

Ideation Phase

Brainstorm & Idea Prioritization Template

Date	18 October 2023
Team ID	Team-593135
Project Name	Ship Classification
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.

Reference: <https://www.mural.co/templates/empathy-map-canvas>

MURAL Link:

<https://app.mural.co/t/shipclassification1355/m/shipclassification1355/1697644256530/30de3f136daf871c74cf19c75da2ae95f6c2ba1b?sender=ua9f0cd00493f380dbd149083>

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



Brainstorm & idea prioritization

SHIP CLASSIFICATION

🕒 10 minutes to prepare
🕒 1 hour to collaborate
👤 4 people

➔

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
Naresh Reddy Vemireddy
SSV Lohith
Mukhul Reddy Meika
Parmitha Reddy M

B Set the goal
Ship Classification

C Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

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1

SHIP CLASSIFICATION

To develop an end-to-end deep learning solution for Classification of ship images into Five categories: cargo,military,cruise,tankers,carrier

🕒 5 minutes

PROBLEM

How might we detect ships to classify using images?

Early detection allows an early alert to defence teams and more use full to clear traffic and of major problems of crashes

Key rules of brainstorming

To run a smooth and productive session

- Stay in topic.
- Defer judgment.
- Go for volume.
- Encourage wild ideas.
- Listen to others.
- If possible, be visual.

Step-2: Brainstorm, Idea Listing and Grouping

2

Brainstorm

The proposed solution involves the use of convolutional neural networks(CNN) to extract relevant features from the input images and classify them to 5 categories

🕒 10 minutes

Person 1

Collect a diverse dataset of ship images, including all types and various categories based on size. Proper data preprocessing and augmentation are essential to ensure data quality.

Implement image processing techniques to enhance the quality of images, and extract relevant features such as color, texture, and shape to improve the classification accuracy.

Person 2

Develop a user- friendly interface, either a mobile app or a web platform, for defence team or users to easily upload images and receive the ship data classification results.

Explore the possibility of real-time monitoring using IoT devices and cameras on towers in seas to continuously assess the traffic of the ships.

Person 3

Extend the model to classify multiple number of ships within a single image

Explore techniques for identifying not only the presence of ship but also its location on the sea, as this can aid in finding the correct location.

Person 4

Develop and train deep learning models such as Convolutional Neural Networks (CNNs) for ship classification.

Provide a feedback support to understand more about the types of ships

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, 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

Data Collection and Preparation:

1. Collect a diverse dataset of ship images, including all big and small ships. 2. Implement data preprocessing and augmentation techniques to improve data quality.

Design model and Architecture of the user interface and use proper methodologies

Image processing and deep learning: Image processing and deep learning algorithms can be used to analyze images of ships and identify types at an early stage.

Train the model with various data sets so that there will be no error while detecting type of ship

Educate the port guards about the issue on traffic and educate the port guards about how to use the technology

Deploy the model and Create a user-friendly interface, either a mobile app or web platform and observe the traffic and observe the results

Step-3: Idea Prioritization

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

