Post the food collection, the sensor present under the container will determine the weight of the food wasted and if this gets above the threshold limit, it will buzz an alarm. On the sounding of the AI program will detect the face of the person and a strict reminder notice would be served to the person committing the offense of wasting food. The wasted food collected by the machine will be turned into compost and used for increasing the fertility of the soil.

Explaining the social impact their innovation is set to create, the team says, “We are reducing the waste created in our day-to-day life. In hostels, children intend to leave food for many reasons, one of them being a dislike for certain foods, vegetables, etc. Therefore, they leave the food on their plate which leads to an avoidable wastage. With our project, we look forward to reducing food waste in everyday life. If a solution like the food wastes collection system is placed at such hostels and similar venues, the pupil who habitually wastes food can be identified and can be made to realize the importance of not doing so. This can lead to a great volume of food being saved, which can be later distributed amongst the poor and underprivileged.”

The Duo from NPS International School, Kamrup Metropolitan, Assam further add to their ATL Marathon story.

“It was great experiencing many young talented individuals of around our age with such problem-solving skills, intelligence and knowledge were there with us which inspired us even more to innovate. We would love to try again next year to participate and show the world our ideas. We learned a lot from our peers through this participation. Teamwork was a great take-home from this project for us. A specific instance of a teamwork challenge that we faced during ATL Marathon 2019 goes thus...

Our team’s opinion was polarized on the issue of mechanism design. Given time and resource constraints it would not have been possible to pursue a fully functional prototype. The problem was eventually resolved by adopting a design in line with the project objectives, within the budgetary limits and we were able to incorporate the intelligent AI system into it as well. This was made possible since we truly benefitted from the international level exposure and close interactivity with the ever helping guides who contributed towards the development of better insights while we were working on our project.”

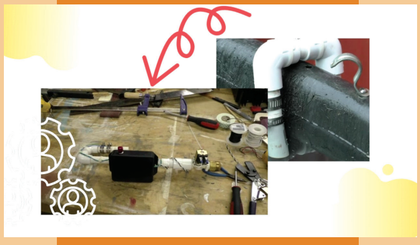
Subodh Public School
Jaipur, Rajasthan

SMART WATER TAPS

TEAM NAME
PROJECT BUDDIES

TEAM MEMBERS
Sapna Yogi and Khanak Lashkari

ATL IN-CHARGE
Dr. Manish Jain



THE SMART WAY TO SAVE WATER!

Sapna Yogi and Khanak Lashkari from Subodh Public School, Jaipur were both irked and perplexed at the amount of water wasted on a day-to-day basis while usage. They contacted their ATL project mentor and proposed the idea of developing a smart way to curb water wastage. A tap mechanism would stop the flow of water automatically once the bucket kept under it is completely filled (be it of any size) thus, leading towards zero water overflow and saving the water. Dr. Manish Jain their mentor was instantly thrilled by the concept.

The smart tap mechanism incorporates the best use of all the technical resources available to students in India which can be easily found in ATL Labs. Hence the broad idea of the project is to align with one of the essential sustainable development goals which are "clean water and sanitation for all ".

The Smart Tap incorporates a specially created flow monitoring mechanism using Arduino which gets coded to stop the flow of water when the sensors detect moisture. It is connected via a fastener to the tap and is channeled through the pipe. So, as soon as the metal plate sensor attached to the holding bucket or utensil senses the moisture, the code activates the closure action and stops the flow of water at the pipe level itself.

Reflecting upon their experience at the ATL Marathon, the team members quote, "ATL Marathon is the perfect platform for any potential innovator to start their journey. It will help you right from the start till the end. Your idea will be embraced and will be provided constructive criticism at every stage. And, always remember if you can think about it you can "make" it, keep going until a seemingly impossible idea comes out as an MVP or a product. Mark our words, it'll be worth it."

Smart Taps and innovations that base their concepts on the conservation of natural and vital resources are a sign that our budding innovators are vigilant and concerned about their future as well as the fate of our planet. They are not just inspired and enterprising individuals they are much rather potent social entrepreneurs of tomorrow.

As the old saying goes, make sure you leave the world better than you found it. Make that effort because when you live a mindful and conscious life, you care about other people's dreams and their passions apart from your own, that is when you develop solutions for them.

D C Model Sr. Sec. School
Freozepur, Punjab

AUTO UV STERILIZER

TEAM NAME
PROTECTORS

TEAM MEMBERS
Vaibhav Chandok, Himanshu Gupta and Mitali Kataria

ATL IN-CHARGE
Sahil Arora

INNOVATION THAT FLOORED THE THREAT OF INFECTIONS

Necessity is the mother of invention and inspired by this thought Vaibhav Chandok, Himanshu Gupta, and Mitali Kataria under the guidance of Shail Arora came together. The team Protectors took upon a cause that is the need of the hour today. They decided to put the threat of surface-based infections at bay by innovating an Auto UV Sterilizer. Infectious bacterial and viral strains have become a common and thriving threat for everyone in today's pandemic-inflicted times.

Society and establishments, whether small units or large infrastructures, do not possess adequate resources or manpower to effectively combat such sorts of bacterial and virus attacks. Whether it surfaces that are a habitat for families or have common access to the society, both are prone to such infections either from surface to skin contact or skin to skin contact. Effective cleaning and disinfection remain a permanent challenge. A rapid, repeatable, and cost-effective way to address the issue would prove no less than a boon for the common man. One such scalable and truly dependable way is by using UV-C radiations to kill microbes, which is one of the most efficient ways to disinfect any kind of surface. This method despite being effective than chemical disinfectants or vacuum cleaners is not accepted because of its ill effects on human health.

Team Protectors innovated upon a large UV-C light emitter at the surface level that can sterilize large areas automatically using its robotic framework and technology. The challenge before team protectors was that UV-C may lead to serious consequences when it comes in contact with a human. The only way to use UV for disinfecting a particular habitat or space is that it is operated by a UV-mounted robotic unit so that no human presence is required and if the UV source of the unit is positioned at the bottom the chance of UV leakage is less. The other key factor they addressed in their project was the aspect of affordability. Team Protectors ensured that the cost of the unit does not steep high and is not within the reach of normal households of the nation.

