VIRTUAL EYE

1. BRAINSTORM AND 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 all possible ideas and improvements
- Make your points clear and purposeful
- Don't hesitate. [Every point is note worthy]
- Arguments are good ALA it lands beneficial
- Have various perspectives towards the problem

Question 1	Question 2
How might we detect and differentiate active drowning with the least possible error rate?	How might we automate the alert systems so as to provide crucial stats and info to the rescue team?

Question 3	Question 4
How might we Optimize the detection algorithm to yield results in the least time?	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?

2. BRAINSTORM SOLO

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

SRUTHIKA R

High level testing must be carried out before real world deployment	Proper hyper parameter 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 false alarm as well

MICHELLE RUFINA A

Optimized feed transfer to achieve live relay will less

BW to get the classifiable video of underwater footage

Ensuring ways where there is a 100% guarantee of spotting a drowning situation and placing multiple cameras strategically to achieve Results in unpredictable situations

Able to process absolute drowning and also alerting the rescue team of passive possibilities as a probable instance

Having an integration with fitness band companies to get vital stats of a swimmer to have better information and predict possibilities of a drowning incident.

Ensuring the video feed is not being recorded or saved instead being used only for detection which is later discarded

Setup an ACS and suggestive ways to ensure the information reaches in one or more ways as these deals with critical life saving

Having retro reflective indicators given to children and new babies and teaching then signals to make the drowning detection easy

Using alternative source of energy such as solar to make a green system but making sure to always have backup supply

Having considered the metrics and variance of different age groups and also different swimming environments both controlled and leisure

WAMIKA YOGINI J

Power backup should be there in case of power cut.

The network connectivity should be good for faster alert transmission

Cameras should be maintained properly for good results

What happens if animals were encountered in the pool?

When more people are drowning there will be a problem to detect all so multiple cameras are needed to eliminate such problems

Use powerful algorithm to get trained from various datasets.

AI should be trained in such a way that it should detect multiple drowning

VISALTCHI V

The AI should be trained with more samples for better results.

There should be manual alert system in case of detection failure

How will be the accuracy level in the system

Will the 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 should not annoy others

Cameras can be mounted on the bottom of floating boards for large swimming pools.

More cameras should be used to improve accuracy

3. 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.

PRIVACY

Ensuring the video feed is not being recorded or saved instead being used only for detection which is later discarded

For Privacy purpose the video stream should not be stored

USER PERSPECTIVE

Make sure the stake holders understand that there is a possibility for a false alarm as well

The system should not annoy the swimmers

Make sure the stake holders know how the system works and understand the possibility for system work.

CAMERAS AND HARDWARES

Cameras should be maintained properly for good results

Cameras as should be mounted on underwater and bottom of floating boards for detecting drowning effectively especially on large swimming pools

System should detect multiple drowning and should report the same

FEATURES

Having retro reflective indicators given to children and new babies and teaching them signals to make the drowning detection easy.

Having an integration with fitness band companies to get vital starts of a swimmer to have better information and predict possibilities of a drowning incident

Will the detect system properly if the pool is clumsy?

When more people are drowning there will be a problem to detect all so multiple cameras are needed such problems

NETWORK AND CONNECTIVITY

The network connectivity should be good for faster alert transmission.

Optimized feed transfer to achieve live relay will less BW to get the classifiable video of underwater footage

POWER

24 / 7 Power supply and power backup must for the system to run and report proper alerts to resucue team

Using alternative source of energy such as solar to make a green system but making sure to always have backup supply

Power backup should be there in case of power cut

AI and ML

Proper hyper parameters must be found for the model

Able to process absolute drowning and also alerting the rescue team of passive possibilities as a possible instance

