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NGO Automation Suite with RPA

Riya Nikam[1], Hrithik Rai[2]

Abstract: ***The COVID-19 outbreak has forced every NGO to operate with reduced manpower and facing lot of operational challenges. Every NGO is trying to automate end to end process of campaign outreach, Donation management, Report generation, KYC Verification and Customer email query automation. This virtual registration experience will help NGO to collect, manage and update registration details easily for multiple campaigns. User will receive automated email with KYC verification, Hospital Appointment and Certificate of Appreciation.***

I. INTRODUCTION

Because of the COVID-Outbreak Pandemic every NGO is suffering to get the physical help for the good. The COVID-19 outbreak has forced every NGO to operate with reduced manpower and facing lot of operational challenges. Every NGO is trying to automate end to end process of campaign outreach, Donation management, Report generation, KYC Verification and Customer email query automation.

This virtual registration experience will help NGO to collect, manage and update registration details easily for multiple campaigns. User will receive automated email with KYC verification, Hospital Appointment and Certificate of Appreciation in case of donation.

For automating this complex process, we have chosen UiPath application. The robotic process automation tool UiPath will help a lot of companies to automate the repetitive and tedious processes. UiPath also has in house optical character recognition tool called as UiPath document OCR. With the help this tool we can extract information from KYC documents such as User card number and Pan card number details. Also, with the help of this this RPA tool we can automate the background process of report generation and project completion.

What is UiPath? UiPath is a Robotic Process Automation tool which is used for automation. It is used to automate repetitive tasks with the help of easy user-friendly tool to automate human intervention. This tool offers various forms to support different types of users and has a huge community to support and guide through.

This tool can be used as multiple offerings:

1) Community Cloud
2) Studio
3) Enterprise Cloud
4) Enterprise Server

The basic architecture of this tool is simple it uses combination of three products UiPath Studio, UiPath Robot and UiPath Orchestrator.

- UiPath Studio: It is used for development purpose.
- UiPath Robot: It is used for Executing the developed robots.
- UiPath Orchestrator: It is used for orchestrating the robot executions and robot management.
- UiPath OCR: It is used for optical character recognition.
- UiPath Integrations: It can integrate with any development profile language.

II. PROJECT OBJECTIVES

The process that has been selected for RPA is part of the NGO Regular processes which needs high manual attention and details.

1) Blood donation campaign
2) Plasma donation campaign
3) Donation management
4) Report generation

The business objectives and benefits expected by the Business Process Owner after automation of the selected business process are:

- Reduce processing time per item by 80 %
- Better Monitoring of the overall activity by using the reports provided by the robots

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- Faster KYC verification from images uploaded by users
- End to end automation experience with ease of monitoring
- Improved user experience with immediate response
- Faster data collection with security and report generation
- Immediate KYC document validation and verification

Immediate Appreciation Certificate generation
Saving trees by reducing paperwork Objectives in Brief:

a) Reduce processing time per item by 80 %

- The current manual process includes a lot of repetitive and human dependency.
- The process takes huge amount of time for extraction of the details and important information report generation.
- The time consumed by the process per manual resource for one campaign registration confirmation is around 10 minutes.
- The targeted time after automation of the process is around 2 minutes per registration.
- Hence by reducing the 80% of the processing time we are improvising the current process.

b) Better Monitoring of the overall activity by using the reports provided by the robots

- Looking at the manual process it looks like a huge human dependency is there for data collection and report generation.
- With help of UiPath automation we can reduce the amount of time required to generate the report and try to generate the report automatically as soon as possible.
- The management of data collection is handled by the robots and the orchestration of the process is also handled by the robots.

c) Faster KYC verification from images uploaded by users

- UiPath has a feature of OCR which helps NGO to capture the documents and extract the details.
- Uploaded documents are stored by the front-end application in database as encrypted image.
- The image the is then converted back to document and fed to OCR as an input.
- The information shared by the user will be secured in the database.
- The document is also validated based on the format of the upload.

4. End to end automation experience with ease of monitoring

- Now the dependency of human validation is completely removed and the user is replaced by the robot.
- With the use of queue-based trigger the automation runs on its own.
- Also, the report generation validation is done by UiPath orchestrator
- The orchestration helps user to completely focus on important tasks.

d) Improved user experience with immediate response

- During this pandemic even for a user or patient it is easy to upload the documents in the website rather than physical visit at the medical centre.
- The user experience is built with C# project and integration of HTML for front end page development.
- The development is then used as a live page counter or representative for the project.
- User feels it very easy and great experience to submit the details and continue with the update.
- The user experience is easy to manage and faster to adapt with the feedback page.
- UIUX helps User with the contactless integration with the NGO organization.

e) Faster data collection with security and report generation

- The data collected by the front end will be stored as encrypted data.
- The encrypted document will be stored in the Base64 string format in the database.
- The Base64 format string stores the entire image.
- The Base64 cannot be decrypted back to image unless the formula is being used.

