Project Title: A Novel Method for Handwritten Digit Recognition System **Project Design Phase-I – Problem Solution Fit** **Team ID: PNT2022TMID01653**

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

- Bank employee who has to convert written info to digital.
- Students who wants to share home work to one another.
- Office works who has to upload written report to digital repository

6. CUSTOMER CONSTRAINTS CC

- To use this method needs proper camera or phone.
- Machines cannot be used for this action since it need human adjustment and alteration.
- Language can be a barrier because some words are just don't have meaning on their own.

5. AVAILABLE SOLUTIONS AS

- There is solution to this problem but most of them is inaccurate and cannot be used without prior knowledge.
- Deep learning Al can be used to train the system to recognize different hand writing. Gaussian Naïve Bayes.

Explore AS, differentiate

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

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

- To be able to recognize running letters which is written by human.
- It is not done in real time as a person writes and therefore not appropriate for immediate text input.
- Hard to recognize digits in dim light and weak eye sight.

9. PROBLEM ROOT CAUSE RC

- Every person does not have same hand writing.
- Hand written digits vary in font size. Thus they are becoming increasingly difficult to ascertain due to various factors such as weakening eye-sight, time constraints, etc.

7. BEHAVIOUR BE

- Designing the best software that more quickly and accurately identifies the handwritten digits.

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

Identify strong TR & EM

3. TRIGGERS TR

- To wait for manual confirmation of digits.

4. EMOTIONS: BEFORE / AFTER EM

Before: Feel exhausted and it easily gets tiresome to swift through data all day. It also leads to stress and irritation.

After: Digitalization of hand written digits is done efficiently and easily without human interaction.

10. YOUR SOLUTION SL

- Novel method for handwritten digit recognition system helps in recognizing the handwritten digits that uses MNIST dataset for training the model. The model gets the image of the handwritten digit and recognizes the handwritten digit. Convolution neural networks algorithm is used over the MNIST dataset to recognize the handwritten digits.

8. CHANNELS of BEHAVIOUR CH

8.1 – the user can make a real time recognition of digits using the model.

8.2 – The user using the system can take breaks and save time just guiding the machine. Efforts are reduced significantly on manual side.

Identify strong TR & EM