
FNB ATA SCIENCE INTERVIEW PRESENTATION

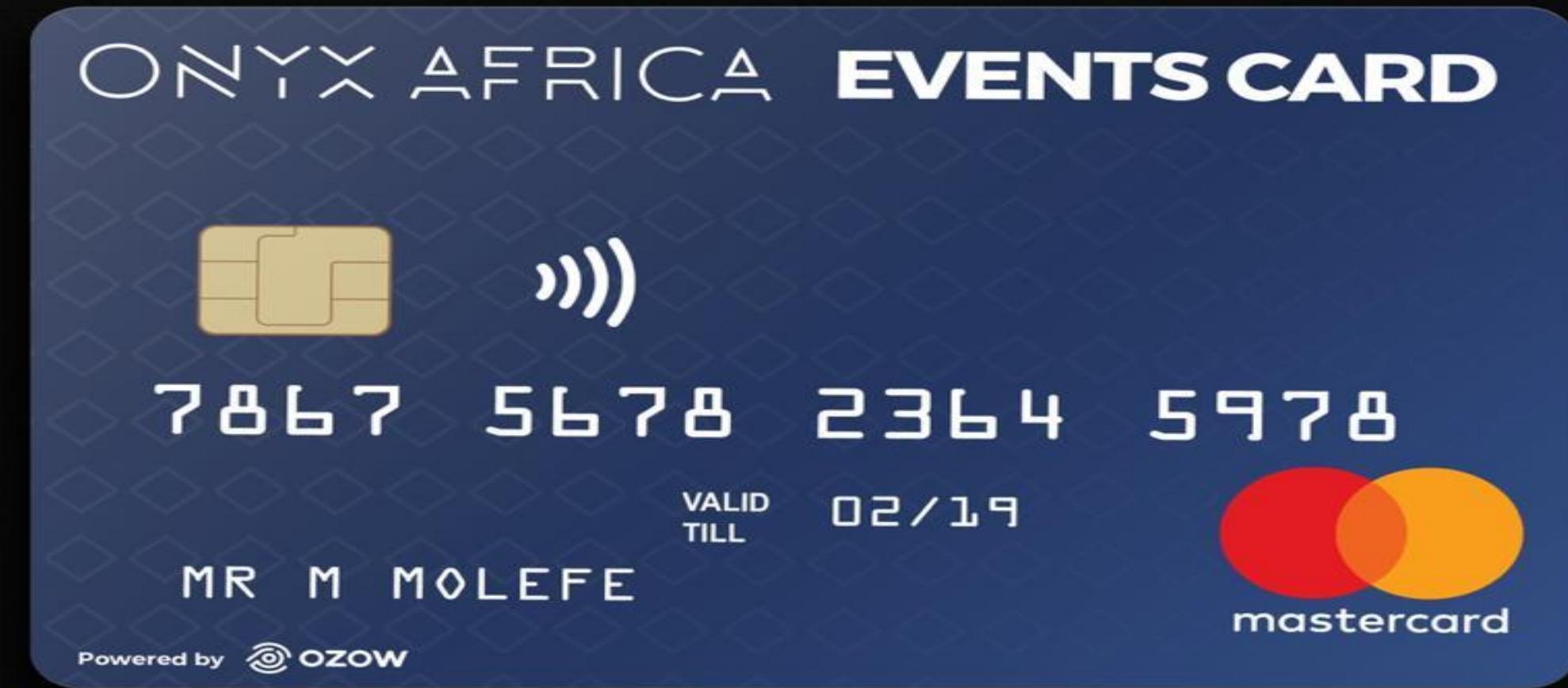
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Onyx Africa Events

A temporary Virtual Debit MasterCard:

- Offers users a Virtual Wallet to store ticket sales
- card expires a day/two after specific event

Powered and enabled by Ozow and MasterCard. Ozow is an instant smart EFT payment service that allows your customer to make secure online payments directly into your bank account.



ONYX AFRICA

Why virtual cards for events?

Most recreational events are seasonal - either once/twice a year.

This leads to event hosts avoiding to register a formal bank account for their event to avoid recurring banking costs.

Virtual Cards can be programmed to expire.

Serve as a single savings wallet for the host to accept EFTs instantly (administered by Ozow) into their temporary MasterCard from event attendees that require a ticket or entrance into an event when a ticket is required for entrance

Can transfer the money from the wallet after the event and card becomes obsolete.

A close-up photograph of a clear incandescent lightbulb resting on a dark, textured surface. Around the bulb, there are several white chalk outlines of speech bubbles of various sizes, suggesting a conversation or interview process. The background is slightly blurred, showing the edges of what might be a notebook or a folder.

The card would go a long way in helping me have all my money for the event in a card separate from my personal one.

— Rofhiwa Kutama “

FNB INTERVIEW

FIRST PHASE:

Optical Character Recognition (OCR) using template matching via OpenCV and Python was used

The template matching OCR approach was applied to recognize the type of a credit card along with the 16 credit card digits.

To accomplish this, we broke our image processing pipeline into 4 steps:

1. Detecting the four groups of four numbers on the credit card via various image processing techniques, including morphological operations, thresholding, and contour extraction.
2. Extracting each of the individual digits from the four groupings, leading to 16 digits that need to be classified.
3. Applying template matching to each digit by comparing it to the OCR-A font to obtain our digit classification.
4. Examining the first digit of the credit card number to determine the issuing company.

After evaluating our credit card OCR system, we found it to be 100% accurate provided that the issuing credit card company used the OCR-A font for the digits.

To extend this application, you would want to gather real images of credit cards in the wild and potentially train a machine learning model (either via standard feature extraction or training or Convolutional Neural Network) to further improve the accuracy of this system.

I hope you enjoyed this blog post on OCR via template matching using OpenCV and Python.

Progress thus far:

- Podcasting Equipment bought.
- Interest from Zazu Africa to participate in **Union 54**
 - Currently in discussion with FlexPay to have them as Payments Partner so we can launch cards.

Future Developments:

- **Extensive Research** for newsletter and podcast. (Sentiment Analysis, Natural Language Processing).
- Use payment integration to control the user experience, and all of the sensitive payments to be stored on servers, making us PCI compliant(**PCI DSS** for Payment Card Industry Data Security **Standard**).
- Make it easier for Millennials to incorporate saving and investing into their daily habits. Onyx aims to consider Millennials from all areas of life. Apply a segmentation to identify different market segments and important trends using Machine Learning to automate and facilitate transactions.

CONCLUSION:

AI-based decisioning can ultimately help banks expedite workflow, reduce the volume of customer calls coming into the call centre, and improve customer service. Smart use of AI means viewing banking operations through both an automation and augmentation perspective

- Electronic payments are extremely vulnerable to fraud. In banking, machine learning can delay potentially fraudulent transactions until a human makes a decision. Unlike humans, machines can weigh the details of a transaction and analyse huge amounts of data in seconds to identify unusual behaviour.
- Applications of Biometric User Identification could be expanded. For example, ZOLOZ company has developed a technology using machine learning algorithms that makes it possible to use selfies to ensure the security of financial operations. The company's Optical character recognition identifies a user by veins in the white of the eye and other unique eye features.

THERE'S A LOT OF WORK TO BE DONE, BUT I BELIEVE WE'RE CAPABLE OF EXECUTING!