



ISTE NITC STUDENTS' CHAPTER ATREYA '19 17TH ANNUAL STATE CONVENTION

TECHSCRIBE

Does innovation intrigue you? Can you think out of the box and devise breakaway ideas? Prepare yourselves as Atreya '19 brings to you a platform for showcasing your unique ideas, with Techscribe. Participate and watch your ideas take flight!

Team Specification

1. Each team can have a maximum of 4 members.
2. Team members will have to produce valid ID card of their institute.
3. Cross college teams are permitted.

Brief

1. Project presentation event. Topic: Innovation
2. Send in your abstracts to techscribeatreya@gmail.com on or before January 30th 2019.
3. Project abstracts are evaluated by our judging panel and shortlisted teams are allowed to participate in the finals.
4. Teams selected for the final round have to brief about their project to the judges with ppts, preferably with working models.

Rules and Regulations

1. Accommodation for the participants will be arranged if informed well in advance, and subject to availability.
2. At every stage of the competition the decision of the panel members and the organizers will be final.
3. The dates and deadlines may change, and on such an incident, it shall be conveyed to all the registered participants.
4. The Intellectual Property of the project and further works shall be in public domain, once the user submits his project.
5. It shall be the participant's responsibility to ensure that there are no intellectual property violations, and the institute shall not be responsible for the same.
6. Those **selected for Round 2** will have to pay **INR 300**.

Judging Criteria:

1. Ideas will be judged by an expert panel.
2. The panel will look for cost-effective, feasible working models which can make a difference to the society.
3. Cost to utility aspect will be given preference during judging.



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Examples

POLLUTION is the introduction of contaminants into the natural environment resulting in adverse effect on the environment. With the start of the industrial revolution impact of environmental pollution became extremely adverse due to the emergence of factories and large scale consumption of fossil fuels.

PROBLEMS

Pollution causes detrimental effects on almost all living as well as nonliving objects ranging from destruction of buildings to severe health problems in humans. The WHO estimated in 2007 that air pollution causes half a million deaths per year in India. Water pollution causes approximately 14,000 deaths per day, mostly due to contamination of drinking water by untreated sewage in developing countries. Absence of proper waste management system is one of the main reasons for pollution in urban areas. Many industries simply discharge the wastes into running water without proper treatment. The main idea here is to develop small scale projects which can be installed in our houses or colleges to make our surroundings pollution free.

EXAMPLES

Developing a suitable waste management system. Water treatment plant with natural filters like coal, sand, gravel etc.

MEDICINE IN ENGINEERING, as the name suggests, can be thought of as a union of the two major fields. An important aspect of the future of health care will be the creation and application of engineering technologies in order to provide new approaches so as to transform the management of various disorders faster less expensively and with fewer side effects. It is essential to develop comprehensive programs to combine these spectacular engineering advances with disease and medical knowledge and apply them to the diagnosis treatment, and prevention of major diseases affecting the body.

PROBLEM

As this is a relatively new field, the interest of the public and the student community towards it is very low indeed. As a result of this many people are unaware of the vast possibilities that are created when the two fields are brought together. For example the number of students opting for a career in biomedical is very low compared to the mainstream branches. Even the branch of biotechnology which is introduced in many engineering colleges has the lowest demand among all the branches. As a result of this the research in the field is low and owing to this the progress of this new field is slow. Contestants are required to come up with innovative applications of engineering in medicine or vice versa which can showcase their ideas and the vast possibilities provided by this new venture. They can also put forward measures to make this more popular among the people and student community.

EXAMPLES

In organ preservation, subzero non-freezing temperature for extended storage durations can be adopted, with the intent to ultimately banking organs. For example, with the storage of cells at 10°C, lives stored at 24°C can be transplanted.



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WATER CONSERVATION by definition encompasses the policies, strategies and activities to manage fresh water as a sustainable resource. It is our responsibility to take the necessary steps so as to keep our water pure and safe for generations to come.

