Project Title: A Novel Method for Handwritten Digit Recognition System **Project Design Phase-I - Solution Fit Template** **Team ID: PNT2022TMID03378**

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

- Customer under banking sector.
- Customer in post offices for arranging letters.

6. CUSTOMER CONSTRAINTS CC

- Customers are not aware about this application.
- Network connectivity issues may occur.
- Procedure for detecting the image may take some time.

5. AVAILABLE SOLUTIONS AS

- By Installing Digit Recognizer app that is available on play store.
- By using snapLogic website we can recognize the handwritten digits.

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS J&P

JOBS-TO-BE-DONE

- Postal Mail sorting ,bank check processing ,Form Data Entry.

PROBLEMS

- Process getting slow to recognize the digits.
- Time taken to scan and upload images is slower. process.

9. PROBLEM ROOT CAUSE RC

- Customers are not aware about this application.
- Network connectivity issues may occur.
- Procedure for detecting the image may take some time.

7. BEHAVIOUR BE

- neural networks and conventional neural network currently provide the best solutions to many problems in handwritten digit recognition

Focus on J&P, tap into BE, understand RC

3. TRIGGERS TR

- It gives more efficient accuracy for finding the digits that are uploaded as an image.
- Not able to guess the digits sometimes.

10. YOUR SOLUTION SL

- Handwritten digits recognition has become a vital scope and is appealing to many researchers because of its use in a variety of machine learning

8. CHANNELS of BEHAVIOR CH

ONLINE

- To provide efficient and reliable techniques for recognition of handwritten numerals by comparing various existing classification models.

	4. EMOTIONS: BEFORE / AFTER EM BEFORE: ● To detect any handwritten digits from various sources is quite difficult. ● Photographs, papers and touch displays and classifying them into ten specified categories 0-9 is difficult. AFTER ● The use of in-depth learning methods, human efforts can be reduced. ● Low confidence on guessing the digits.	and computer vision applications. ● In recent years, neural networks and conventional neural networks currently provide the best solutions to many problems in handwritten digit recognition. A novel hybrid CNN SVM model for handwritten digit recognition. This hybrid model automatically extracts features from the raw images and generates the predictions. ● Nowadays the whole world is a shift in the digital world. They want everything in digital form, they are not ready for manual work or any manual handwritten transaction. So they use this application.	● Online digital recognition on PC tablets, posting zip codes, processing bank check rates, handwriting numerical categories (for example- tax forms) and more. **OFFLINE** ● A complete offline application built using python libraries that uses a neural network in order to predict the digit drawn over screen. Modules Tensorflow for neural.	