## Project Design Phase-2

## Solution Requirement(Functional and Non-Functional)

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|---|---|
| Date | 12 October 2022 |
| Team Id | PNT2022TMID25508 |
| Project Name | A Novel Method For Hand Written Digit Recognition |
| Maximum Marks | 4 Marks |

## Functional Requirements:

Following are the functional requirements of the proposed solution.

| FR_NO | Functional Requirement (Epic) | Sub Requirement(Story/Sub-Task) |
|---|---|---|
| FR-1 | OpenCV | The Opencv(Open Source Computer Vision Library) is a python DIL library which is very updated in the work of Image processing .One image file and pixel values can easily come into surface by this library.This library provides a common infrastructure and module related to computer vision technologies.The most important thing about this tool is it is totally free and can be easily modified and changed respective to input by the programmer. |
| FR_2 | Tensorflow | TensorFlow is an end-to-end open source package in python for machine learning. It has a comprehensive, flexible ecosystem of tools, libraries and community resources that lets researchers push the state-of-the-art in ML and developers easily build and deploy ML powered applications |
| FR-3 | PIL | PIL is a library of advanced image tools having full name Pillow.It is used for noise cancellation and to draw modified pixels by noise.It is useful to Image crop and various subjectial techniques |

## **Non-Functional Requirement**:

Following are the non-functional requirement of the proposed solution.

| **NFR-NO** | **Non-Functional Requirement** | **Description** |
|---|---|---|
| NFR-1 | Usability | This software will deliver on the functional requirement mentioned in this document. |
| NFR-2 | Security | This software is very easy to use and reduce the learning work. |
| NFR-3 | Reliability | This software will work reliably for low resolution images and not for graphical images. |
| NFR-4 | Performance | Hand written characters in the input image will be recognized with an accuracy of about 90% and more. |
| NFR-5 | Availability | This system will retrieve the handwritten text regions only if the image contains written text in it. |
| NFR-6 | Scalability | It provides the user to load the image easily. |