The Auto UV Sterilizer design incorporates a large UV-C light emitter at the bottom of the robotic unit that can sterilize large areas automatically as the unit passes over a surface. The performance of the cleaning system is enhanced as compared to the existing ones. As per the research, no such solution exists in the global market.

The solution can be rated as "Excellent" at the domestic level. There is hardly any similar innovation that has been done in the field of auto cleaning systems at the domestic level. The technology, performance, and efficiency of the inventions make them unique. The economic model for producing the Auto UV Sterilizer doesn't require a huge investment. Further refining their approach during the mentor sessions and after understanding the need of the customers, the team dabbled through trials and errors to finally create the fully functional robotic unit.

Team protectors cherish the experience at ATL 2019 and meeting the experts from IBM, Adobe, and AIC. Through their innovation in the field of health and wellbeing, they understood how important it is to tackle the issues that are adversely affecting human health.

New Era Senior Secondary School
Vadodara, Gujarat

SMART TOILET

TEAM NAME
PUBLIC HELPERS

TEAM MEMBERS
Harvi Bhavin Shah, Raj Ritesh Suratwala and Vansh Jagdish Patel

ATL IN-CHARGE
Sonal Shah

SMART LOCKS FOR SANITATION!

Bhavin Shah, Raj Ritesh Suratwala, and Vansh Jagdish Patel from New Era Senior Secondary School, Vadodara thought of a solution to address the problems around sanitation. They had clearly understood that more than infrastructural issues it was the intent and conduct of the users which was the root cause of the issue.

They set themselves up to the task and created a smart door locking mechanism which would not allow the individual to move out if he had not flushed the toilet. They named it the Smart Toilets.

In their version of the Smart Toilet, there will be two locks. One would be automatic and the other will be manual. The idea incorporated a sensor that connected the automatic lock to the flushing system. As soon as the flush would get activated, the automatic lock will open and if you have not flushed you are not allowed to exit. For guarded privacy, a manual latch will also be there.

For the prototype, the team used a servo motor that gets activated when a button outside the toilet is pressed. The motor will be attached to the IR sensor and the moment we place our hands near the IR sensor (basically flush the toilet) the door opens (person won't be sensed from a distance when the hand is placed from a distance of 2cm from the sensor), the servo motor will rotate and the lock will get opened but as the manual lock is where the person can take the required time and come out, the main purpose is to flush the toilet and don't let the person come out without flushing it. A corrective measure, which would achieve the purpose of imbibing sanity in an individual's mind as well as fostering a better scenario at such facilities.

Talking about their business plans the team states, "We have our prototype in hand and just need a viable opportunity where we are allowed to test on public toilets. We would just need to add components to the existing setup of the toilet and hence there would not be too much extra cost involved. Then we will conduct surveys before implementing the actual project and try to create a more ergonomic model when they eventually enter the manufacturing phase." They have a CSR angle to their project as they wish to part with 30% of the revenue generated which they would dedicatedly contribute towards social causes and charity.

The team ardently thanks their mentor, Ms. Sonal Shah, who was their pillar of motivation all through. If the team gave its 100%, she gave in her 200% for a better outcome at each and every level. The team states that it could easily do technical stuff, at certain non-technical junctures, their brains would shut down and it was her who showed the way during such trials. All the while honing their presentation and communication skills she was more of a guardian angel for them.

While summarizing their ATL Marathon experience the team states that they saw how different culture comes together for the creation of harmonious ideas and how different techs combine to do the unthinkable.

Pathipaga Chemmal K Ganapathi Government Higher Secondary School, Chennai, Tamil Nadu

RIC
(RESEARCH IDEATE CREATE)

TEAM NAME
RIC GIRLS

TEAM MEMBERS
Ashwini G J, Dhanusha L and Durga Devi B

ATL IN-CHARGE
Vijiyalakshmi K

ACCESS TO EDUCATIONAL CLASSES FOR ALL

Students possess excellent knowledge and look forward to enhancing it with the introduction of new teaching methods and technical advancement. Intrigued by the situation and the evident examples of the same around them, G J, Dhanusha L, Durga Devi B from Pathipaga Chemmal K Ganapathi Government Higher Secondary School, Chennai decided to work upon this subject for their project submission at the ATL Marathon 2019.

The idea was to present a contemporary solution that would aim at easing out the access to educational classes for all and convert the closed group information sharing between the teacher and his select pupils into an openly accessible resource for all.

They researched on the subject and created mind mapping presentations which they presented to their mentor Ms. Vijiyalakshmi and made study papers on the subject that were given to their parents and other intellectuals in the vicinity for feedback. On receiving an affirmative response from all quarters, the trio set themselves for the creation of their final solution, The RIC App.

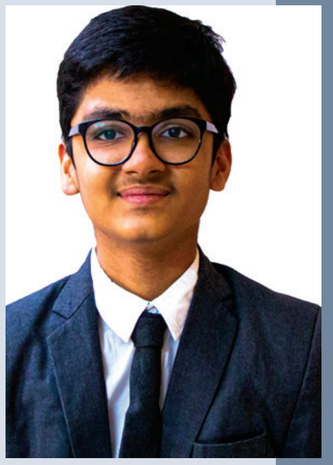
The Application becomes a single and unified platform for all willing students and teachers who wish to share class videos and other educational videos on an open platform for all others to utilize and benefit from. Thus, creating a knowledge pool that stays relevant for every single person who is willing to learn and gain knowledge. Teachers and students can create their own profiles and can have a follower base too.

This feature encourages contributors and further propels information sharing on the platform. There are classifications of subjects, class and chapter videos by teachers, subject-related informative videos by students and teachers, and even a live discussion board to assist constant interactivity amongst contributors and learners.

