

Automated Cheque Processing

Hackathon

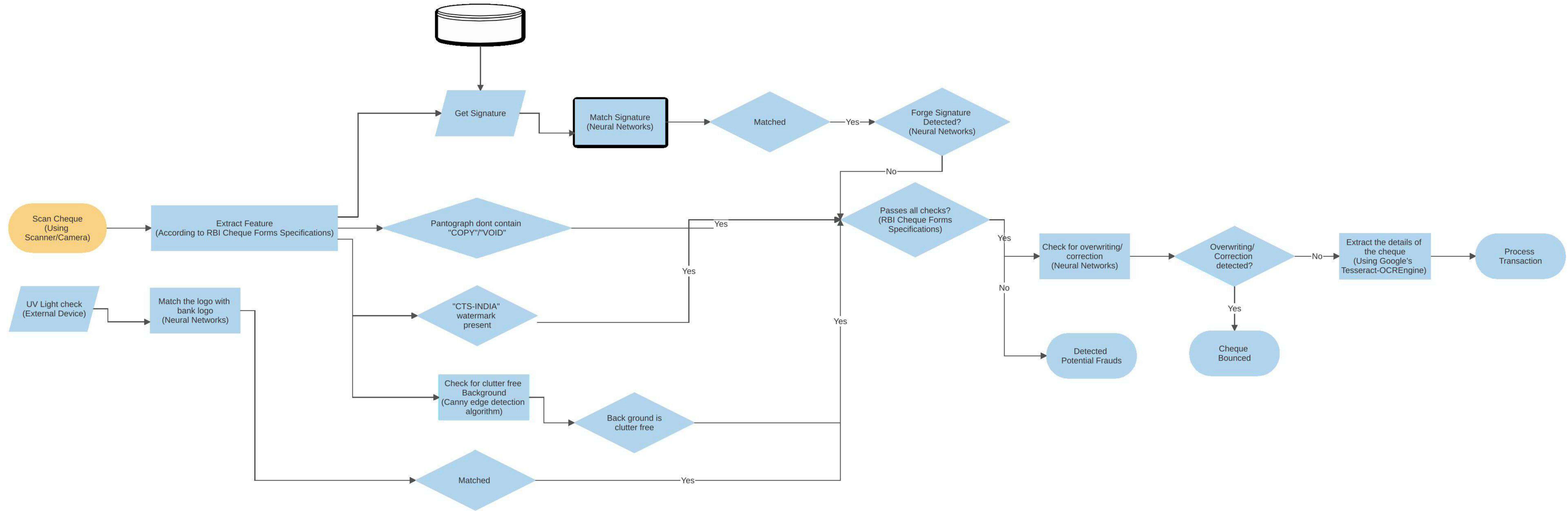
Problem Statement

Bank handles large volumes of cheques in the clearing process. The process involves many technical verifications including signature verification. Some of these steps are manual and require human intervention to complete the process. The current process requires the high human capital deployment and longer processing time.

Goals

1. **Detecting Potential Frauds:** Automate the verification of security features given by RBI's ["CTS-2010 Standard" for Cheque Forms – Specifications](#) using different Neural Network techniques and image processing.
2. **Signature Verification:** Extract and match the signature in the cheque with the signature in the bank database. Also check for signature forgery using convolutional neural network.
3. **Automatic Data Entry:** Extract the data from the cheque using [Google's Tesseract-OCR Engine](#)(configured for Multiple Languages) and entry the data to process the transaction.
4. **Optimise the Neural Network models:** Use different optimisation techniques to make the verification process faster with high accuracy.
5. **Minimize Human effort:** Minimize human effort by minimizing false positive of fraud detection and signation verification. With accurate OCR.

Flow Chart



Implementation Plan

- **Scan the cheque:** Make a frontend in python that can take a picture from camera/scanner attached to the computer or import from file with support to import a large number of images together.
- **UV Light Check:** UV light check will be done using an external device with human intervention or automated with some IOT device and should be matched with bank logo with the help of neural networks.
- **Extract different parts of Cheque:** Extract different parts of cheque using RBI's ["CTS-2010 Standard" for Cheque Forms – Specifications](#) for verification.
- **Match Signature from bank database:** Match the signature from cheque with signature from bank database. Also check for forged signature using neural networks.
- **Check the Pantograph:** The pantograph will be checked for words like "VOID" / "COPY"
- **Check for clutter free background:** The background will be checked for clutter free background (the writings in background should be distinct) using canny edge detection algorithm.
- **Check for watermark:** The cheque should be checked for "CTS-INDIA" watermark.
- **Validating the cheque:** If all checks pass then proceed to next step else detection of potential frauds.
- **Check for overwriting/correction:** The writing should be checked for overwriting/correction using neural networks if found bounce the cheque.
- **Data Entry:** After all the verification is done the details of the cheque will be extracted using [Google's Tesseract-OCR Engine](#) (configured for Multiple Languages) and start transaction process.

Banks Logo

XYZ Bank
Branch Address

IFSC :

Banks'
Invisible
Logo

24.3 MM

D D M M Y Y Y Y

Pay

8 MM

Rupees रुपये

5.3 MM

5.3 MM

101 MM

MICRO-LETTERING

39 MM

या धारक को or Order

अदा करें।

रु. Rs.

29 MM

101 MM

A/c No.

10.3 MM

23 MM

VOID PANTOGRAPH

11 MM

39 MM

CTS Water
Mark

SAMPLE

Please sign above

MICR BAND

⑈000000⑈

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