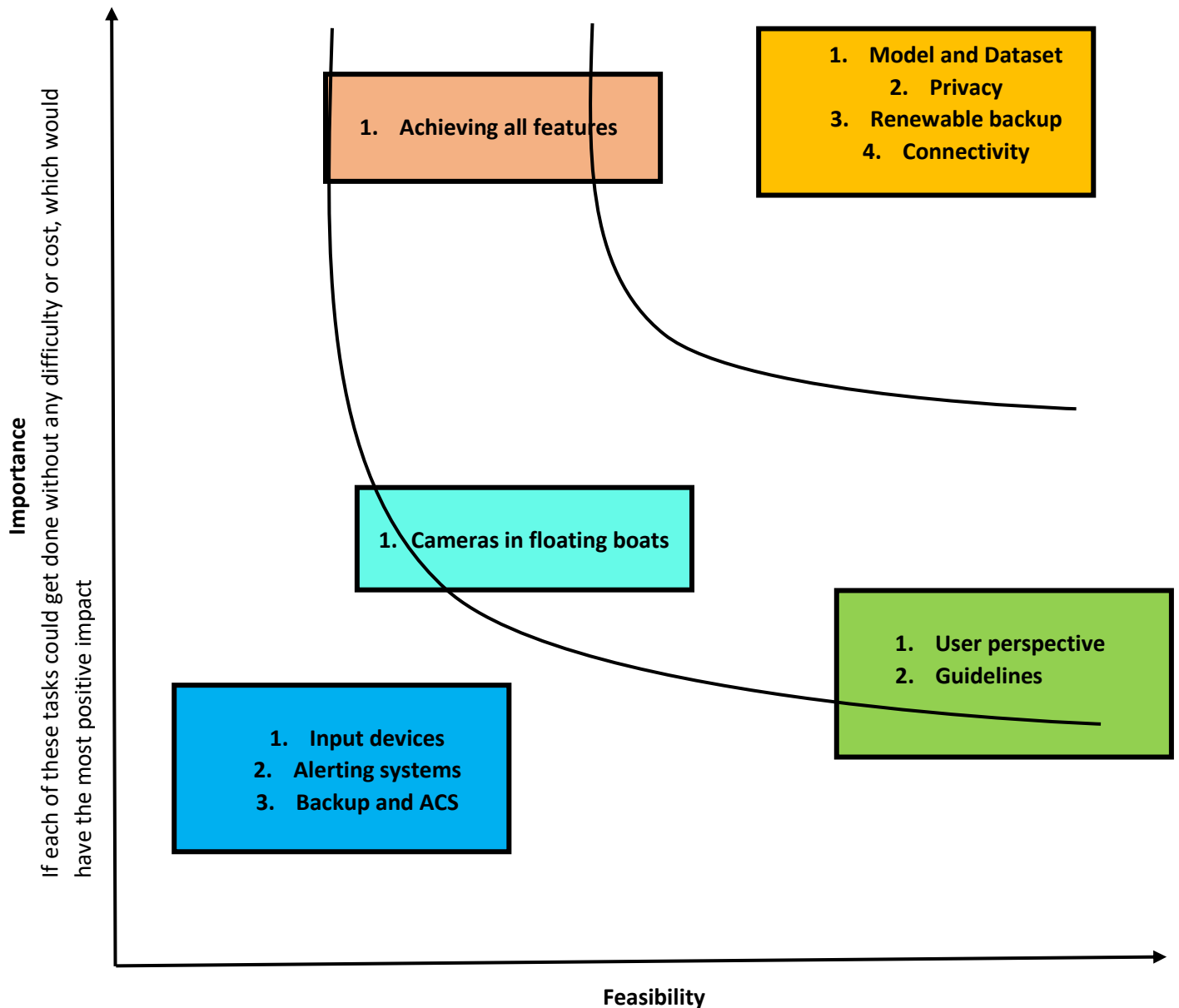The AI should be trained with more samples for better results

AI should be trained in such a way that it should detect multiple drowning

High level testing must be carried out before real world deployment

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.

Importance
If each of these tasks could get done without any difficulty or cost, which would have the most positive impact

Achieving all features

1. **Model and Dataset**
2. **Privacy**
3. **Renewable backup**
4. **Connectivity**

1. Cameras in floating boats

1. **User perspective**
2. **Guidelines**

1. **Input devices**
2. **Alerting systems**
3. **Backup and ACS**

Feasibility

Regardless of their importance, which task are more

Feasible than others? [Cost, Time, Effort, Complexity, etc.,]

5. DECIDE YOUR FOCUS

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

SRUTHIKA R	**MICHELLE RUFNIA A**
Backend and Integration	Backend and MLA
WAMIKA YOGINI J	**VISALTCHI V**
Frontend and Design	Design and Utils

What's next…

1. Plan and code an efficient 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 critical information with at most clarity and least delay.
4. Come up with the solution that is minimal, portable less intrusive and cost effective.