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- The data storage is light weight and secured.

f) Immediate KYC document validation and verification
- UiPath has a feature of OCR which helps NGO to capture the documents and extract the details.
- Uploaded documents are stored by the front-end application in database as encrypted image.
- The image the is then converted back to document and fed to OCR as an input.
- The information shared by the user will be secured in the database.
- The document is also validated based on the format of the upload.

g) Immediate appreciation certificate generation
- Using the automation, we are generating automatic certificate.
- The standard word file is pre-defined with blank fields.
- The data will be updated by automation, and filled in the word file automatically.
- The word file will then be converted to PDF.
- Automatically attached with the email and will be sent to the user.
- The certificate generated will also have unique ID

h) Saving trees by reducing paperwork
- As we are automating the process of blood donation.
- So many paper forms will be saved.
- Saving paper will lead to saving wood.
- It reflects in environment saving and save green challenge.
- It helps save a lot of manual paperwork and will lead to increase in soft data

III. SCOPE OF PROJECT

The process that has been selected for RPA are as follows which is regular processes of NGO. Scope of the project is as follows:

1) Blood Donation campaign outreach automation
2) Plasma Donation campaign outreach automation
3) Online donation collection management for special cause
4) User KYC document validation and verification
5) Maintain user security and data storage for all campaigns
6) Email query automation with intelligent email reply
7) Weekly report generation for each campaign
8) Registration Status live update Scope of the project: (Current Process)

a) Blood Donation campaign outreach automation
- People visit the Blood donation campaign booth organized by NGO.
- User fill the form with handwritten data.
- User submits the KYC document for validation.
- NGO Executive will assign hospital for Blood donation.
- NGO Executive will schedule meeting with detailed time.
- NGO Executive will also send user registration confirmation email to all the users.
- NGO Executive will save all the registration details in the folder as paperwork.
- NGO authority will generate report around the end of the campaign.

b) Plasma Donation campaign outreach automation
- People visit the Plasma donation campaign booth organized by NGO.
- User fill the form with handwritten data.
- User submits the KYC document for validation.

- NGO Executive will assign hospital for Plasma donation.
- NGO Executive will schedule meeting with detailed time.
- NGO Executive will also send user registration confirmation email to all the users.
- NGO Executive will save all the registration details in the folder as paperwork.
- NGO authority will generate report around the end of the campaign.

c) Online donation collection management for special cause

- User visits the NGO fund collection authority.
- User submits the amount of fund.
- Along with the KYC Documents.
- NGO will draft a Certification of appreciation for each user.
- NGO will verify the KYC for customer information.
- NGO will then generate weekly report of all the donation collection.
- Every donation report has to be generated manually.
- The manually generated report has to be sent via email to NGO authority.
- The NGO authority also demands live count vs the current count.
- The count of donors determines the report of weekly and monthly.

d) User KYC document validation and verification

- User submits the KYC Documents for the validation.
- NGO executive will verify the following details such as:
  - Name
  - DOB
  - Age iv. Gender
- And will verify with the user submitted details.

e) Maintain user security and data storage for all campaigns

- The user's document Xerox is attached with the user form.
- There is a possibility of user's personal data leakage.
- The KYC documents validation process is not much secured.

f) Email query automation with intelligent email reply

- The user which registers for blood donation campaign will receive an email.
- The user which registered for plasma donation campaign will receive an email.
- If anyone transfers the funds to the NGO they will receive email with certificate.
- The people who ask query to the NGO should receive an auto generated email.
- NGO will generate the report around the end of every campaign and send report via email.

g) Weekly report generation for each campaign

- After plasma donation campaign a report will be generated for entire campaign.
- After blood donation campaign a report will be generated for entire campaign.
- Every week a report of all the patients is generated for every campaign.
- Gender based report is generated.
- Age diversity report is generated.
- Sex diversity report is generated.
- Donation collection report is generated manually every Sunday.
- Also, every month donation collection report based on region is generated.
- Donation collection type-based report is generated.

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- These reports are generated in excel and then converted into pie chart and graph.
- Also, the graph generated will be exported as an image and will be printed.
- The data collected is also stored as physical records which has to discarded periodically.

h) Registration Status live update
- In order to showcase the number of visitors manually NGO executive counts number of registrants.
- The count has to be maintained live in case of physical campaign.
- The count also has to be updated and may be reported on need basis to the NGO authority.
- The government asks for count of people visited for each type of campaign
- The count of people who donated is also captured live and updated.

