

## **ACQUANETTE**

“A **metropolitan** area, sometimes referred to as a **metropolitan** region, **metro** area or just **metro**, is a region consisting of a densely populated urban core and its less-populated surrounding territories, sharing industry, infrastructure, and housing.” –Wikipedia

So imagine a city like Mumbai where co-existence of people, industries, agro related movements, commercialization and rapid transiting society dwells and ponder upon the basic amenities like water, land and air. Water irrespective of other amenities helps in all aspects of society and industry, and cleanses the whole and gets itself polluted.

Some NGO is planning to work on the pathetic situations of metros in particular of developing countries where their thematic focus is on “WATER”.

Their process of analysis starts with analysis of industries situated particularly in the industrial belt and outskirts of the city. As it is one of the major source of water pollution by producing pollutants that are extremely harmful to people and the environment effluent treatment is a necessity rather than an environment clearance protocol.

**Problem Statement:** Participants are invited to come up with an innovative design for low cost and efficient treatment plant for a particular industry to eliminate the harmful chemicals, solid wastages, oils etc.

The problem statement needs following steps to be completed:

1. Choosing one particular Industry.
2. Characterization of wastewater.
3. The Flow diagram for the sewage treat plant.
4. Selection and sizing of units for different operations.
5. The list of content that can reused and that can't be reused.
6. The total cost for sewage treatment plant.
7. Periodic and aperiodic Operations and Maintenance.

The NGO planned on conducting a survey on industries in Mumbai. But heavy rains in Mumbai as usual lead to the inundation of the streets, railway tracks. Therefore, a better water conservation system and drainage system should be developed.

**Problem Statement: Participants are invited to come up with innovative ideas to conserve rain water like Rainwater Barrel, Cisterns and also design a better drainage system and sewage plant for a city.**

Soon after the rains, the field works and statistical data collection were planned by NGO officials. But the work went to a standstill when the trainees particularly from local population were affected by water borne diseases.

Thus it is essential that purification of water is our greatest need in terms of our health and daily usages. A proper system should be developed to clean the water from general resources like rivers and lakes in the rural areas.

**Problem Statement: Participants are invited to come up with innovative ideas for converting typical water resources to usable water like slow sand filtration, solar sterilization in rural areas.**

In the NGOs, model statistical class-one participant raised a question “water we have is cycled in nature as hydrological cycle, why can’t we imitate the same recycling in our domestic, commercial and industrial households?” As the human population is increasing day by day, the needs for the people also increases. But are there enough resources to cover them? So we need to start recycling waste to conserve our natural resources.

Recycling is simply the process of reusing the items whose utility can still be derived. A proper recycling is needed to minimize pollution than manufacturing a new product.

**Problem Statement: Participants are invited to come up with innovative ideas for reusing the Industry’s and city’s wastages.**

Sparked by the idea for proposal of study of the recycling there originated the idea of usage of totally discarded products like used cartons, tires, paper etc. Facilities like waste-to-energy offer a safe, technologically advanced waste disposal system and also renewable energy, reducing greenhouse gas emissions recycling through the recovery of metals are the major advantages.

**Problem Statement: Participants are invited to come up with innovative methods to extract energy from the wastages like Mass Burn plant, Refuse-derived fuel (RDF). Justify your suggestions with some analytical methods like simple life cycle analysis study etc.**

**Structure:**

Those who sent the final report and video of prototype, need to send the final presentation and demonstration of the working prototype on or before 26th November. All the submissions should be mailed to [aahaar@techfest.org](mailto:aahaar@techfest.org).

**Project Report Format****i. Title****ii. Abstract**

1. Objectives
2. Beneficiaries (For whom)
3. Value of results (Use)

**iii. Background****iv. Statement of Problem**

1. Succinct definition of problem (follows from material in the background section)

**v. Research**

1. Present methods of tackling the problem (if any)
2. Proposed Solution
3. Alternate solutions/approaches
4. Novelty of Approach: How is your solution better than existing products that addresses the same problem

**vi. Technical Report**

1. Description of concepts, theories or approach involved in the proposed solution.
2. Technical aspect of the proposed solution.
3. Detailed technical specifications and pictorial representations (block diagrams)
4. Description of the flow of operations demonstrating key features and functionality.
5. Performance estimate of the solution.
6. Experimentation done to establish the workability of the above.
7. A link to the video of the working model/ prototype.

**vii. Results**

1. Description of concepts, theories or approach involved in the proposed solution.
2. Technical aspect of the proposed solution.

3. Detailed technical specifications and pictorial representations (block diagrams)
4. Description of the flow of operations demonstrating key features and functionality.
5. Performance estimate of the solution.
6. Experimentation done to establish the workability of the above.
7. A link to the video of the working model/ prototype.

