

Expert Robotic System in Image Processing Technique using Uipath Deep Learning (RPA)

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Abstract- In this particular paper, Image processing using Deep learning (DL) in Uipath Automation (RPA) is being developed to proceed for larger data storage in-depth analysis by Artificial Intelligence (AI) and Machine Learning (ML) which is stated Expert Robotic System. Therefore, a Machine learning algorithm will be established and applied for automatic processing and observance of unpredicted seen to secure, which are likely to Identification of Image and Object identification. DL model in Uipath will be bought up with a dataset of event images in various models. Then, based on the training dl model, the Uipath-based image detection application system will be tested with a couple of images that include actions and features. As the result, the program can rectify all actions in a particular period and area. The important point is that processing will be improved automatically without any rectification in the system as the design of Uipath

Index Terms- Deep learning, Robotic process automation, Uipath, Image processing, Artificial Intelligence, Machine Learning, Object Tracking Algorithm, Automation

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I. INTRODUCTION

A kind of automation processing where the input of an image is done and output we get an object or characteristics/features related with that particular model[1] to load and process a huge amount of data using deep learning by automation (Uipath), Object tracking can also implement in various area CCTVs by distinctive spotting and stalking the location by recognized by time. Imaging with Expert system (AI) can strength face and character detection, identification and corroborate scalability to make sure defended in open places, detecting and recognizing features and patterns in images and videos. Moreover, uses of AI and ML improve the accuracy of computerized information and the standard quality of the final product. In case, as a result of AI techniques, we can attain such obstacle tasks as object

identification, face recognition, and text detection. As a matter of course, to get finest quality results. [3].

Uipath: Automation Studio is mapped out to create a smooth automation process, the complication of projects varies from easily describing a variable to constructing them by using a customized enchanter. Also you can control your activity panel letter packages by using feeds accessible at the development of the project level. [5].

This work intends to establish an effective way of Robotic Process Automation in Deep learning and data processing, is to achieve this RPA tool Uipath studio. A software bot application is created and coded to follow a predefined sequence of flowchart with help of the RPA tool. This deep learning technique is capable of collecting huge data from various sources and formats, even from systems that do not support an Application programming interface(API).[4].

Furthermore, the organization of the paper in the below order is to be noted. These are: Heading (*above everything*)

- 1) Abstract
- 2) Introduction (*Uipath & intention*)
- 3) Research Elaborations (*On*) Exploration & Investigation.
- 4) Mode of Methodology
- 5) Conclusions

II. EXPLORATION & INVESTIGATION

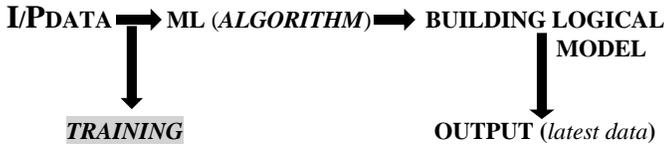
First and foremost my ability to assess and initiate things independently is Integrity and moral principles. Hard-working, depositing a lot of effort to generate a positive result.

In Study of Automation Process of Intelligence system, this particular paper Application, mechanism of RPA in multiple production *published by (2022- DASA) IEEE*, working with automated machinery in the healthcare sector with numerous benefits and features. Also well recognized for the quality of speed, improving accuracy and processing and handling of large amounts of data as well as reducing time and cost. Therefore, their applications, are also discussed in this article. [7].

AND MANY MORE ARTICLES IN REFERENCES. [3, 4, 6, 7].

III. MODE OF METHODOLOGY:

A. learn from data



In this approach, Input past (historical) and current data are combined to train through (an ML) algorithm which is building logical model to give future outcomes of data (new data).

B. Machine learning



Machine learning is a subset of Artificial intelligence,

- Prediction based on Previous data (Picture identification)
- (Audio Recognition)
- (Email filtering)
- (Facebook auto-tagging)
- (Recommender System). Etc-.

Categories come under ML:

- i)Supervised & Unsupervised
- ii)Reinforcement learning
- iii)Regression & Classification Models
- iv)Clustering & Sequential Models
- v) A large amount of data
- vi)Training & testing data

C. Uipath (RPA) Automation

What is robotic process automation?

