

ANNUAL REPORT

YEAR 2019-22



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FROM FOUNDER'S DESK

I, along with my co-founder Ms. Vaishali Sharma, started Young Tinker Educational Foundation (*Brand name - Young Tinker Foundation*) in 2019, with the aim to spread the word of innovation, science and technology among students in urban and rural parts of India. What started with a spark in a remote island in Odisha is today standing proud with its students achievements at the international level. It is indeed a matter of pride for us in terms of what our foundation has accomplished in these years.



In 2021, our students created history by winning the NASA Human Exploration Rover Challenge. This under 19 team secured World Rank 3, after competing with teams across the world. This achievement made India proud as we're the 1st team in Asia to achieve so. This is a testimony of the great work that we do at our foundation.

Our organization is a S.T.E.A.M. (Science, Technology, Engineering, Arts and Mathematics) center where we provide learning to rural students by upskilling them using modern technologies and machines through indigenous content (content in vernacular language), thereby creating innovations that solve real-life problems of rural communities. Till date we have successfully impacted the lives of 1,50,000+ students. Our community is growing as a force to attract talent from around the world. Through education, research and innovation, Our extraordinary community pursues a mission to serve the country and the world.

This annual report encompasses the success and delineates the scope of the Navonmesh Prasar Foundation's efforts. The report also illuminates the important role played by executive members, our board and staff in making a measurable and tangible difference in the lives of children and their families with sincere commitment. It also indicates the further efforts needed to be taken to pool together talents, resources and competencies available with the mainstream public to serve more and more rural children.

At Young Tinker Foundation, we believe that creativity must become our nature, constructiveness must become our habit, and seeds of inquisitiveness must sprout

every day and every moment. Then, innovation will become our practice. Enrichment of innovative activities must become a mission and goal for all of us.

I, on behalf of the Young Tinker Foundation, express my deep sense of gratitude to all the well-wishers including the State and Central government for their support. We are indeed thankful for numerous personalities (which also include the policymakers and visitors) from the national and international arena for their valuable suggestions and words of encouragement.

I am overwhelmed with the magnitude of work taken, imparted and supported by all. With great respect & love from the core of my heart, I salute all of them. I also like to record my heartfelt gratitude for the contribution of the foundation's board and the committed and dedicated cadre of workers who make the great effort for a great success. I wish all children of the Young Tinker Foundation to be good citizens of our country at par with children from other schools. I am proud of them.

Anil Pradhan,
Founder,
Young Tinker Educational Foundation

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VISION & MISSION

Our vision - Build an equitable world through STEAM education and skills of the future.

Our mission - Democratize access to the world's best hands-on STEAM education to enable makers and innovators.

STAGES OF A STUDENT'S JOURNEY

Empowered by the experience of tinkering, they learn to make something which solves a big problem. This helps them to create an enterprise across the solution to scale it to masses.

- **Tinker** : Here the students gain different skills and learn about tools and machines
- **Maker** : Here the students have gained some hands-on knowledge and they start making projects
- **Innovator** : Now the student is ready to ideate and create new innovative projects
- **Entrepreneur** : Now the students have innovated a new product and are ready to create an enterprise of their own.

WHAT DO WE DO?



Empower school with Young Tinker Space

We help schools and communities to set up tinker-spaces



Impart hands-on skills of the future

Our tinker spaces help students to tinker, learn and innovate.



Outreach Programs

We organize exchange programs, fellowship programs, innovation festivals and virtual classes.

OUR PROGRAMS

1. RURAL INNOVATION PROGRAM

Rural Innovation Program is designed for graduate and under-graduate students from across the globe to experience the village (rural setup) of Odisha. The program helps students to learn problems faced by people at the grassroots and thus, helping them design feasible solutions for the same. Two seasons were already held at Baral campus during 2018-19.

The first season of Rural Innovation Program was a 10-days rural development program, hosted by Young Tinker Foundation in association with eDC and Student Incubation Cell, IIT Delhi where 11 students from the premier institute came down to Baral village, Cuttack, Odisha, to do ground-zero research regarding conditions in Rural India.

