IDEATION

The reason behind this document is to look into the ideation possibilities of the proposed system.

Pre-Processing:

The role of the pre-processing step is that it performs various tasks on the input image. It basically upgrades the image by making it reasonable for segmentation. The fundamental motivation behind pre-processing is to take off a fascinating example from the background. For the most part, noise filtering, smoothing and standardization are to be done in this stage. The pre-processing additionally characterizes a smaller portrayal of the example. Binarization changes over a grey scale image into a binary image.

Segmentation:

Once the pre-processing of the input images is completed, sub-images of individual digits are formed from the sequence of images. Pre-processed digit images are segmented into a sub-image of individual digits, which are assigned a number to each digit. Each individual digit is resized into pixels. In this step an edge detection technique is being used for segmentation of dataset images.

Feature Extraction:

After the completion of pre-processing stage and segmentation stage, the pre-processed images are represented in the form of a matrix which contains pixels of the images that are of very large size. In this way it will be valuable to represent the digits in the images which contain the necessary information. This activity is called feature extraction. In the feature extraction stage redundancy from the data is removed

Classification and Recognition:

In the classification and recognition step the extracted feature vectors are taken as an individual input to each of the required classifiers.

Below are the steps to implement the handwritten digit recognition project:

1. Import the libraries and load the dataset. First, we are going to import all the modules that we are going to need for training our model.
2. Pre-process the data.
3. Create the model.
4. Train the model.
5. Evaluate the model.
6. Create GUI to predict digits.