Talking about the highlights of their App, the team says that the application developed by them can hold a huge chunk of data at all points of time which is readily accessible and there is absolute maintenance of data secrecy, as the system takes log-in details, to keep track of your information and data record. Though the application incurs a development cost during the initial stage, once it gets complete, it would require at most no charges to keep the application running.

As it is an application, it zeros on any hardware requirements. Furthermore, the application doesn't need an external device or equipment to run. It can be used in a regular smartphone without any difficulties. Any common man with a basic smartphone will be able to access their data from all corners of the world with a single tap to verify the user and bank on the information.

Anand Niketan, Maninagar, Ahmedabad, Gujarat.



SAKSHAM - A HANDTALK GLOVE FOR DIFFERENTLY ABLED

TEAM NAME
SAKSHAM

TEAM MEMBERS
Himay Shah and Disha Bansal

ATL IN-CHARGE
Johny Abraham

THEY CONVERTED THE SIGNS TO SPEECH!

Team Saksham comprising of Himay Shah and Disha Bansal guided by Johny Abraham as ATL In-Charge, innovated upon an empowering and encouraging product "Saksham," which converts sign language into speech. Sign languages can be challenging for everybody to understand. The team decided to resolve the challenge and to deeply understand the various problems and challenges, the team paid visits to a number of non-governmental organizations (NGOs) that support the deaf and deaf section of the society.

After many stages of discussion, Team Saksham decided to set their objectives forth and decided to make a hand-talk glove that could identify the sign language and then convert it to text. A portable and hand-fitted device with a display section that works on a 9-volt battery and has the ergonomic utility of being very easy to implement for the end-user, Saksham interprets electronic signals prescribed for the various alphabets used in sign language while being performed by hand and processes the same into the text to create a coherent communication platform which aides the person with speech or hearing impairment. The product is Novel and since there are no similar products in the market, Team Saksham become the first proposed "start-up" in this field. The team's cost vision is to bring the product to market with a lower profit margin. The cost of creating a single glove is $31.5, however, when the products are purchased wholesale, the cost of production drops to $28.30.

Saksham the hand-talk glove will enable people with speech or hearing impairment. This will also help them in learning a variety of subjects and assisting them to perform activities.

According to Team Saksham, participating in the ATL Marathon was an experience like no other. The team developed a better knowledge of how to deal with opposing viewpoints and ideas through competitions. Through their innovation, they have to a great extent improved the ability to control subjectivity in the daily lives of people facing speech and hearing impairment. On an individual level, the team members improved their risk assessment and evaluation skills and helped them to be more creative, learn valuable lessons, and challenge themselves to do things they had never believed they could do.

Team Saksham as a social entrepreneur believes that engaging in this practice has helped them to find a life purpose, as well as assist others in finding theirs and making a difference in the world. The team is prepared to take a chance and put out the effort necessary to have a beneficial impact on society through their endeavors.

Man Kuwari Hansa Higher Secondary School, Barela, Jabalpur, Madhya Pradesh

ENERGY TREE: TOWARDS GREEN SCHOOL

TEAM NAME
SHREE JABALI

TEAM MEMBERS
Sanjana Namdev, Aashi Dubey and Sakshi Shripal

ATL IN-CHARGE
Vaibhav Joshua

GREEN ENERGY FOR THE GREATER GOOD!

As a source of energy, green energy often comes from renewable energy technologies such as solar energy, wind power, geothermal energy, biomass, and hydroelectric power. In order to be deemed green energy, a resource cannot produce pollution, such as is found with fossil fuels. This means that not all sources used by the renewable energy industry are green.

Sanjana Namdev, Aashi Dubey, and Sakshi Shripal had their idea fixed on green energy as the concept on to base their ATL Marathon project. While discussing the very subject they had realized that since their school was located within the rural municipal jurisdiction of Barela, Mandla road, they faced regular power failures which greatly hampered the studies. A concept involving design skills, indigenous knowledge, and mathematical reasoning was proposed by their mentor Mr. Vaibhav Joshua to create a model project which would effectively display the innovative use of renewable green energy.

The team got involved in research and ideation sessions to further resource their project. Four different problem areas were shortlisted and worked upon as Phase I and Phase II – enabling a sustainable environment, facilitating outcome-driven quality education, enhancing health and hygiene, ensuring inclusivity and equality. The team members identified community problems of their choice in one or more of the above four problem areas and developed innovative solutions in the form of working prototypes or minimum viable products (MVP). Post rigorous efforts the team cracked the concept of a Green Energy Park which addressed their set criterion. They named it 'Energy Tree'.

An easy-to-install project, Energy Tree uses cost-effective materials and requires no electricity grid, making it easy to deploy within schools and in remote areas. Another advantage of the Energy Tree compared to the conventional solar panels is that it blends beautifully with its immediate environment and compliments the aesthetics of its surroundings.

Made from an Organic Photovoltaic (OPV) semiconductor, which compromises a photo-active layer and two electrode layers, the Energy Tree converts solar power into electrical power by incorporating thin, lightweight, transparent, and flexible OPV material which blends with the surface and works as an invisible power generator, unlike the prevalent solar power panels. The OPV leaves are connected with a belt that wraps around the trunk of the trees. The power generated can be used in endless applications, similar to the power used from batteries or electricity.

If we highlight the key benefits of the energy tree, we find the below points as impact generators: • Provides 100% clean and sustainable energy • Is Cost-effective • Quick and simple to install • No grid required • No cabling required • Adds an aesthetically pleasing look to the environment

The Energy Tree also ensures an effective solution for space utilization while installing an alternate energy source for any building or structure. It initiates a green corridor development inside an institution's campus and functions as a live learning laboratory where students can learn various concepts pertaining to solar energy and its conversion into electrical power. We are all aware that conventional energy sources are vanishing fast and their replenishment is not a possibility. Thus, this innovation comes forth as a revolutionary initiative for the future.

"The Energy Tree has a strong focus on the services and geographies it caters to and has made sustained efforts towards increasing the number of users," says Sanjana. She further explains that new solutions and product innovations would be fostered if the project gets to be implemented in reality.