Robotic automation is an application of software equipment that can make it easy to assemble, emplace, and head the system robots which imitate the same human activity, collaborating with digital applications and programs. RPA aerodynamic operation makes administration more commercial, supple, and reactive. This also gives workman gratification, espousal, and productiveness by removing humdrum tasks from their work days. Robotic automation is chronic and would be speedily executed to quicken digital modification. And it's perfect for processing data flow of work and thus involves heritage program that lacks APIs, virtual desktop infrastructures (VIDs), or data system access. [5].

Components:

- Accelerated transformation
- Major cost saving
- Greater resilience
- Higher accuracy
- Improved compliance
- Boosted productivity

- More value from personnel
- Happier employees.

Is really Automation is same as an Expert system (AI)?

- NO, Automation will not be AI & AI may not be robotic automation, But a combination of robotic automation & Expert system unlocks massive new possibilities for enterprises everywhere. The Proficiency of automation machinery now makes it feasible to place more innovative expert system ability in way of the machine learning algorithms, and development of natural thinking computer application, image processing, much more in automation robots. AI program rapidly enlarge the ability to operate mental process that needed components as like: [5]

- Comprehension of records as well as semi-structured or unstructured data
- Visualization of screens (inVID Virtual desktop infrastructure)
- Understanding speech and conveying on Preservation and chats

Image Processing Important?

Image processing (IP) is a computer technology applied to images that help us process, analyze and extract helps us process, analyze and extract useful information from them.

Deep learning- Intelligent document processing (IDP) leverages a deep learning network known as CCN (Convolutional Neural Networks) to explore and study patterns design that as a matter of course appear in images. IDP application is almost where to modify as a new set of input is being refined, and either of the largest data is processed by labeling pictures, [9]. Machine Learning using robotic automation and Deep Learning in image processing applications would develop strong and effective.

D. Load and process images

To read and retrieve text from a previously loaded image from Uipath automation.

It presents activities such as *load images or trying to catch*.

Automation process:

1. Open Studio and create a **new Process**.
2. Drag a **sequence** container in the Workflow **Designer**.

(Creating a Variable)

Variable Name	Variable Type	Default Value
image	UiPath.Core.Image	-
resultedText	String	-

3. Drag a **Load Image** activity inside the **Sequence** container.
 - In **Properties** panel, add file path of the image which you want to use. This example is "images\Hello World.png".
 - Add the variable images in the **Image** field.
4. Place a **Try Catch** activity below the **Load Image** activity.
5. Pull a **Sequence** box from the activity table inside the **Try** bin of the **Try Catch** activity.
6. Place an OCR engine inside the container. This example is using **Tesseract OCR**.
 - In **Properties** panel, add the variable image in the **Image** field.
 - Add the language code, "eng", in the **Language** field.
 - Select the **None** option from the **Profile** drop-down list.
 - Add the value 2 in the **Scale** field.
 - Add the variable resultedText in the **Text** field.
 - This is how the **Try** container should look:

