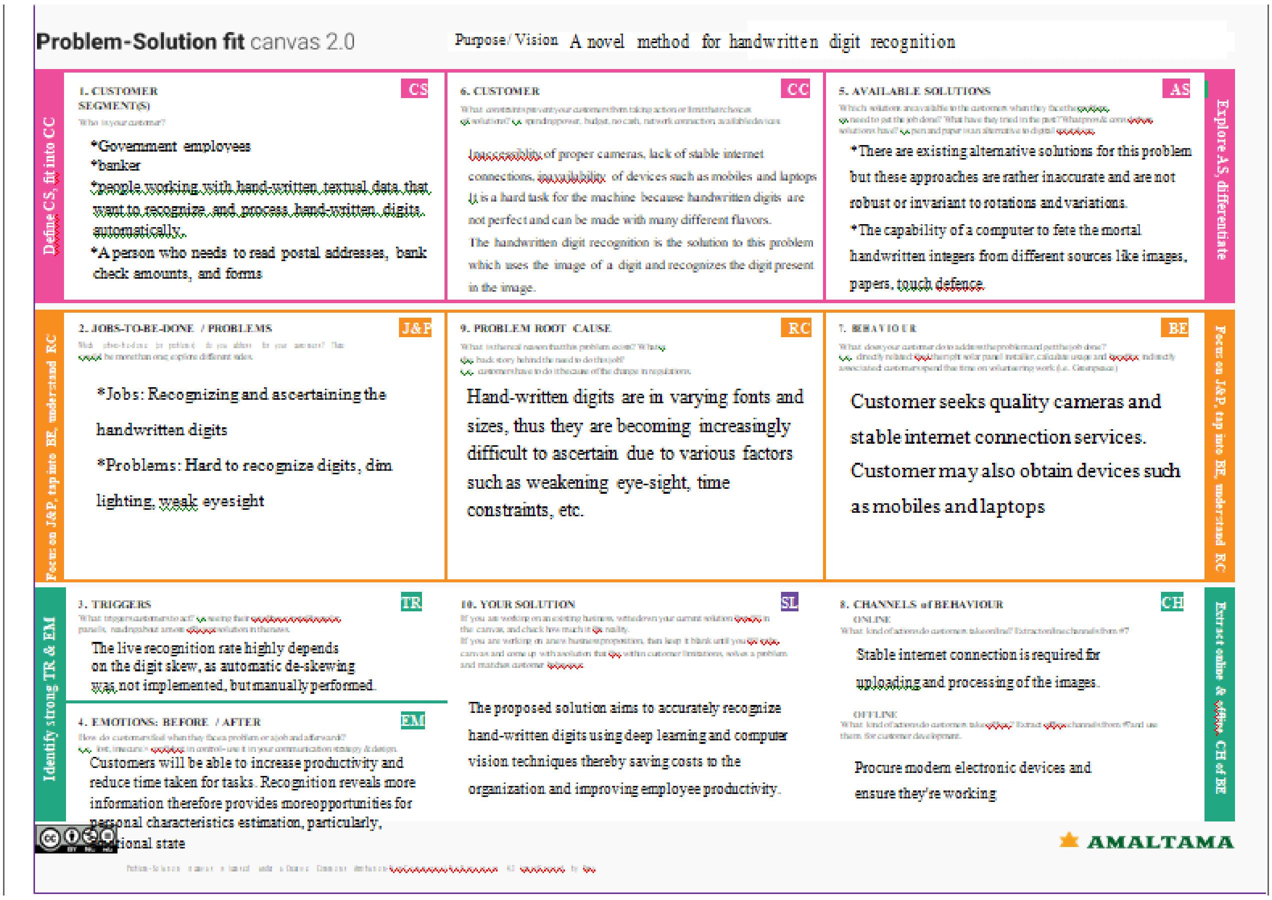
Project Design Phase-I
Problem – Solution Fit

Date	27 September 2022
Team ID	PNT2022TMID27796
Project Name	A novel method for handwritten digit recognition
Maximum Marks	2 Marks

Problem-Solution Fit Canvas:


Define CS, fit into CC
Explore AS, differentiate
Focus on J&P, tap into BE, understand RC
Focus on J&P, tap into BE, understand RC
Identify strong TR & EM
Extract online & offline CH of BE
CS
CC
AS
J&P
RC
BE
TR
EM
SL
CH
AMALTAMA

Problem-Solution fit canvas 2.0

Purpose/ Vision A novel method for handwritten digit recognition

1. CUSTOMER SEGMENT(S)

Who is your customer?

*Government employees
*banker
*people working with hand-written textual data that want to recognize and process hand-written digits automatically.
*A person who needs to read postal addresses, bank check amounts, and forms

6. CUSTOMER

Inaccessiblity of proper cameras, lack of stable internet connections, inavailability of devices such as mobiles and laptops. It is a hard task for the machine because handwritten digits are not perfect and can be made with many different flavors. The handwritten digit recognition is the solution to this problem which uses the image of a digit and recognizes the digit present in the image.

5. AVAILABLE SOLUTIONS

*There are existing alternative solutions for this problem but these approaches are rather inaccurate and are not robust or invariant to rotations and variations.
*The capability of a computer to fete the mortal handwritten integers from different sources like images, papers, touch defence.

2. JOBS-TO-BE-DONE / PROBLEMS

*Jobs: Recognizing and ascertaining the handwritten digits
*Problems: Hard to recognize digits, dim lighting, weak eyesight

9. PROBLEM ROOT CAUSE

Hand-written digits are in varying fonts and sizes, thus they are becoming increasingly difficult to ascertain due to various factors such as weakening eye-sight, time constraints, etc.

7. BEHAVIOUR

Customer seeks quality cameras and stable internet connection services. Customer may also obtain devices such as mobiles and laptops

3. TRIGGERS

The live recognition rate highly depends on the digit skew, as automatic de-skewing was not implemented, but manually performed.

4. EMOTIONS: BEFORE / AFTER

Customers will be able to increase productivity and reduce time taken for tasks. Recognition reveals more information therefore provides moreopportunities for personal characteristics estimation, particularly, emotional state

10. YOUR SOLUTION

The proposed solution aims to accurately recognize hand-written digits using deep learning and computer vision techniques thereby saving costs to the organization and improving employee productivity.

8. CHANNELS of BEHAVIOUR

ONLINE

What kind of actions do customers take online? Extract online channels from #7

Stable internet connection is required for uploading and processing of the images.

OFFLINE

Procure modern electronic devices and ensure they're working