IV. APPLICATION PRE-REQUISITES

The pre-requisites for the automation process we require.

1) Filled in Process Design Document
- Process design document is one of the most important factors required in order to understand the automation concept and the process.

2) Test Data to support development
- Test data such as sample KYC documents.
- Sample user emails is required.
- Pass case documents needed.
- Fail case documents needed.

3) User access and user accounts creations (licenses, permissions, restrictions to create accounts for robots)
- Account access to the portal and the credentials are required.
- The access to the portal important as credentials has to be secured.
- Server permissions and accesses are needed.
- Licenses for the Microsoft excel and office is needed.
- Outlook permission is required for automation access.

4) Credentials (user ID and password) required to logon to machines and applications
- Server credentials are required to store in orchestrator.
- Machine credentials are needed.
- As KYC is sensitive database credentials has to be stored.

5) Visual Studio 2019
- For development of C# code.
- For development of HTML code.
- For building the entire front-end automation.

6) SQL Database 2018
- The storage of logs.
- SQL is needed for storing the user's information.
- Multiple tables are required for the storing multiple campaign information.

7) IIS Server
- For hosting the website on developer's machine.
- The web portal has to be tried and tested on the developer machine.

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- IIS server will host the executed HTML code with C# connection.
- Live functionality of web portal will also be tested.

8) UiPath Studio
- For writing the automation workflow.
- Development of automation code.
- Development of background process.
- Testing of development environment.
- Testing of front-end data integration with database.
- Verification of database functionality.

9) UiPath Orchestrator
- For testing the bot trigger.
- For scheduling the queue-based trigger.
- For handling the queue document.
- For managing the robot.
- For executing the processes and transaction data.

10) UiPath Document Understanding Framework
- For automation of documents.
- For KYC details extraction.
- For document details extraction and manipulation.

11) UiPath Document OCR
- For data extraction.
- For extraction text information from images.
- Works as an optical character recognition tool.

V. AS-IS PROCESS BEFORE AUTOMATION

1) Blood Donation campaign outreach automation:
- People visit the Blood donation campaign booth organized by NGO.
- User fill the form with handwritten data.
- User submits the KYC document for validation.
- NGO Executive will assign hospital for Blood donation.
- NGO Executive will schedule meeting with detailed time.
- NGO Executive will also send user registration confirmation email to all the users.
- NGO Executive will save all the registration details in the folder as paperwork.
- NGO authority will generate report around the end of the campaign.

2) Plasma Donation campaign outreach automation
- People visit the Plasma donation campaign booth organized by NGO.
- User fill the form with handwritten data.
- User submits the KYC document for validation.
- NGO Executive will assign hospital for Plasma donation.
- NGO Executive will schedule meeting with detailed time.
- NGO Executive will also send user registration confirmation email to all the users.
- NGO Executive will save all the registration details in the folder as paperwork.
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3) Online donation collection management for special cause
- User visits the NGO fund collection authority.
- User submits the amount of fund.
- Along with the KYC Documents.
- NGO will draft a Certification of appreciation for each user.
- NGO will verify the KYC for customer information.
- NGO will then generate weekly report of all the donation collection.
- Every donation report has to be generated manually.
- The manually generated report has to be sent via email to NGO authority.
- The NGO authority also demands live count vs the current count.
- The count of donors determines the report of weekly and monthly.

4) AS IS process map for Blood Donation Campaign
- Blood donation current process map.
- At a physical campaign user submits paper along with KYC documents.
- KYC documents check is separate and manual.
- Time slot with hospital will be provided to the user.
- Create report around the end of campaign.

5) AS IS process map for Plasma Donation Campaign
- Plasma donation current process map.
- At a physical campaign user submits paper along with KYC documents.
- KYC documents check is separate and manual.
- Time slot with hospital will be provided to the user.
- Create report around the end of campaign.

6) AS IS process management for donation management:
- At a physical campaign user submits funds along with KYC documents.
- KYC documents check is separate and manual.
- Appreciation certificate will be emailed to the donor.
- Create report around the end of month.

VI. CONCLUSION / FINDINGS

A. Conclusion

1) The process of campaigns and donation management was immensely impacted with the automation process.
2) The overall increase in the speed of process was by 8 Times the current speed.
3) User experience for contactless NGO blood donation campaign was amazing.

