Project Title: A Novel Method for Handwritten Digit Recognition System **Project Design Phase-I - Solution Fit** Team ID: PNT2022TMID41196

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

Who is your customer?

1. Bank sector
2. Public sector
3. Post office
4. Blind person
5. number plate
6. recognition
7. Online recognition
8. Offline recognition
9. Signature verification
10. Postal address interpretation
11. Bank-Check processing

6. CUSTOMER CONSTRAINTS

What constraints prevent your customers from taking action or limit their choices of solutions?

1. Spending more time in queue and sorting mails take long time
2. Not enough method to recognize input data in previous solution.
3. Spending data for online mode.
4. Requires much more computation cannot determine symbols, age, personality.

5. AVAILABLE SOLUTIONS AS

Which solutions are available to the customers when they face the problem

1. Different styles of jotting of different peoples as it is not an Optic character recognition.
2. Separate digit give good accuracy Has holistic method estimate complicate
3. segmentation and quickly perform the task using dataset

Explore AS, differentiate

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

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

Which jobs-to-be-done (or problems) do you address for your

1. Problems with letter shapes. Problems with spacing.
2. Problems with grip and posture.
3. Many algorithms have been developed to recognize handwritten digits.
4. Due to infinity variety of writing styles, they are still inadequate.customers? There could be more than one; explore different sides.

9. PROBLEM ROOT CAUSE RC

What is the real reason that this problem exists? What is the back story behind the need to do this job?

The high variance in handwriting styles across people and poor quality of the handwritten text compared to printed text pose significant hurdles in converting it to machine readable text. Nevertheless it's a crucial problem to solve for multiple industries like healthcare, insurance and banking.

7. BEHAVIOUR BE

What does your customer do to address the problem and get the job done?

working hard on machines to make them more smart and intelligent by using machine learning and deep learning techniques so that they can perform tasks similar to humans. With the help of these techniques ***human effort can be reduced and much time can be saved in recognizing, learning, predictions and many other areas.***

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

Identify strong TR & EM

3. TRIGGERS TR

What triggers customers to act?

Digital automatization of world, example work in postal, number plate recognition

4. EMOTIONS: BEFORE / AFTER EM

How do customers feel when they face a problem or a job and afterwards?

Before

Depression ,anxiety, stress

After

Feeling smart, active and better approach.

10. YOUR SOLUTION SL

If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality.

The main objective of this work is to ensure effective and reliable approaches for recognition of handwritten digits and make operations like vehicle number plate detection, postal locations, data entry easier and error-free. This method is for increasing efficiency of the learning algorithm by preprocessing the images and increasing The performance for real time application. With the usage of MNIST technology database accuracy is obtained..

8. CHANNELS of BEHAVIOUR CH

ONLINE

What kind of actions do customers take online?

recognition is performed when digits are under creation

OFFLINE

What kind of actions do customers take offline?

first document are generated , scanned, stored in computer and they are recognized.

Extract online & offline CH of BE