MES Raja Residential School
Kozhikode, Kerala

WOMEN SAFETY
SMART BACKPACK

TEAM NAME
SMART INNOVATORS

TEAM MEMBERS
Parvathy Ramesh, Nathasha and Jayent Saini

ATL IN-CHARGE
Jabir Purayil

A SMART INNOVATION TO SAVE WOMEN IN DISTRESS!

Parvathy Ramesh, Nathasha, and Jayent Saini had a very intriguing subject before them, the safety of single women travelers and even lone commuters was a concern they wished to address through their ATL Marathon project.

The Smart Innovators needed some smart innovation that would solve such issues for women. The team guided by their mentor Mr. Jabir Purayil, came to a truly smart solution, 'The Women Safety Smart Backpack The team discussed their idea with different people, and they gave a very positive response. The team decided to move on with the solution.

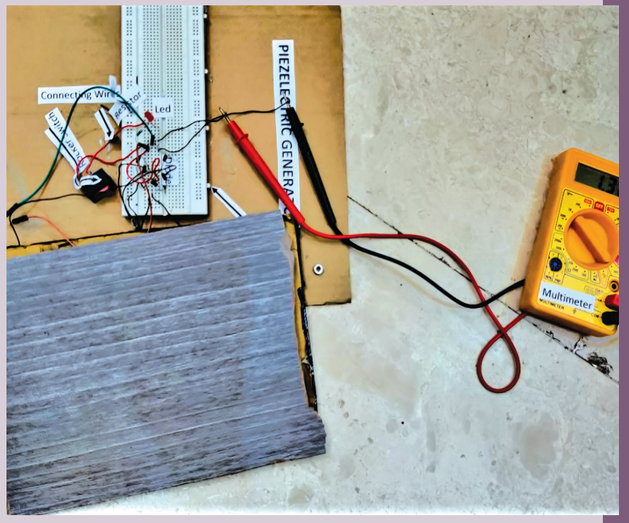
The team made a sketch of the backpack design and then researched about electronic components required for converting it into a smart product. A flow chart of the design, material, and integrated electronic framework along with the circuit diagram was created. The team's major challenge was to program the microcontroller. With the help of their ATL mentor, made an algorithm along with the block diagram design to realize the same. The results received from the prototype were very satisfying and encouraging. The Women Safety Smart Backpack incorporates sensors, GPS, GSM, and Arduino board in its microprocessor system and can be installed in other women accessory items, like a pouch, purses, handbags, etc.

Cost-effective and easy to use, this backpack can relay its location using GPS. The GSM module is used to send messages to connected people. The person who is in trouble would only require to candidly press a button to switch on the device using her fingerprint so that the message would be sent to the required set of people with the customized SOS message along with the location of the incident. This can help not only women but also all the school going students and elders who travel alone, whether a woman or a man, since it is useful for all types of people, it is light on the pocket, can be used easily and can smartly relay the message without causing any alarm for the offenders.

The team opines that such smart innovations would greatly impact the plight of women in our society and would empower them to feel more secure and cared for. The scenario of habitual offenses would also decline as running away from the punishment as the probability of help reaching the offense site during the crime itself gets higher. Plus, the tracking of the offender in crimes such as bag snatching or looting of possessions becomes almost full proof.

The team summarizing its ATL experience and the opportunity to innovate, further states, "Innovation is something that you should experience, it is the happiness that you get when you do something by yourself. Each innovation that we create is going to bring forth a solution for a visibly concerning problem. As credible innovators, we get to challenge the status quo, push boundaries, and achieve growth. Being an innovator makes one learn a lot of things. A successful innovator is a change maker, only those who think with a concerned mind and caring intent can be the ones who will bring forth real change and make way for a truly Atma Nirbhar Bharat in the truest sense of the word."

Manav Rachna International School
Gurugram, Haryana

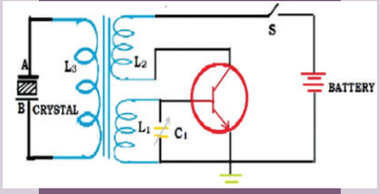


POWER GENERATION BY PIEZOELECTRIC TILES

TEAM NAME
SOCIAL TECHNOCRATS

TEAM MEMBERS
Pratyush Gupta, Pranit Garg and Hena

ATL IN-CHARGE
Jyoti Batra



CREATING RENEWABLE ENERGY FROM MOTION!

Today, renewable energy generation accounts for about 33% of India's primary energy consumption. India is increasingly adopting responsible renewable energy techniques and taking positive steps towards carbon emissions, cleaning the air, and ensuring a more sustainable future.

Since there are high capital investments in renewable energy sources, Pratyush Gupta, Pranit Garg, and Hena from Manav Rachna International School, Gurugram, Haryana thought of a way to harvest the energy that is not much prevalent as other sources but still much viable -Piezoelectricity.

Piezoelectric materials can be used to convert mechanical energy into electrical energy. This technology, together with innovative mechanical designs, can form the basis for harvesting energy from motion. Piezoelectric energy can be harvested by converting walking motion from the human body and moving vehicles into electrical power.

The idea struck the team members while attending a physics session on energy dissipation. How energy wasn't being utilized to its full potential and was instead escaping into the surface was an insightful revelation that would lead the team to explore inconceivable ideas and get acquainted with the world of Piezoelectric materials. They came up with the idea to harvest the energy from human motion than letting it go to waste. They began their research on piezoelectric materials which converts mechanical energy to electricity; the idea was discussed with their techno-skills teacher on how to develop it into a probable project for the ATL Marathon. The team found suitable places where they could implement this innovation, like heavily crowded areas, places with heavy traffic, schools and offices with long walkways and corridors, etc. The team then thought of two ways to model it, either as a tile or as carpet. While working on the project the team also realized that Piezoelectric materials are remarkable for their ease of implementation as compared to other resources like wind, solar or geothermal energy which takes years to set up, and a large capital investment.

