

IDEATION PHASE

Date	28 October 2022
Team ID	PNT2022TMID28434
Project Name	Virtual Eye - Life Guard for Swimming Pools to Detect Active Drowning
Maximum Marks	4 Marks

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

# VIRTUAL EYE

## Brainstorm & idea prioritization

In this session we aim to achieve a good base for beginning our project. With clear understanding of the task in hand, the next step would be to collectively put in our thoughts/ imagination and end with a proper feasibility study.

## Ground Rules

- Be Creative
- Rule out every possible ideas and improvements
- Make your points clear and purposeful
- Don't hesitate. (Every point is noteworthy)
- Arguments are good ALA it lands beneficial
- Have various perspectives towards the problem

## Team

Kishore Kumar  
Barani  
Karthika  
Babhu Ganesh

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## Choose your best "How Might We" Questions

Share the top 5 brainstorm questions that you created and let the group determine where to begin by selecting one question to move forward with based on what seems to be the most promising for idea generation in the areas you are trying to impact.

10 minutes

QUESTION 1  
How might we detect and differentiate active drowning with the least possible error rate?

QUESTION 2  
How might we automate the alert systems so as to provide crucial stats and info to the rescue team ?

QUESTION 3  
How might we optimize the detection algorithm to yield results in the least time?

QUESTION 4  
How might we bring more privacy, yet use camera for detection?

QUESTION 5  
How might we optimally use minimal hardware to get the most accurate information in an around the environment?

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## Brainstorm solo

Have each participant begin in the "solo brainstorm space" by silently brainstorming ideas and placing them into the template. This "silent-storming" avoids group-think and creates an inclusive environment for introverts and extroverts alike. Set a time limit. Encourage people to go for quantity.

15 minutes

### Kishore Kumar

High level testing must be carried out before real world deployment.  
Proper hyperparameters must be found for the model  
Systematic and Efficient algorithms to be followed  
Requires HD cameras for good quality frames to be processed  
Underwater cameras a possible solution to detect humans under deep water  
24/7 Power supply is must for the system to run & report  
Provide critical and proper message to the rescue team  
Make sure the stakeholders know, how the system works.  
Make sure the stakeholders understand that there is a possibility for a false alarm as well

### Karthika

The AI should be trained with more samples for better results  
There should be manual alert system in case of detection failure  
More cameras should be used to improve accuracy.  
How will be the accuracy level in the system?  
Will the system detect properly if the pool is clumsy?  
System should detect multiple drowning and should report the same  
For privacy purpose the video stream should not be stored.  
The system shouldnt annoy others  
cameras can be mounted on the bottom of floating boards for large swimming pools.

### Barani

optimized feed transfer to achieve live relay will less BW to get the classifiable video of underwater footage  
able to process absolute drowning and also alerting the rescue team of passive possibilities one or more ways as a probable instance  
setup an ACS and suggest ways to ensure the information reaches in this deals with critical life saving situation  
ensuring ways where there is a 100% guarantee of spotting a drowning situations and placing multiple cameras strategically to achieve results in unpredictable situations  
ensuring the video feed is not being recorded or saved instead being used only for detection which is later discarded  
using alternative source of energy such as solar to make a green system but making sure to always have backup supply  
having an integration with fitness band companies to get vital stats of aswimmer to have better information and predict possibilities of a drowning incident  
having retro reflective indicators given to children and newbies and teaching them signals to make the drowning detection easy  
having considered the metrics and variance of different environments both controlled and liesure

### Babhu Ganesh

power backup should be there in case of powercut.  
The network connectivity should be good for faster alert trasmission.  
cameras should be maintained properly for good results  
What happens if animals were encountered in the pool?  
Use powerful algorithm to get trained from various datasets.  
AI should be trained in such a way that it should detect multiple drowning

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## Brainstorm as a group

Have everyone move their ideas into the "group sharing space" within the template and have the team silently read through them. As a team, sort and group them by thematic topics or similarities. Discuss and answer any questions that arise. Encourage "Yes, and..." and build on the ideas of other people along the way.

15 minutes

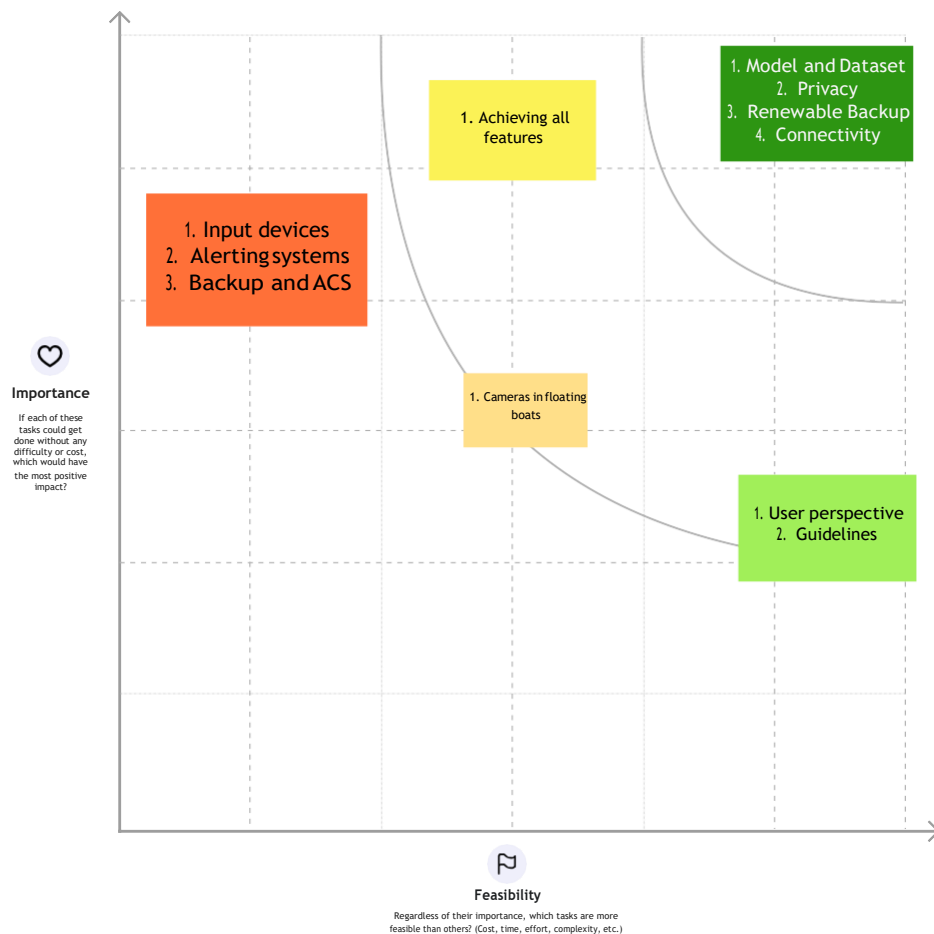


4

## 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



5

## Decide your focus

Give each person two icons to vote which idea should your team focus on & assign the duties & responsibilities

5 minutes

Kishore Kumar  
Backend and Intergration

Barani  
Backend and MLA

Karthika  
Frontend and Design

Babhu Ganesh  
and Utils

## Whats Next...

1. Plan and code an effecient model and train it with the correct hyperparameters to produce a probable and accurate result.
2. Enhance the system to work in a proper environment in an integrated manner to yield a cohesive solution.
3. Create a proper frontend dash to give critial information with atmost clarity and least delay.
4. Comeup with the solution that is minimal, portable less intrusive and cost effective.