PROBLEM

As the world is already staring at an impending water crisis due to climate change, population outburst and pollution, a UN report has predicted that as many as 3.4 billion people will be living in water scarce countries by 2025. It also pointed out that the situation will further deteriorate by 2050 culminating into instances of human conflicts in many parts of the globe. The idea is to develop tools to aid in water conservation in homes as well as in agricultural and industrial sector keeping in mind the economic feasibility and possibility of large scale production.

EXAMPLES

An intelligent pumping system which automatically stops when tank is full.

POWER MANAGEMENT Electrical energy is the most important and critical of all resources. India being the 4th largest energy consumer in the world after China, USA and Russia faces large scale energy shortage inspite of substantial investment in the power sector. The total primary energy consumption in India is from coal (54.5%) crude oil (29.45%) natural gas (7.7%), hydel power (5%) nuclear energy (1.26%) and the rest is from wind power, biomass and solar power. India is a developing nation but still in most of the rural areas electricity is unavailable. So expansion of current power supply system is critical but with comprehensive energy loss reduction strategies. Therefore need for effective power management arises to meet the power demands of maximum with minimum resources.

PROBLEMS

We are largely dependent on non-renewable energy sources for our power demands. Estimates show that with the present consumption rate, resources like coal and petroleum will get depleted in 2 or 3 decades. Therefore need for alternative energy sources has become inevitable. We do not have the adequate technology to fully utilize the potential of renewable energy sources in a cost effective manner. Another major issue which needs to be tackled is the amount of transmission losses. According to a recent estimate transmission losses are more than 30% of electricity generated. Ignorance and carelessness by users also substantially increase the power consumption. The main idea here is to develop suitable devices that can exploit the potential of the non-conventional energy sources or can improve the performance of the existing conventional sources keeping in mind the economic constraints and possibility of large scale production.

EXAMPLES

Developing a small scale rooftop hydel power generator using rainwater collected. Developing solar tracing solar panels. Developing an intelligent lighting system which automatically switches off the light when no one is in the room. Developing less loss transmission methods



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EASE THE DISABLED Disabilities doesn't limit the capabilities of human spirit and will. Through no fault of theirs, many people are plunged into the abyss of dire neglect owing to their physical and mental handicap. So the prime objective of the well-to-do society and its members is to heed the problems pestering them and assist them to envisage a better future, to rise above the social and economic shackles, and to show the world that human will knows no boundaries.

PROBLEM

According to the UN, one billion people live with disabilities globally, and they are the world's largest minorities. Of this number, as many as 40-80 million live in India. The underdeveloped infrastructure across much of this vast country gives them little room for empowerment. India has adopted the UN's development agenda for disabled people and in September the Supreme Court of India ruled that state and central government must enforce the law for 3% reservation for disabled within 3 months. The stark reality that the lion's share of disabled people fall into categories of SC/ST highlights this problem as a matter of great exigency and is to be addressed scientifically and legislatively.

EXAMPLES

Today's world demands economic practicality. So base your works on cost efficient assistive technology to help the disabled. A few examples may include self-navigator for blind and paralyzed, hearing implants for the deaf, speech-assistive devices for the dumb and so on. Apart from the aforementioned ideas, you may come up with any viable ideas pertaining to the topic, emphasis is to be given to the economic constraint.

WOMEN SAFETY With the dramatic increase in violence in our society, significance of one's personal safety has never been imperative especially among women. From astronomy to politics they have been progressing and proving their excellence in every field but she "The Common Woman" is still under a lot of stress and hardship.

PROBLEM

Even in this 21st century, when technological advancement are blowing out of proportions, primitive thoughts and traditions still lay cluttered in the minds of some men. Women have been tormented in the name of dowry, molestation, physical and mental abuse etc. The number of rapes and female feticide cases highlight the need for addressing the scenario urgently. In addition to creating an awareness we are looking for technological breakthrough that could boost women safety.

EXAMPLES

A safety bracelet with built in GPS based location features.



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DISASTER MANAGEMENT India has been traditionally vulnerable to natural disasters on account of its unique Geo climatic conditions. Floods, droughts, cyclones, earthquakes and landslides are recurrent phenomena. The loss in terms of public assets has been astronomical. Disaster management occupies an important place in this countries policy framework as it is the poor and under privileged who are worst affected on account of calamities or disasters.