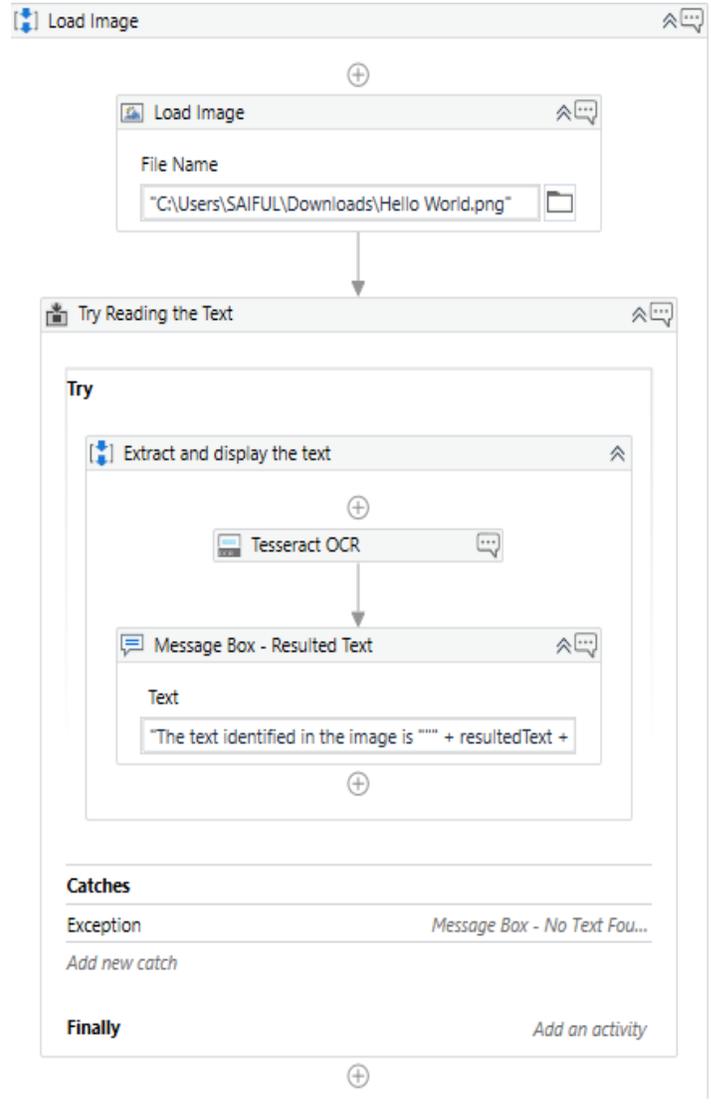


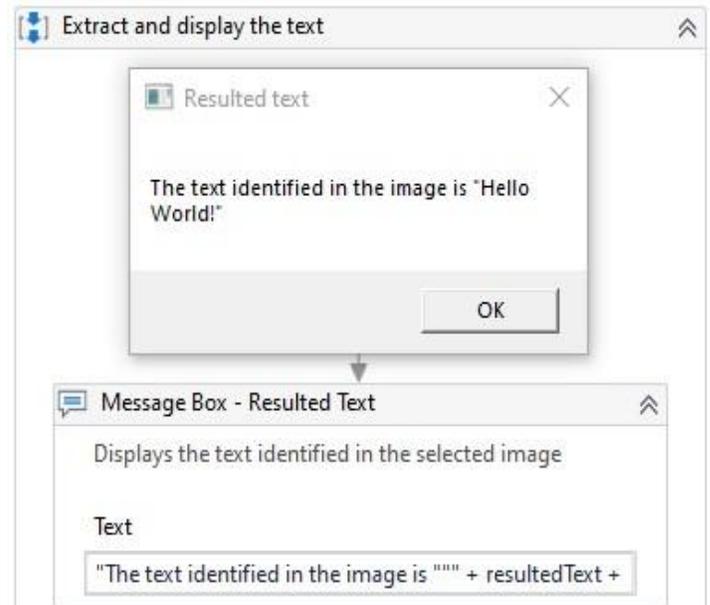
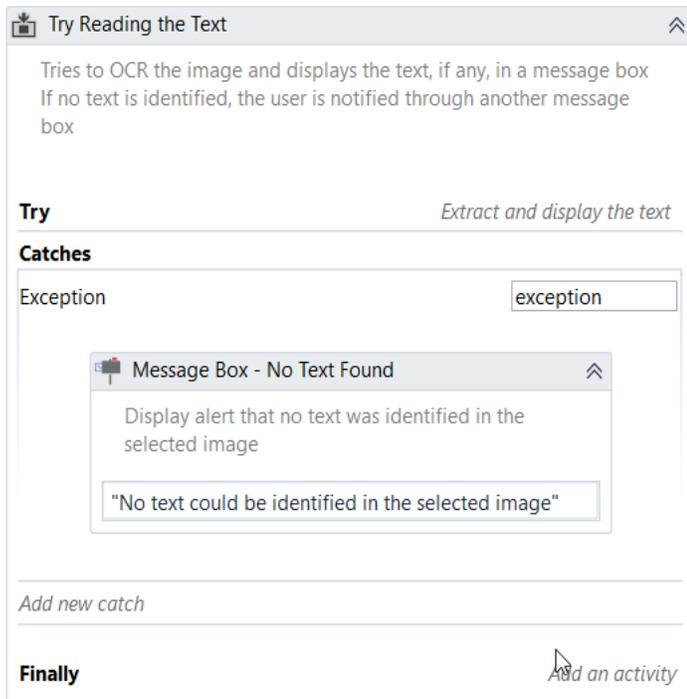
Figure 1