Non-renewable resources like coal and petroleum are extinguishing rapidly and cause a plethora of harmful effects on the environment. Piezoelectricity has a huge scope in today's contemporary scenario because -

1. It involves a low maintenance cost and lesser capital investment.
2. No external power source is required: Thanks to the ability to produce a voltage whenever an external force or pressure is put on the material.
3. Easy installation: With small dimensions and various applications present, it can be installed in any high traffic area to produce energy.
4. Highly flexible materials: Most piezoelectric materials can be constructed in a wide variety of shapes and sizes, so they are highly useful across various applications and fields.

Talking about their ATL Marathon journey the team quotes, "AIC-JKLU gave a perfect opportunity and platform to express our innovative ideas. Learning lessons from judges was essentially helpful. We not only developed a mentality of entrepreneurship but also the mindset of an innovator. We learned a few key terms like SWOT Analysis and preparation of a business model which will help us in the future. Mentors gave the perfect guidance. Interacting with other teams helped us explore over the horizons. We not only felt proud to work for India but also felt the gratitude to accept the platform. Overall, it was a great experience working with a qualified mentor and expert judges. We aim to help the people of Bihar, Tamil Nadu, and southern Indian states because they face the most power shortage. We even aim to help the people of villages and places where there is no electricity and also aim to make electricity affordable to all."

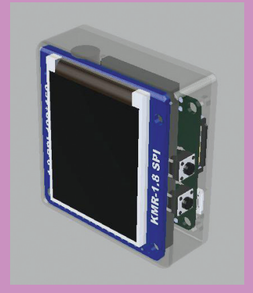
Bal Bharati Public School Pitam Pura
North West Delhi, New Delhi

SOUNDWARE

TEAM NAME
SOUNDWARE

TEAM MEMBERS
Ishan Goyal, Parth and Adhivik Jain

ATL IN-CHARGE
Namrata Alwadhi



ADDING HAPPINESS IN THE LIVES OF THE HEARING IMPAIRED

Ishan Goyal, Parth and Adhivik Jain from Bal Bharati Public School, Pitampura, New Delhi were engrossed in the discussion to create a uniform communication language for people with hearing impairment. As Ishan's grandmother had trouble hearing and he was facing a lot of issues in communicating with her even though she had hearing aid.

The trio had not realized that their discussion would ultimately spark up the idea to develop a band for hearing impaired. Ishan proposed the idea to create a band with a display and a microphone which would convert the vocal communication into text and display it on a screen. The Band will be able to translate the spoken text to written text without any internet connectivity through a small computer such as a Raspberry Pi Zero. The band will also help them improve their speaking skills & overall coherence by displaying their part of the dialogue too. They named this band – Soundware.

The team wishes that the device should be integrated into schools which would allow students with hearing impairment to learn better.

The team plans to create a mass display version of the band which can be used at places such as schools and offices while the other one would be a more individualized version garnering a better one to one communication. On the plans of scaling up their project, the team states that there will also be further variations of the wearable model with a basic one only capable of translation and a few basic features and other higher end models, would have additional features making it similar to smart watch like capabilities.

The school model would be specially designed to lower costs for a large number of users by only using a central controller with wireless displays for the students to read from instead of every student's device individually translating and then displaying the text. They also plan to have a diversification of the product range and brand with subsequent introduction of high quality components to ensure reliability and long life of the products which they would market additionally. To aide financially weak takers the team also proposes a subscription model at a yearly fee.

Sharing their experience, the team states that the ATL Marathon truly empowered their individualities as they learnt the effective methods of multi-tasking. They were working in-parallel on the PowerPoint presentations, videos, the demographics research, research on hearing aids, components, features, physical prototypes, 3-D models at the same time and with such a great volume of work, pulling through the challenges to create their first prototype was truly a very special feeling. It was an incredibly learning experience for them on how to manage time, effectively planning their processes and the final evolutionary idea coming to life.

SPIC Nagar Higher Secondary School Tuticorin, Thoothukudi (Tuticorin), Tamil Nadu

GSM BASED SECURITY KEY CHAIN

TEAM NAME
TECH WARRIORS

TEAM MEMBERS
Sandiep Lakshman BA, Navneeth MV and Karmukilan A

ATL IN-CHARGE
Jitha Mol B

NABBING THE KIDNAPPERS WITH A KEY INNOVATION

Kidnappings are a frequent occurrence both in rural as well as urban areas. Karmukilan A, Sandiep Lakshman B A, and Navneet MValong with Jitha Mol B their ATL in-charge from SPIC Nagar Higher Secondary School, Tuticorin resolved to curtail the possibility of such untoward events through their ATL Marathon innovation.

The idea came when the team discussed the safety of schoolgirls who are studying in higher classes and are attending coaching during the evenings. Most of such girls return home alone on bicycles. Their journey back home would require them to pass through secluded and danger-prone areas as well.

The team worked together to create an efficient GSM Based Security Key Chain, which enables children & women to broadcast warning messages and send an SOS call to their parents without any visible or apparent action getting registered by their assailant. Citing the uniqueness and viability of their product the team cites that there are available safety devices, which are either too high in rates or require a connected device like a mobile phone to work. But solution created by the team is a low-cost, dependable, and thoroughly efficient device and can also be used without being connected with mobile phones. The team conducted Ideation sessions and research amongst the student community to gaze upon the seriousness of the problem and conducted an online survey among the parents, teachers, and students at their school too before reaching their solution.

The Tech Warriors state that posts the marathon, they thought of converting their minimum viable prototype which still contained some glitches and deficiencies into a technically adept and dependable product. Right from size reduction to ensure a compact device to the assembly and enhanced battery life all functional aspects were worked upon. At first, their device had only messaging and call features along with the GSM location from where the message was sent. Now, they have incorporated a location identification module into their higher-end version converting it into a market-ready prototype.

Answering the question of their actual marketing plans for the product, the Tech Warriors plan to introduce 3 models of the GSM Based Security Key Chain. All the models include a GSM module to communicate through Arduino Beetle Board. Using a customer-centric approach, the main focus of the device is to enhance safety for children who are below 16. The different product plans and their features devised by them are as below:

1. Bronze has a replaceable battery type and only SMS.
2. Silver has replaceable battery type and SMS and Call feature.
3. Gold has a rechargeable battery type with SMS, Call and location features.

