

## Ideation Phase Brainstorm & Idea Prioritization

Date	17 September 2022
Team ID	PNT2022TMID46401
Project Name	Project – A Novel Method for Handwritten Digit Recognition System.
Maximum Marks	4 Marks


### Brainstorm & Idea Prioritization :

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>

### 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

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BEFORE GOING TO COLLABORATE

Collect the information regarding the problem statement with the help of reference papers, existing solution and research papers.

Taking 2 hours to complete

TEAM GATHERING

All the team members in our team together in a GoogleMeet to collaborate our ideas.


SETTING THE GOAL

Our goal is to fund a better system to recognize the undefined handwritten digits using AI

Learning about various tools and prerequisite for further preceeding the project.

DEFINE THE PROBLEM STATEMENT

Handwritten Digit Recognition system is a process to provide the ability to machines to recognize human handwritten digits. Handwritten digits are not perfect, vary from person to person, can be made with different flavors. Sometime characters (digits 0-9) looks similar makes it hard for computer to recognize accurately.



#### Key rules of brainstorming

To run an smooth and productive session

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

#### PROBLEM

How to recognize the undefined handwritten digits with the use of artificial intelligence?

## 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

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### 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

Abimanyu

Maheshkumar

Udhaya

MuhilDhinesh

Use MNIST dataset for data recognition

artificial neural network and deep learning

connection temporal classification (etc) algorithm

decision tree for repeated training

Using Touch panel for entering the data.

shape, slant and slope analysis of digit's image

neural network uses examples to automatically infer rules for digit recognition

OCR technology

Import more training and testing dataset.

handwritten digits digitalized through scanners and cameras

increased number of training improve accuracy

image classification, object detection, instance segmentation methods

Performing Convolution layer and ANN for data processing

OCR techniques to recognize each digit

offline recognition by optical scanning & intelligent word recognition

Using MNIST dataset

Usage Open CV

import and use vast libraries present in python

object identification, edge detection techniques

using convolutional neural network in deep neural network

use MNIST dataset which classifies given digit into one of ten classes representing integer values from 0 to 9

use CNN because CNN is SUPERVISED type of DEEP LEARNING which is most preferable in image recognition & computer vision

MNIST dataset uses CNN to get accuracy

the CNN is applicable for 1D and 2D array of data

the MNIST database can be used to train a CNN to predict the given digit image

import python and open cv libraries and load the data set

### 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

