

# Ideation Phase

## Ideate

Date	15 September 2022
Team ID	PNT2022TMID42484
Project Name	Project – Real Time River water monitor and control system
Maximum Marks	4 Marks



## Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

A

### Team gathering

Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B

### Set the goal

Think about the problem you'll be focusing on solving in the brainstorming session.

C

### Learn how to use the facilitation tools

Use the Facilitation Superpowers to run a happy and productive session.

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## Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

### PROBLEM

I am a student, I'm trying to alert the society regarding the polluted water, but society fails to listen, because it is the only source of water, which makes me feel disappointed



### Key rules of brainstorming

To run a smooth and productive session



Stay in topic.



Encourage wild ideas.



Defer judgment.



Listen to others.



Go for volume.



If possible, be visual.

## Brainstorm

Write down any ideas that come to mind that address your problem statement.

🕒 10 minutes

### Person 1

Use pH meter for sensing it's pH value

Add HCL or NaOH to maintain it's pH

pH should be between 6.0 to 9.0

pH indices of less than 7 is termed as acidic solution

pH indices of greater than 7 is termed as basic solution

If the solution is acidic add NaOH to nutralize

If the solution is basic add HCL to nutralize

Acid + Base = salt solution

Further the salt can be removed

### Person 3

Use a conductivity meter to check for the electric conductivity of water

Use EC meter

This is another method to check the purity of water

Electric conductivity occur in water only by two reasons

✓Dissolved salts  
✓Other organic chemicals

There are several meters for monitoring conductivity. But for continuous monitoring EC meter is better

This is the most difficult process....

Salt removal can be done by  
✓ ion exchange  
✓Reverse osmosis  
✓distillation

There are several other factors which causes electric conductivity

Which includes  
✓ temperature  
✓ density  
Etc....

### Person 2

TDS meter can be used to test it's Hardness

TDS - Total Dissolved solid

There are two types of hardness

✓Temporary hardness  
✓Permanent

Temporary hardness causes due to the presence of carbonates and bicarbonate

Permanent hardness can be removed by adding washing soda.

Boiling water can only remove hardness from water temporarily.

Permanent hard water contains chlorides and sulphates of calcium and magnesium

permanent hardness is caused due to the presence of chlorides and sulphates.

Solar way of boiling water provide solution for temporary hardness

### Person 4

Dust particles can be monitored using this project.

This is also called as Turbidity

Temperature also can be monitored using this project.

pH sensor:  
The pH of a solution is the measure of the acidity or alkalinity of that solution.

Turbidity sensor:  
Turbidity is a measure of the cloudiness of water.

Temperature sensor: Water Temperature indicates how water is hot or cold.

Flow sensor:  
Flow sensor is used to measure the flow of water.

Water conductivity sensors are used in water-quality applications to measure how well a solution conducts an electrical current

TOC refers to a Total Organic Carbon analyzer, which utilizes a catalytic oxidation combustion technique at high temperature.

### Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

🕒 20 minutes

## pH

pH indices of less than 7 is termed as acidic solution

pH indices of greater than 7 is termed as basic solution

Use pH meter for sensing it's pH value

Add HCL or NaOH to maintain it's pH

## Hardness

There are two types of hardness

- ✓ Temporary hardness
- ✓ Permanent hardness

TDS meter can be used to test it's Hardness

Temporary hardness causes due to the presence of carbonates and bicarbonate

permanent hardness is caused due to the presence of chlorides and sulphates.

## Electric conductivity

Use EC meter

Electric conductivity occur in water only by two reasons

- ✓ Dissolved salts
- ✓ Other organic chemicals

Others

Turbidity

Temperature





**Prioritize**

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