On mentorship and guidance received, the team Tech Warriors started working upon the actual prototype after their selection in the top 150 projects. They received ardent guidance and training from their ATL teachers and their project mentor Jitha Mol B helped them at every step. Making 3D design, assembling of the parts, soldering techniques, electronic circuit assembly, GSM-based programming, and many such technical issues required expert guidance. The mentors from AIC RAISE, Mr. Ebin Ephrem, and Mr. Sunil helped them in redefining the product idea and developing a robust business model.

St Raphaels HSS Ezhupunna
Alappuzha, Kerala

WASTE CLEAN MISSION

TEAM NAME
TECHIES

TEAM MEMBERS
Stefania, Anu Mariya Prakash and Jewel Prince

ATL IN-CHARGE
Jitha Gopinath

EFFECTIVE WASTE MANAGEMENT PRACTICES

The Techies as the team calls themselves realized Microplastic pollution is a major issue in today's times. They then decided to delve further into the topic of waste management as the probable concept on which to base their ATL Marathon project.

Alarmed by the possibilities and the impending fate our species face on earth owing to the ever-increasing pollution, the Techies resolved to create a viable solution for the same and contacted their project mentor Jitha Gopinath for inspirational insights. They cohesively worked on the idea and proposed a cost-effective "Automatic waste segregator system" naming their initiative, "WASTE CLEAN MISSION".

The automatic waste segregator categorizes the collected waste as plastic and organic. When the waste is segregated into these two basic streams it inherently possesses a greater potential of its management, recycles and reuses. The organic waste is converted either into compost or methane gas or both. Compost can replace the demand for chemical fertilizers, and biogas can be used as a source of energy. The plastic waste can be recycled / up-cycled to create reusable utility and craft products.

The prototype developed by the team included a small set-up of a processing unit, a central collection box, and two separate containers connected to the processing unit for automatic segregation of the waste into organic and plastic categories and thus automatically negating the practice of a separate collection of such wastes, which often gets overlooked by the general milieu.

The Techies believe that the system developed by them adds immense ergonomic benefit and operative ease to the present mechanisms and units. There have been researches, investigations, and innovations which continue in the various aspects of solid waste management and their efforts will go a long way.

There is a rapid increase in capacity and categories of solid waste as a result of urbanization, constant economic growth, and industrialization. They say, "Waste is not always waste if it gets segregated as it was". To properly manage the waste it has to be handled, segregated, transported and disposed of so as to reduce the risks to the public lives and sustainable environment.

The experience from the ATL marathon was an exciting journey for them. They imbibed vital digital skills from the adobe internship program also developed the confidence level and ability to communicate easily with like-minded people at the global level. The accumulation of knowledge in each sphere has been greatly resourceful for them and they have been able to gain an insight into a more practically based approach towards the process of innovation.

They thank their mentor Jitha & Mr. Praveen who guided them and kept their belief throughout their journey. They are thrilled to be a part of the ATL Marathon and more so their hopes are welded upon the idea that their prototype would one day be recognized as a breakthrough product of the Atma Nirbhar Bharat Mission.

Carmel Convent School
Chandigarh, Punjab

ALGORITHMIC MEDICAL CARD

TEAM NAME
THE HEALTH GUARDIANS

TEAM MEMBERS
Preesha Katial, Preesha Goyal and Pavit Behniwal

ATL IN-CHARGE
Meenakshi Jindal

A SMART WAY TO SECURE HEATLTH FOR SCHOOL CHILDREN

Preesha Katial, Preesha Goyal, Pavit Behniwal from Carmel Convent School, Chandigarh and Ms Meenakshi Jindal their ATL in-charge, spent days researching and analyzing their day-to-day problems. The problem chosen by the team was the lack of a structured health check-up process and recording Heath data in schools, especially for teenagers.

Major health problems in school children especially in girls go unnoticed in the early stages. Some of the major problems faced by school children include PCOD, obesity, mental health issues etc. which can be cured if detected early. Medical cards used by the school are not sufficient to keep a record of the medical progress of students. Analysis of the responses of surveys conducted by the team ranged from school doctor, gynecologist, parents and random individual interviews as well. The responses showed the following common concerns:

1. There is a rapid increase in ailments/ diseases among school children.
2. The menstrual problems in girls like obesity, PCOD, etc. are rising
3. Lack of awareness about certain medical conditions worsen the problem and change small ailments to serious diseases.
4. If the trends of certain medical parameters in the children are identified early, help in well in time detection of the disease.
5. Mental health issues like anxiety and depression have increased among school children.

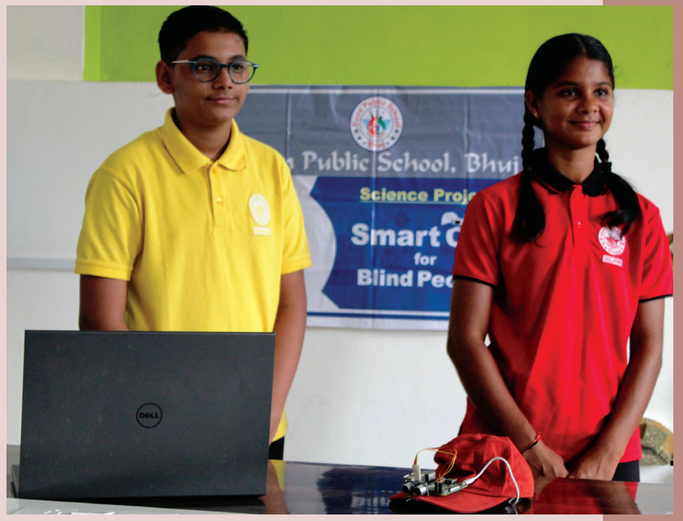
After discussion with teachers, parents, students, and medical professionals the team, Health Guardians concluded that they would work upon creating a schedule of different yearly and bi-yearly check-ups for eyes, height and weight amongst individual children, mental health check-ups and check-ups for PCOS and menstrual health for girls would be an integral part of the record. The team named their project Algorithmic Medical Card.