B. Benefits

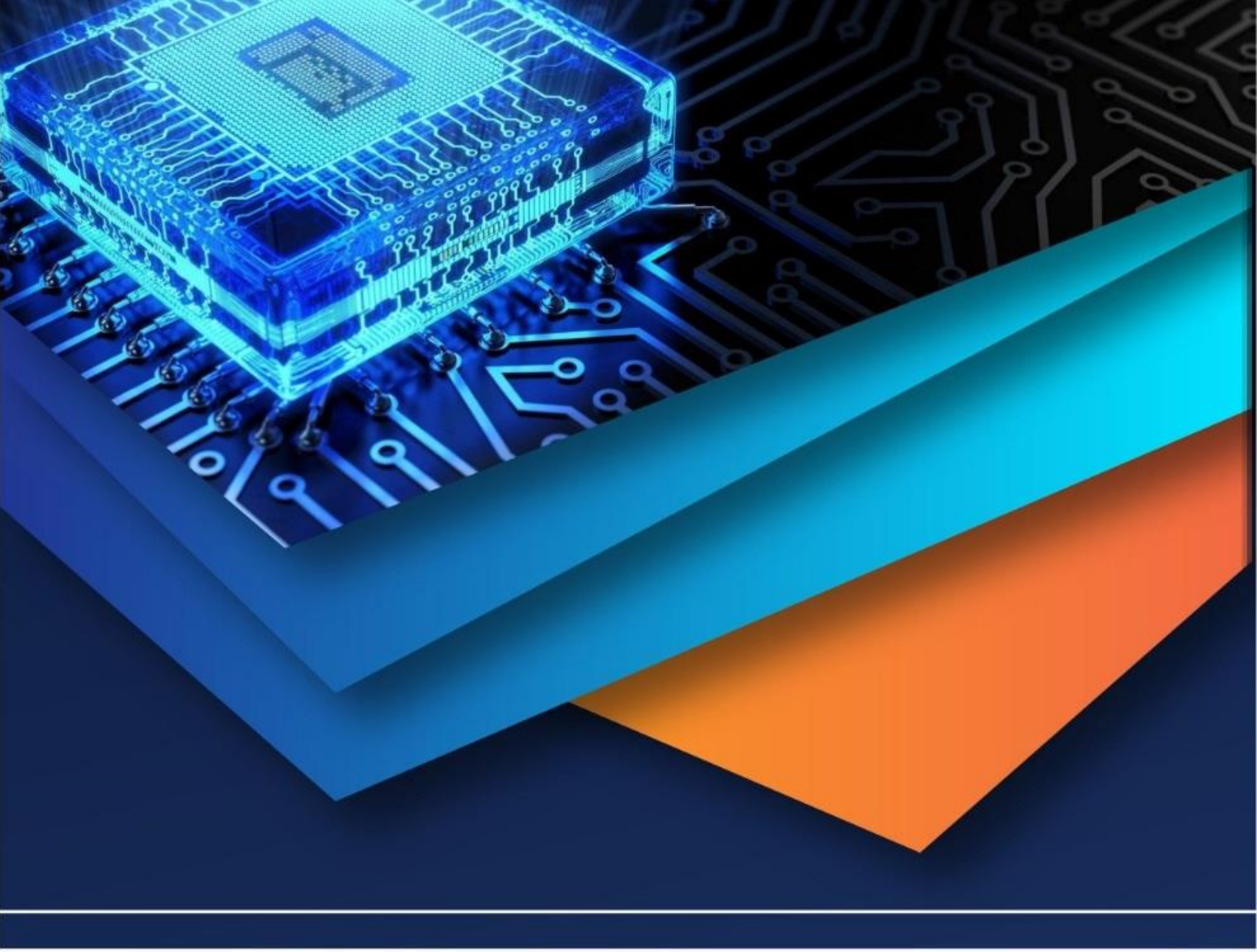
1) Ready to go campaign outreach end-to-end automation.
2) The optical character recognition enables NGO to save a lot of
3) Manual efforts needed for document verification.
4) Elimination of human error in data verification and collection.
5) Centralized data management and report generation of all
6) Campaigns and donations received.
7) Highly reusable for all types of NGO campaigns such as
8) Eye donation, Cataract operation, Dental check, Blood donation,
9) Free medical check, Vaccination campaign, etc.

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10) AI and RPA together bring revolution in intelligent email
11) Response to all the customer queries on NGO forums.
12) Improved user's virtual campaign registration experience
13) During this pandemic period with high-speed response time.

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[2] sQvM&vet=12ahUKEwiA1eCck6jxAhVaUn0KHaFjBnIQMygAegUIARDRAQ..i&docid=2jB9zaV6M6swLM&w=530&h=188&q=uipath&ved=2ahUKEwiA1eCck6jxAhVaUn0KHaFjBnIQMygAegUIARDRAQ



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