PROBLEM

About 60% of the land mass is prone to earthquake of various intensities. Over 40 million hectares is prone to floods, about 8% of the total area to cyclone and 68% of the area is susceptible to drought. In the decade 1990-2000, an average of about 4344 people lost their lives and about 30 million people were affected by disasters every year. Disaster management in India is implemented in our country by the national disasters management authority (NDMA). Over the past couples of year, India has brought about a paradigm shift in its approach to disaster management. The new approach proceeds from the convention that the development cannot be sustainable unless disaster management is built into the development process.

EXAMPLE

A scientific approach to flood forecasting can be taken up to give timely forecasting and warnings of the incoming floods to the villages located in the river areas. It would be very useful if we include engineering techniques for earthquake protection of important lifeline building like schools, hospitals other public building etc.

ROAD SAFETY refers to methods and measures adopted so as to minimize the risk of a road commuter in a road accident. Every year more than 1.17 million people die in road crashes around the world of which around 150000 are Indians. Road accidents can not only be fatal for users of motor vehicles but can also be an equally impending threat for pedestrians.

PROBLEM

India loses about 20billion \$ to road accidents annually. Strategies have to be devised to save the lives of pedestrians, cyclists, and strict enforcement of wearing seatbelts and helmets and also not to use mobile phones while driving. We require cost efficient working models that would help in making roads safer

EXAMPLE

An automated system to slow down the vehicle if it is above speed limit, a system which senses the blood alcohol level of driver and switches the vehicle off, if necessary.



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Other Examples:

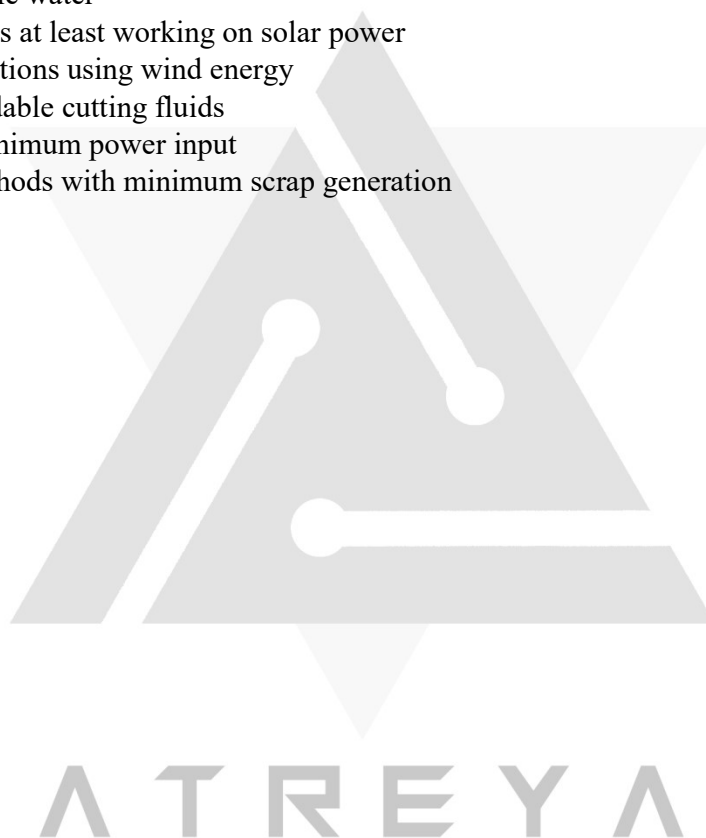
- Development of power cell from wastes
- Development of materials to clean up water bodies with oil spills or industrial wastes etc
- Pollutant indicators in vehicles
- New ways to recycle water
- Machines or models at least working on solar power
- Bioplastics Innovations using wind energy
- Usage of biodegradable cutting fluids
- machining with minimum power input
- manufacturing methods with minimum scrap generation

Prizes worth 10K

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