A fully automated and intelligent health record which works on AI sensors and data coordination, the Algorithmic Medical Card would be maintained by the assigned doctors on their systems and would require the respective student coming for the check-up to sit in front of the system/laptop which would identify their faces and open the respective student's medical health card. The doctor can enter the data and upload it directly to a website developed by the team for post-check-up access and examination. The Health Guardians used Raspberry PI with a camera attached to create a cost-effective and portable model for the Algorithmic Medical Card.

Each student's parents are provided with a unique passcode to access their child's medical data. It is also ensured that this passcode is periodically changed and the stored data is not misused. Other than providing a unique password and renewing it, it is also seen that only and only those who have acquired a password should be able to open their respective health records. Thus, even the school doctor can not have access to complete health records. All such features make The Algorithmic Medical Card a very balanced model.

Since their project is both a unique idea as well as a noble initiative that would greatly benefit our society at large, the Health Guardians wish that their project sees the light of the day and they are able to impact a greater beneficiary role in the society. After having fully implemented the card at their school, the team wishes to approach other schools and administrators and develop medical cards for junior classes as well. Apart from the aforementioned objective the team also looks forward to introducing their system to other schools, keeping in view the ultimate goal of fostering a healthy lifestyle for the youth.

Doon Public School
Bhuj, Kachchh, Gujarat

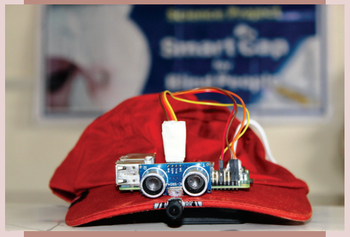


SMART CAP

TEAM NAME
THE SMART MAKER

TEAM MEMBERS
Sagar Bhardwaj and
Diya Budbhatti

ATL IN-CHARGE
Harsh Gor



A STEP CLOSER WITH ASSISTIVE TECH!

Team Smart Maker is entrusted with the purpose to create solutions for making society more inclusive. The team decided to innovate upon a basic requirement of the people facing visual impairment. Nowadays, there is a growing demand for software systems to recognize objects from real-time streams and convert them into speech. Team Smart Maker decided to utilize this technology and create a product that aids the blind in their day to day life. Inspired and propelled by the objective, Smart Makers stood true to their names and created a Smart Cap. A device by which, blind people can visualize the objects they are surrounded with. Smart Cap can detect the objects within a range of 16 feet and convert the detected objects and distance of that object into speech.

The idea of creating a Smart Cap occurred to them when they visited the Navchetan Andhjan Mandal in Bhuj, during a field trip from school and witnessed that despite being habitual to the surroundings and the space-bound environment of the school, a considerable number of students were facing difficulty in moving around. The idea of creating a Smart Cap for the blind crystallized after this field trip and the team used a circuit and wire-based module, fitted with a battery, headphones, cameras, switch, PCB and ultra-sonic sensor. The assembled device was fitted to a cap and this made the entire process of utilization of the device very easy and simple for the end-user.

The team is deeply inspired by their mentor Mr Harsh Gor who aided and encouraged them at every step during the ATL tenure and facilitated the necessary research. His words “Follow the problem-solving cycle” really helped the team. He also motivated the team to identify the problem, then think about each and every possible solution and try to implement all possible ways to solve the problem. His help from design thinking to making a prototype in each and every aspect enabled the team to ultimately create a successful showcase of their project.

The team expressed that during the ATL Marathon, meeting like-minded students online and listening to thought-provoking ideas and questions widened their horizons on various topics related to themes like -Renewable Energies, Energy Storage, Climate-smart precision agriculture, etc. They feel that the students of Doon Public School were enthusiastically stepping towards a new India, mastering essential 21st-century skills which will help them in developing their professional and personal skills. All thanks to the ATL Innovation Mission.

Saraf Public School
Udham Singh Nagar, Uttarakhand

SMART AI CLASSES WITH ACTIVE NOISE CANCELLATION

TEAM NAME
TINKERERS

TEAM MEMBERS
Dhruv Dabur, Ankur Rai and Piyush Tiwari

ATL IN-CHARGE
Chinmaya Kumar Raul

AN AI MECHANISM THAT MAINTAINS YOUR SCHOOL

Team Tinkerers comprising of Dhruv Dabur, Ankur Rai, Piyush Tiwari supported by Chinmaya Kumar Raul from Saraf Public School, Udham Singh Nagar, Uttarakhand participated in the ATL Marathon and with an urge to overcome the problems which they faced in their day to day school life. They decided to utilize the knowledge and learning that they had acquired from participating in the ATL and used tools and learning from ATL itself to solve their issue.

All team members decided to use Artificial Intelligence to resolve the problems that hinder the smooth functioning of the school system. As Team Tinkerers opines, the social impact of their innovative solution can change the lives of millions even billions if executed correctly as most of the targeted problems are common in every school whether it's the problem of unclean toilets, idle staff, long washroom breaks, etc.

This idea can bring a huge change in the everyday school system whether it's government schools or private schools. Both of them have their loopholes and this solution can play a major role in fixing those loopholes by transferring major decisions to Artificial Intelligence which has a lesser chance of errors.

Their prime idea is to create a standard model for a 'Smart' school. This will definitely bring a great impact on society as it will make their life easier in terms of different dimensions whether it is related to self-dependency, financial terms of manpower.

The AI system aims at noise cancellation within the school premises by issuing Smart ID Cards that can identify areas and individuals/students/staff members and locate the issue to report the same to the self-operated school functioning system. Thus, if there is a lot of noise being created in a certain section of the school building and it needs to be addressed immediately, all students, staff and individuals present at the scene can be individually identified with the help of the AI Smart Card. In the same way, if a staff member has been negating his duties persistently for more than a stipulated period, a similar disciplinary information system brings the issue to the school administration's notice.

