**Project Manual**

**HandWritten Digit Recognition**

**Project Manual:** After Running the system UI will show the following options button:

1. Generate Dataset
2. Train the model, Save it and Calculate accuracy
3. Live prediction

**Generate Dataset:** Work of this function is to collect all the train and test data and convert it through multiple image processing techniques for increasing the accuracy of the model. For the first time running the system it is necessary to generate the dataset but once it is generated no need to run the function until no changes are made on the train and test data.

**Train the model, Save it and Calculate accuracy:** This function retrieves the converted dataset and fits in the SVM algorithm for training and testing purposes. As it is a desktop base system so each time when a user will open the system it is required to run this function for training the model. Moreover it shows the testing accuracy of the model.

**Live prediction:** In order to recognize a handwritten digit this function is used. When a user runs the function it will open the microsoft paint from his/her computer. Then the user has to place the pain in the top left corner of the screen. After each 10 seconds this system will automatically capture an image from the paint and try to predict the image using the trained model. So the user has to write a digit on the paint. This system will try to predict the digit and show the predicted value on a new window.