Students flew in from Delhi on 22nd of December 2018 to do on ground research in a place called Baral, a village near Cuttack. They stayed on campus. The most important exercise of the program, the Village Survey. Volunteers and students went deep into village Baral and interacted with the villagers and tried to understand their problems. Data-driven analysis was carried out post survey. All the villagers then came together and shared their grievances with us. RTI's were filed on behalf of the villagers by the program fellows.

The program mutually benefited IITians and foundation's beneficiaries. The projects developed can be implemented and replicated in other remote places.



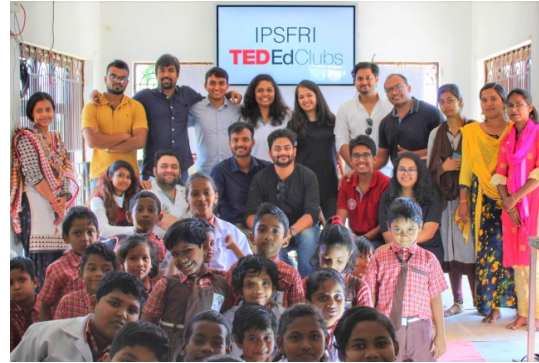


2. UNDERWATER ROBOTICS PROGRAM: INSPIRIT - INNOVATION AND NATURAL SCIENTIFIC PURSUIT OF INDEPENDENT RESEARCH IN TECHNOLOGY

Young Tinker Foundation in collaboration with MFTO (USA) organized an INSPIRIT STEM workshop under the Winter Innovation Camp. The INSPIRIT STEM workshop had an enrolment of at 40 identified students for the entire duration of the workshop. Each student had an attendance of the workshop for a period of 6 hours every day for the entire period of the workshop. Motion for the Ocean worked with Seaperch for sponsoring the Seaperch Kits, and provided infrastructure like pool, and demo tools for use. Further, other support like water, electricity, internet, and space to hold the workshop was provided by our foundation.

3. MANAGEMENT FELLOWSHIP

Our foundation collaborated with XIMB & IIM Kashipur and selected their 8 amazing and talented interns for the internship program. The team worked under the guidance of Mr. Rashmi Ranjan Mohapatra, Ex-MD, Kemppi India. These students will be working on the Branding and Marketing of our different projects. They are from diverse backgrounds but with a common motive of establishing the brand and a successful venture for a better tomorrow.



Testimonies from interns

- **Ms. Aanchal Lohia**, a management fellow working with our rural school, on enhancing the learning skills of rural students. She's currently pursuing her MBA from XIMB.

"A unique experience of a lifetime! The day I saw 3 idiots, I had just wished, what if I had such an innovative school growing up? What if all the schools, focussed more on such practical learning, rather than cramming us with textbooks after textbooks just to help us get through exams, without actually understanding the concepts? Visiting the rural school, Cuttack, I felt like one of my wishes came true! The students, though extremely young, had in-depth knowledge about each and every topic, many of which even I was not sure about. Seeing a school that actually promotes learning rather than pushing its students to be just another participant in the rat race was truly inspiring! I would like to congratulate Mr. Anil Pradhan for bringing such a form of learning to life and inspiring many people like us, to help contribute in our own small way, to this great cause." - Aanchal Lohia

- **Mr. Harsh Ruparelia**, a management fellow working with our rural school on enhancing the learning skills of rural students. He shares a strong bond with our students which helps them to connect. He's currently pursuing his MBA from XIMB.

"When I visited the rural school, I was told that I'll be teaching little kids a few things about dance. Little did I know that I'll be learning from them more than what I had planned to teach. The kids were so highly spirited especially when they are so far away from the city, learning and exploring new venues in life. It was truly a great experience for me to meet them."- Harsh Ruparelia

4. COVID 19 RESPONSE: MANUFACTURED MEDICAL EQUIPMENT LOCALLY

Around the world, healthcare workers are working 24*7 to test patients that might be carrying the coronavirus. These workers need medical equipment during this time of intense testing in India. We at Young Tinker Foundation, manufactured this medical equipment locally for healthcare workers, police and sanitary workers. With the beginning of its impacts in Odisha, everyone starting from the doctors, police and those at the forefront of the epidemic to the State Government were gearing themselves up for the control and protection against Covid-19 (Coronavirus). We, the fraternity of engineers and technologists, were equally responsible for the defense of our people. But what did we do? There are few instruments that we developed and manufactured to help our doctors to fight against this starting from face mask to hepa mask. These face masks were manufactured at Baral village; FabLab, STPI, Bhubaneswar and CRCC, Mendhasal, Khorda.