#### **viii. Application**

1. Your idea as a solution to the problem
2. Additional applications
3. Benefits to the users

#### **ix. Any other specific details**

### **Project Report submission**

The project report should be mailed to [acquanette@techfest.org](mailto:acquanette@techfest.org) with the subject -Ideate: Acquanette: Project Report: Team Id (For example Ideate: Acquanette Project Report: AC1234). Those who sent the final report and video of prototype, need to send the final presentation and demonstration of the working prototype on or before 26th November. All the submissions should be mailed to [aahaar@techfest.org](mailto:aahaar@techfest.org). Teams must follow the following details for the submission:

1. The abstract must be submitted in pdf format only
2. Font: Verdana
3. Size: 11
4. Spacing between two lines: 0.6 inches
5. Spacing between two paragraphs: 1 inch
6. Bottom margin: 1 inch

Along with this, participants will have to make a physical model/prototype for the solution, which will be reviewed in this stage. The participants will be required to submit a project report and a video to demonstrate the progress made on their working model/prototype. The last date for the submission of the project report and the video is 11th November, 2015.

The panel of judges will analyze the report and the video and will give them a detailed feedback on the modifications of the model to achieve better results. The details of the shortlisted participants based on this submission along with feedback from the judges would be communicated to them by 29th November, 2015.

## Prototype and Final Presentation

After declaration of the finalists, participants are required to improve upon the prototype/ working model of their project. They will also have to make a presentation covering the technical and financial aspects of their product in a detailed manner. This final presentation and the video will have to be submitted at [acquanette@techfest.org](mailto:acquanette@techfest.org) before 11th December, 2015. The teams can however, continue to work on their prototypes till 25th December, 2015. The teams will have to bring their prototypes to be judged and showcased at Techfest 2015-16 during 26th to 28th December, 2015. The working prototype should be as close as possible to the product that the team intends to present to the end user. This would also help in deciding a better estimate of the cost of the prototype, reflecting closely the actual cost of the product.

## JUDGING

### General Rules

1. The competition is open to all college students and research scholars free of cost All projects being displayed will have a fair chance of receiving further development opportunities offered by funding organizations and Venture capitalists.
2. Every team has to register online on our website for the competition. A registration number will be allocated to the team on registration which shall be used for future references.
3. A team can register at any point of time before 11<sup>th</sup> November, 2015 and can submit final abstract and video (as mentioned in the structure).
4. The decision of the judges shall be treated as final and binding on all .Techfest has all the rights to verify the identity and accuracy of the details provided by the participants.
5. No responsibility will be held by Techfest, IIT Bombay for any late, lost or misdirected entries or any such events.
6. The idea presented by the teams should be original (not protected by means of patent/copyright/technical publication by anyone).
7. Note that at any point of time the latest information will be that which is on the website. However, registered participants will be informed through mail about any changes on the website.

## Evaluation Criteria

Acquanette will be judged by a panel of experts. Following are the broad guidelines for judging:

1. Innovation and creativity in the method used or product developed will be given high weightage.
2. Implementability of the product to be assessed on the following parameters:
  - I. Technical feasibility
  - II. Cost
  - III. Usability
  - IV. Acceptability
  - V. Market Value and acceptance
  - VI. Reliability/ durability of the product or method developed
  - VII. Number of industrial visits and implementation of product (if happened)
8. Performance
9. Ergonomics if the team decides to make a well-designed product.

In case of any dispute, decision of the organizers or Judges will final and binding on all.

## International Participants

All international participants will have to register before 26<sup>th</sup> November 2015, and will have to submit the complete report along with video prototype before 26<sup>th</sup> November 2015. The shortlisted international team details will be put up on the website by 29<sup>th</sup> November, 2015.

## Certificate policy

Only those teams that are shortlisted for the finals and also give a final presentation about their work during Techfest 2015-16 would be awarded a Certificate of Participation. The top entries from this event would be provided with Certificate of Excellence.

## Team Specifications

The participating entries must be in a team of a maximum of 4[four] people. If the participating team feels that their idea requires more participants in their team, they can forward their request, with suitable reasons, to [acquanette@techfest.org](mailto:acquanette@techfest.org) with the subject "Ideate: Acquanette team number increase".

**TIMELINE:**

Mentorship Stage I	October 10, 2015 to November 14, 2015	Mentors will be allocated for the guidance of the participants.
Registration Deadline	November 26, 2015	Last Day of registration and submission of the project report for both national and international participants.
Project Report Submission	November 26, 2015	Submission of final project report along with video prototype (if any) has to be submitted before this date.
Declaration of Result	November 29, 2015	Declaration of shortlisted teams for final presentation at Techfest, IIT Bombay on the basis of final report and the supporting materials.
Improvisation Stage	December 9, 2015	Shortlisted participants are to improve upon their model and prepare a presentation for the final round.
Final Presentation and Video submission	December 11, 2015	Participants have to submit the final video of prototype and presentation to be displayed during the festival before 12th December.
Presentation Stage	December 26, 2015 to December 28, 2015	Final presentation along with the demonstration of the working prototype