

## Ideation Phase

### Brainstorm & Idea Prioritization


Date	17 September 2022
Team ID	PNT2022TMID48692
Project Name	Project – Real Time River Water Quality Monitoring System
Maximum Marks	4 Marks

#### Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

#### Step-1: Team Gathering, Collaboration and Select the Problem Statement



### Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

⌚ 10 minutes to prepare  
🕒 1 hour to collaborate  
👥 2-8 people recommended

**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

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**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.

[Open article](#)

**1 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


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**PROBLEM STATEMENT**


Farmers put fertilizers and pesticides on their crop so that they grow better but these fertilizers and pesticides can be washed through the soil by rain to wind up in the rivers.



If the large amount of fertilizers or the farm waste drain into river the concentration of nitrate and phosphate in the water increases causing the algae to grow and multiply rapidly turning the water green.



The massive growth of algae called eutrophication that leads to pollution. When the algae die they break down by the action of bacteria which quickly multiply using up all the oxygen in the water which leads to the death of many animals.



## Step-2: Brainstorm, Idea Listing and Grouping

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### Brainstorm

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

🕒 10 minutes

#### TIP



You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

### Nandha Kumar G

Each data needs to be in different measures to analyze the quality

Prediction can also be taken from the historical dataset

Keep the data design

The data distribution in the testing data should not affect the training data set.

Various techniques can be included to predict the quality within the application.

Use a minimal number of parameters with cheap sensors to predict water quality

The proposed prediction system will iteratively test the model with training and testing datasets

Data modeling to use the past dataset to inform the future effort

The data mining techniques will be used for applying the classification method for water quality application

Using supervised learning algorithm, water quality class can be predicted

Cross-validation can be used to evaluate method for reducing scales of overfitting and increasing accuracy of the model

Variable importance analysis can increase the accuracies of the models

### Renuga Devi N

Massive dataset and strong correlation between parameters will make the best prediction.

Accurate model can be selected based on the outcome in the model evaluation

Network structure selection method is proposed to identify the correlated input parameters

The size of training datasets should not be less than the number of training parameters required in the model.

Stratified sampling strategy is used to mitigate the uneven distribution of training and testing dataset

The timeline of the measurements must be recorded

A method like neuro-fuzzy inference system can be implemented which is capable of integrating linear and non-linear relationships in dataset.

Evaluating the effect of substantial nutrient loads on overall water quality

Some of the variables can be eliminated due to the meaningless analysis

Parameters like temperature, turbidity, pH and dissolved solids can be used

Feature selection helps to simplify the procedure and reduce computational cost of analysis

The variable importance measure must be weighted sums of the absolute regression coefficients.

### Vikram S

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### Group ideas

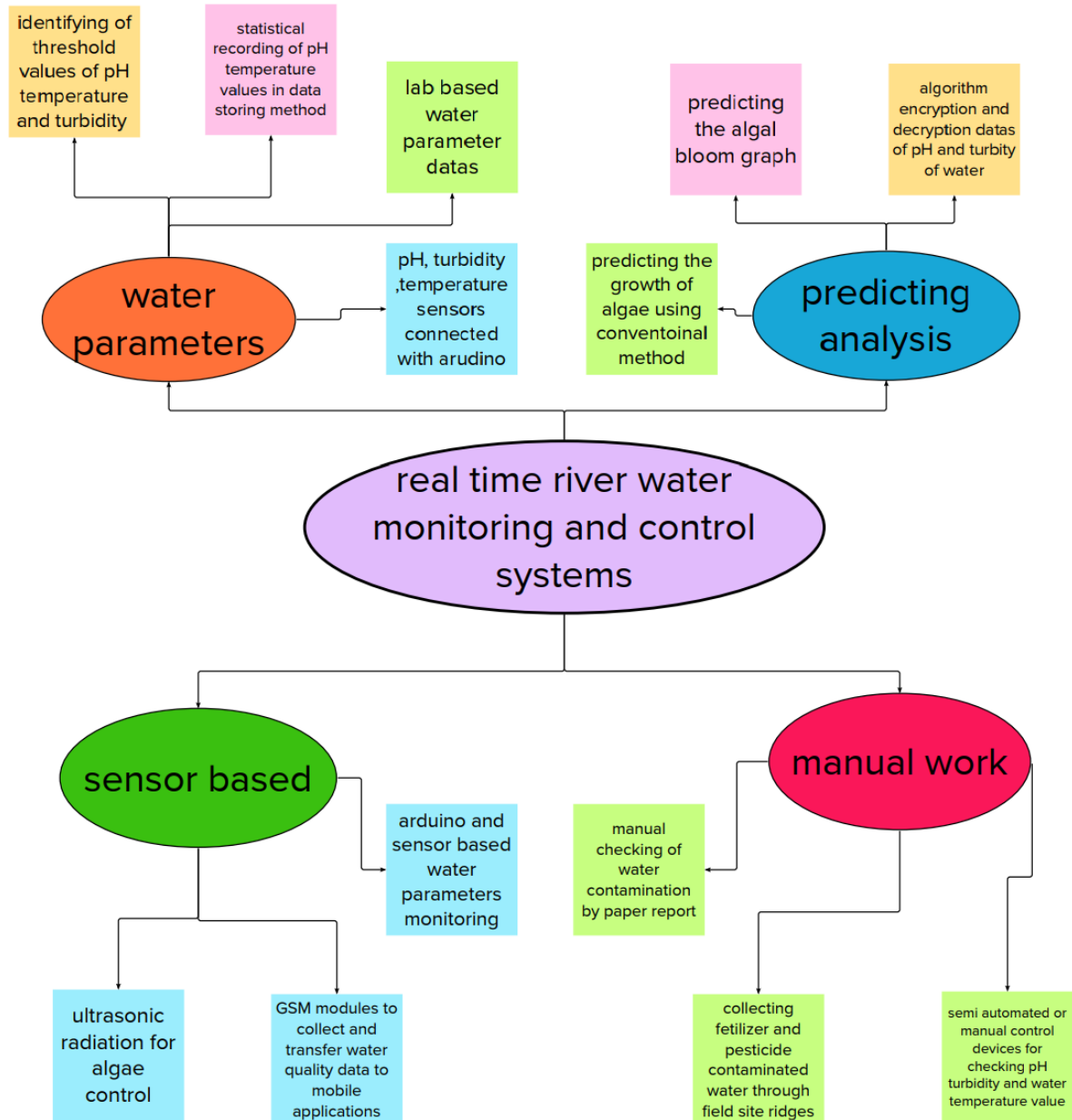
Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

🕒 20 minutes

#### TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Group ideas



## Step-3: Idea Prioritization

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### 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

#### TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H** key on the keyboard.