5. COVID 19 RESPONSE: OUR JOURNEY DURING LOCKDOWN

Our personal protective equipment devices such as face shields and hepa masks were used by many workers (e.g., medical, dental, veterinary) for protection of the facial area and associated mucous membranes (eyes, nose, mouth) from splashes, sprays, and spatter of body fluids. With our initiative, we were able to employ 12 differently abled youths.

6. UNDER 19 TEAM TO NASA : HERC 2021

The journey started when the founders, Er Anil Pradhan, and Er Vaishali Sharma, dreamt of preparing a student's team for NASA Rover Challenge. They helped mentors to connect with students across India to teach subjects using hands-on learning pedagogy.



About the challenge

NASA Human Exploration Rover Challenge features an engineering design challenge to engage students worldwide in the next phase of human space exploration. NASA selected our proposal and invited our team to Huntsville, Alabama, USA in April 2021. Young Tinker Foundation received World Rank 3 in the High School Division. Along with this, we also received a Videography Award. The whole process started 8 months back when we interviewed around 800 students and among those, we selected top 10 students who later became part of team NaPSAT. Among those 10 students, we have 3 such students who are from economically backward backgrounds. One of them worked as a cycle mechanic, another was a girl working in a roadside welding shop and third was migrant labour.



7. WELDING WORKSHOP FOR DIFFERENTLY ABLED STUDENTS: SMAW TRAINING FOR YWDS IN COLLABORATION WITH SWABHIMAN

Young Tinker Foundation collaborated with Swabhiman (State Disability Information & Resource Center) and organized SMAW (Shielded Metal Arc Welding) Skill Training Program. 16 youth with disabilities were selected from Odisha for a fourteen-day training program from 20th July to 2nd August 2021. The program was held at Gurukul Resorts, Mendhasal. YWDs will be guided by the educators from Young Tinker Foundation. NASA awarded fabricator, Mr Kailash Chandra Barik trained them on ground with practical skill training sessions. They learnt measurement skills, Design thinking, Punching, filing, cutting and welding Metals. Top five trainees were immediately employed after the training program.

8. UNDER 19 TEAM TO NASA : HERC 2023

This year again our under 19 student team has been invited by NASA for the Human Exploration Rover Challenge 2023. This team comprises students from various states of our country and from different economic strata of the societies. 2 of the students from the team reside in a children's home.



IMPACT : STORIES OF CHANGE

The real success of an organization is always expressed in terms of impact it has on its people and others. We bring you the stories of ordinary village students who shaped themselves to become kid-innovators.



Basudev Bhoi

A son of a daily labour in paddy fields, he joined IPSFRI in 2015, at that time he used to work with his father in farmland to have a better earning for his whole family. Now, Basudev is a specialist in 3D printing technology. He innovated bionic hand (artificial hand) through open-source material and facility at school. With his project, he wants to give hope to people with disabilities. He aims to become a scientist in ISRO.



Ranu Bhoi

Ranu Bhoi (age 14), is a daughter of a daily-wage farmer. In 2016, she joined our 7-day outreach program. She learned a soil-less vertical farming technique at IPSFRI. She has now developed the technique at our school campus with her fellow mates. She wishes to become an innovative farmer.



Priya Roul

Priya Roul (age 9), is a daughter of daily-wage labour. In 2017, she joined our 7-day outreach program initially and found it useful. She developed a Bamboo Robot to scrap out waste from rivers. She has now joined IPSFRI, and she is busy developing her complete project here. She wishes to become an Engineer.



Arpita Beura

Arpita Beura (age 10), a young girl who used to help her mother in household chores instead of going to school. After joining IPSFRI in 2016, she started loving coding and working on electronics. With her expertise and knowledge, she designed solar lanterns to help people have access to light and electricity in her village. She aims to become an IES officer and develop technologies for rural India.



