**Detailed Description**

1. **System Architecture**

Preprocessing

Import Dataset

Initialize a Modal

Build a Multi layer CNN

Train Modal

Evaluate Modal

Classify Digit

1. **UML/ER Diagrams**

Yet to do

1. **Module Description**
   1. **Dataset**

Handwritten character recognition is an research area that already contains detailed ways of implementation which include major learning datasets, popular algorithms,features scaling & feature extraction methods. MNIST dataset (Modified National Institute of Standards and Technology database) is the subset of the NIST dataset which is a combination of two of NIST's databases: Special Database 1 and Special Database 3, which consist of digits written by high school students and employees of the United States Census Bureau, respectively. MNIST contains a total of 70,000 handwritten digit images, out of which 60,000 are used for training set and 10,000 are used for test set. Each image is has a dimension of 28x28 pixel and are anti-aliased. All these images have corresponding Y values which tells what the digit is.

* 1. **Multilayer perception**

Yet to do

**3.3 Convolutional Neural Network**

Yet to do

1. **DFD**

User

CNN for Digit Recognition

Output

Image

Processing