Team Tinkerers attributes immense self-growth and knowledge to their ATL Marathon journey. They express, "We have learned many things like teamwork and research, ideation & its entire brainstorming process, innovation and the necessity to go beyond the obvious and finally, implementing the solution in an impact-driven and life-changing manner. ATL was an altogether new competition experience for us. We socialized with the people for surveys and research work. We came across too many ground-level problems and our project is a solution to some of the problems. We tried to target the most relevant of problems. We also innovated upon our project, The Smart AI Class with active noise cancellation to create a viable and effective solution for problems that hinder proper school functioning - like classroom noise, washroom cleanliness and hygiene, bullying by seniors to juniors, unnecessary spending of time in the washroom during recess, lack of syllabus maintenance system, idleness of administration staff, etc."

By targeting self-prevalent and often mass accepted problems we can solve the tribulations of a larger mass and make a big positive impact on society. The Smart AI Class is a positive step in this direction.

Kendriya Vidyalaya Hebbal
Bengaluru, Karnataka

ANEMOI-AIR QUALITY MONITORING AND PURIFYING SYSTEM

TEAM NAME
UNIWHEEL-PROGRESS WITH UNITY

TEAM MEMBERS
Tanvi Hiremath and Parinitha S

ATL IN-CHARGE
Nisha M. Mohan

GIVING THE AIR WE BREATHE, A NEW LEASE OF LIFE!

Tanvi Hiremath, Abhishek Tomar and Parinitha S. from Kendriya Vidyalaya, Hebbal, Bengaluru decided to design an innovation that tries to solve the issue of poor air quality. An effective technology that not only marks up the quality of air in a timed fashion but also tries to rectify the issue of its poor quality. To address their resolve, they made a system of devices that serve the purpose of detecting air quality and replenishing it with required purification & better oxygen content.

The Anemoi-Air Quality Monitoring and Purifying System is a combination of three parts: The air quality monitoring system, air cleaner and oxygen generator. The monitor notifies with an alarm lamp and puts up an update on social media in case the quality decreases below suitable level, the second part cleans the air from 93% of viruses, bacteria, other unwanted substances and the oxygen generator utilizes the process of hydrolysis to deal with lack of oxygen (which causes suffocation and other pulmonary discomforts).

They discussed the idea with their mentor Mrs Nisha M. Mohan and took to numerous brainstorming sessions to ponder upon various ideas until they came up with the best solution they could think of. Anemoi-Air Quality Monitoring and Purifying System created by Uniwheel costs only 4000 Rupees and presents a smart triple benefit to the consumer. An indigenous MADE IN INDIA marvel! The team owing to the uniqueness of the idea is aiming to develop it into an actual product so that everyone can avail of its benefits.

They are progressing further with their idea and are looking at actual trial opportunities to watch if everyone is able to use it without any technical knowledge and if a single model is suitable for all target areas. If not then they will attempt to make different models based upon the need. They also want to work on people's mentality towards air pollution-related diseases and want to know if they are willing to accept the mandate. Making comparison charts to examine the targets and make changes and additions accordingly and make sure everyone knows it's important too. With the continued help from their mentors and encouragement received from their school, parents and peers their intent has grown beyond bounds.

The team is engrossed in phased experiment sessions to examine the product's efficiency and accuracy. Though the impending pandemic has somewhat restricted their frequent trials, they are exploring other ways to experiment. Uniwheel is simultaneously working on its brand image and, the team has created a logo for their product too. The team feels that the model they are working on has a great chance of being successful in the market, considering that it addresses the most important problem now in a much more advanced manner than its present contemporaries in the market.

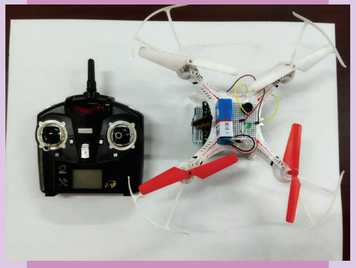
Kendriya Vidyalaya
Army Area, Pune, Maharashtra

DHTD DIGITAL HUMAN TRACKER DRONE

TEAM NAME
ZENITH INNOVATORS

TEAM MEMBERS
Sufiyan Dhange, Jujhaar Singh and Saiyam

ATL IN-CHARGE
Mahesh Birla



THEIR INNOVATION WILL NEVER LET YOU GET LOST IN THE DESERT!

The team of Sufiyan Dhange, Jujhaar Singh and Saiyam along with Mr Mahesh Birla as the ATL In-Charge came together to form the Team - Zenith Innovators. The team invented the idea, which effectively decreases the number of deaths in the Desert area and performs search and rescue operations through a Digital Human Tracker Drone. Basically, the Digital Human Tracker Drone is a specially designed, intelligent drone that detects human bodies in desert areas & rescues them by sending the real-time location using raspberry pie, a human detector sensor and also by Global Positioning Response System for Mobile communication which then sends helpers over to the incident location.

The Digital Human Tracker Drone proves to be truly beneficial for the army & the people who take care of desert-like areas. To create a viable market for the product Team Zenith Innovators is advertising & publishing the product to the dealers of drones as well as to the people in e-commerce through direct contact and via their webpage.

Zenith Innovators also plan to scale up the concept and to achieve the same they are using some strategies to increase demand for the Digital Human Tracker Drone. They aspire to follow an effective production, sales, marketing and communications strategy while placing the product in the market.

Team Zenith Innovators credits the innovation entirely to Atal Tinkering Lab as it was here that their idea transformed into a real concept and they were able to make it public. The team would like to give a message to the potential innovators that, "We Think, We Build & We Change", but the thing that matters is humanity and we should innovate to protect it.

Atal Innovation Mission would like to thank all its partners for all the support in making the ATL Marathon 2019-20 successful

Creative Partners

Our aim may be as high as the endless sky, but we should have a resolve in our minds to walk ahead, hand-in-hand, for victory will be ours.

- Shri Atal Bihari Vajpayee
Hon'ble Late Prime Minister


सत्यमेव जयते
NITI Aayog
ATAL INNOVATION MISSION
#AimToInnovate