Mitali Hati

Mitali Hati (age 11), is the daughter of a plumber who didn't turn up for education because of her two siblings in the family. She joined IPSFRI in 2016, where she got curious about climate change and the environment. Now, she actively spreads awareness in our village by her experience in "Kabad-se-jugaad". Now she makes science models out of waste materials. She aims to become a designer one day.



Shubham Bhoi

Shubham Bhoi (age 9), is the son of a mason. He joined IPSFRI in 2015, at that time he was a shy village guy. But now, Santosh is good in computer skills and he delivers lectures to fellow students through Powerpoint presentations which he designed himself. He wishes to make computer applications in future.



Kailash Chandra Barik

Kailash (18) worked with his father in a road-side cycle repair shop. Being eldest, he earned by working different odd jobs just so that he could enrol himself and learn something new. He had always dreamt of becoming something whom people remember because of his contribution to society. We enrolled him in an outreach program named NaPSAT. We selected 10 students from across the state of Odisha who sent a proposal to NASA and the rest is history. NaPSAT became India's first interdisciplinary U-19 student team to be invited for the NASA Rover challenge 2021. Kailash, who repaired bicycles, now works on the fitting transmission of the lunar rover.



Rina Bagha

The pandemic pushed her family to poverty, the prolonged lockdown brought misery to the lives of 18- year-old Rina Bagha. Originating from the Boudh district, Rina lives in a rented house here. She was pursuing her intermediate in the Arts stream. Her parents are daily laborers. They had no jobs during the first phase of the lockdown. It was then that she decided to step out of the house in search of a job to earn money. She first

tried to seek the work of domestic help in nearby houses. But people were afraid of the virus, so they drove her away.

After multiple failures, desperate for money, Rina urged the workshop owner to offer her any kind of job. The owner said, “The jobs in workshops are for men, you can’t do a job here”. She argued and said, “Mu welding karibi!” She had no other choice but to work whatever she gets. She had zero ideas about welding, she even didn’t know what works were done in a workshop. It was then that our foundation helped Rina learn a skill. She was selected for our prestigious NaPSAT Program. NaPSAT became India’s first interdisciplinary U-19 student team to be invited for the NASA Rover challenge 2021.

OUR ACHIEVEMENTS



Young Tinker, Winner at Berlin Science week 2022



Special Impact Prize by 3M & CII



Shambavi Puruskar by IMFA



Award of Excellence by STPI, Govt of India



Odisha Youth Award



National Youth Award



Recipient of Inspire Manak Award



Winner at Global AI Intel Fest



Appreciation by Hon'ble Education Minister



Young Tinker alumni representing India at USA

APPRECIATION TWEETS

NASA Rover Challenge @RoverChallenge

It's time to announce the overall winners! Finishing in 3rd place in the high school division is @NaPSATIndia. @UAHMoonbuggy takes 3rd in the college division.



Naveen Patnaik @Naveen_Odisha

Congratulate @NaPSATIndia on winning laurels for #Odisha by securing the third position in @NASA @RoverChallenge. This stellar achievement puts the institute on the global map and will inspire more budding scientists & innovators. Best wishes for future.



Dharmendra Pradhan @pradhanodp

Heartiest congratulations to @NaPSATIndia team on bagging 3rd position in @NASA's coveted @RoverChallenge. Amazed at the scientific temper, spirit of innovation and capabilities of our young friends, especially those in Odisha. Wish them a great future ahead.



Achyuta Samanta @achyuta_samanta

Felicitated #Odisha based Navonmesh Prasar Student Astronomy Team (@NaPSATIndia) consisting of 10 school students for bringing laurels to the state by winning third prize in the high school division of NASA Human Exploration @RoverChallenge 2021. 1/2



MEDIA COVERAGE

SUNDAY POST FEBRUARY 7-13, 2022

HERE . NOW



Astronauts in the making

COVER STORY

SUNDAY POST FEBRUARY 7-13, 2022

COVER

ASTRONAUTS IN THE MAKING

A 10-member team comprising school students of Odisha is designing a human-powered rover which can move on the surface of Mars. The space enthusiasts are part of the first ever under-19 student space team to represent India at NASA



ASTRONAUTS IN THE MAKING

The group of 10 school students representing Odisha in the NASA Rover Challenge 2021, which is the first ever under-19 student space team to represent India at NASA.

The team members are: Naveen Patnaik, Dharmendra Pradhan, Achyuta Samanta, and the rest of the team.

SUNDAY POST FEBRUARY 7-13, 2022

COVER



ASTRONAUTS IN THE MAKING

The team members of NaPSAT India are working on their rover. The rover is designed to move on the surface of Mars.

ASTRONAUTS IN THE MAKING

The team members of NaPSAT India are working on their rover. The rover is designed to move on the surface of Mars.



TIMES OF INDIA

2 engineers make light-weight face shield for workers

Sandip Mishra | Times

Bhubaneswar: Two Odia engineers Anil Pradhan and Vaishali Sharma have come up with an innovative face shield for the frontline workers, particularly healthcare professionals, to help them stay protected during the pandemic situation triggered due to Covid-19.

They have made it with locally available materials. It is made up of one sheet of virgin plastic and can be assembled by anyone by joining the straps. The developers said the face shield is lightweight, cost effective and can be transported without any hassles.

It has been developed with the help of their non-profit organisation Navonmesh Prasar and the Software Technology Park of India, Bhubaneswar branch.

"Healthcare workers are working round the clock to test patients, who might be carrying the dreaded virus. These workers need the medical equipment," Anil said.

He said the idea behind developing the face shield is to help the frontline workers. "The shield is made up of very simple tools. It is very lightweight and portable and can be assembled and used by any normal person. The one sheet shield can be fixed using simple strings," added the innovator.

Vaishali said she and Anil had a thorough brainstorming on the product and developed it after several tests. The face shields

currently available with health workers are heavy and need to be made with the help of machines, said the engineer.

She said they have decided to develop nearly 5,000 such face shields in the first phase and distribute it to frontline health workers. "Quality medical equipment has become a major need during this pandemic situation. We hope we will be able to contribute a little in the fight with the simple face shield we have developed," Vaishali added.

Anil is a young engineer, who has turned into an entrepreneur by founding School of Rural Innovation in Cuttack where he uses innovative tools to teach his students. Vaishali is the co-founder of Navonmesh Prasar Foundation. Both are alumni of VSSUT, Burla.



Engineer Vaishali Sharma and her creation (above)




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3M State of Science Index

3M Pradhan Utsav, Pradhan Jee, Winner of VSSUT, 2020 Innovation with Children



JUNE 17-23, 2018

SUNDAY POST

HERE NOW

COVER STORY

IDEAS MAN

ANI @ANI

Odisha: Navonmesh Prasar Student Astronomy Team (NaPSAT), comprising of 10 school students, has been selected to participate in the NASA Human Exploration Rover Challenge 2021 scheduled in April. NaPSAT is an initiative of Bhubaneswar-based Navonmesh Prasar Foundation.



THE INDIAN EXPRESS

edex

EDUCATION EXPRESS - ODISHA - BHOJIPAL - OCTOBER 26, 2018 - VOL 9 - NO 25

AIN'T THIS SCHOOL RURAL COOL?

Meet the 22-year-old innovator, Anil Pradhan, who went back to his village in Odisha and set up the International Public School for Rural Innovation to inspire children to innovate.

WhatsApp: +91 77508 29990

edex

FIGURE IT OUT

What was the last time you used innovation to solve a local problem?

Send to us @edex_odx



2:41 AM · 12 Nov 20 · Twitter Web App



The Logical Indian
@LogicalIndians

The team is making a rover that can move on the surface of Mars and would be a human-powered rover. It can handle the weight of two people while moving on terrains of Mars and Moon, said Ankan Mondal, the member of NaPSAT.

#Odisha
#NASA

1:29 PM · 12 Nov 20 · TweetDeck



CNNNews18
@CNNNews18

In a ground-breaking achievement, an Odisha-based team of 10 students has been selected for NASA Human Exploration Rover Challenge 2021 scheduled for April next year.



Odisha-based Student Team Becomes First to Represent India in NASA's Human Rover Challenge 2021
news18.com

11:30 pm · 12 Nov 20 · TweetDeck



News18.com
@news18dotcom

An Odisha-based team of 10 students has been selected for NASA Human Exploration Rover Challenge 2021, the first from India.



Odisha-based Student Team Becomes First to Represent India in NASA's Human Rover Challenge 2021
news18.com

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