7. Drag a **Message Box** activity below the **Tesseract OCR** engine.
 - In **Properties** panel, click **Ok** option from the **Buttons** drop-down list.
 - Add the expression "Resulted text" in the **Caption** field.
 - Add expression "The text identified in the image is " + resultedText + "" in **Text** field.
 - Select the check box for the **TopMost** option. This brings the message box to the foreground.
8. Drag a **Message Box** container inside the **Catches** container of the **Try Catch** activity.
 - From **Properties** panel, select the **Ok** button from the **Buttons** drop-down list.

- Add the expression "Image OCR Error" in the **Caption** field.
- Add the expression "No text could be identified in the selected image" in the **Text** field.
- Select the check box for the **TopMost** option. This brings the message box to the foreground.
- This is how the **Catches** container should look:

OUTPUT:

Figure 2



- Run the process. The image is loaded in the workflow, processed, and the text is detected and extracted.

Given below image is used for testing the program.



The above program outline has been verified to be effective to automate a piece of work while conserving clarity for the customer. Functionality is developed it would be time-head adjusted for certain kinds of cases. Along with an expected technique users with subsequent application development occurrences will mine data efficiently with the help of the UiPath model program. The discovered method also supports the collection and storage of data from systems that do not support API.

IV. CONCLUSION AND FUTURE WORK

The study of research concludes that the model of Uipath automation uses deep learning and to explore its advanced model we have also implemented using Artificial intelligence, Machine learning, Robotic Process Automation, and object tracking for image processing in the automation method therefore, neural network and machine learning algorithm produces an accurate result in a model as we expected which intensifies the possible performance.

Advantages of widely used, proficient techniques in the problem of tracking and image processing to program an easily efficiently and handling of automation is simple also by using deep learning we can store a large amount of data can be stored in the automation system. Hence, it is necessary to develop an automatic collection of images, and also deep learning protected the object processing by the production of a positive outlier, and characters and features manifest in proportion with the least processing performance. The webbing must be improved by protecting the correspondent features of the image later.

In the future, however. It is possible to have some other advanced architecture of artificial robotic automation to optimize search alike to get even more positive results up in the domain of Automation., through system development and continuous rectification of the image management site, the positive outlier of the system could be generated finitely.

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REFERENCES

- [1] Assoc. Prof. Dr. Gholamreza Anbarjafari (Shahab), Assoc. Professor of Image Processing in IMS Lab at the University of Tarru.
- [2] *Artificial Intelligence and Machine Learning in 2D/3D Medical Image Processing*, Edited By Rohit Raja, Sandeep Kumar, Shilpa Rani, K. Ramya Laxmi
- [3] *Artificial Intelligence fir Image Processing: Methods, Techniques, and Tools*, Written by: Maria Yatsenko, Market research specialist & Vadim Zh., software Designer, Artificial Intelligence Team.
- [4] *Effectiveness of Robotic process automation for data mining using Uipath 2021 IEEE*, Mr.Yashodan Ketker, Dr. Sushopti Gawade
- [5] <https://www.uipath.com/rpa/robotic-process-automation>
- [6] *An application of deep learning for automation detection of unexpected accidents under bad CCTV monitoring conditions in tunnels.2019 IEEE*, Kyu Beom Lee, Hyu Soung Shin from (KICT), published.
- [7] *Applications, Tools, and Technologies of Robotic Process Automation in Various Industries, 2022(DASA)*, Shagun Sharma, Anjali Kataria, Jasminder Kaur Sandhu.
- [8] <https://nanonets.com/blog/machine-learning-image-processing/>
- [9] <https://www.infrd.ai/blog/image-processing-with-deep-learning-a-quick-start-guide>
- [10] <https://docs.uipath.com/activities/docs>
- [11] *Deep Learning / Ian Goodfellow, Yoshua Bengio, & Aaron Courville. Cambridge, MA: MIT Press, [2017] | Series: Adaptive computation and machine learning series | Includes bibliographical references and index.*
- [12] *Deep Learning Illustrated is a visual, interactive introduction to artificial intelligence published in late 2019 by Pearson's Addison-Wesley imprint.*
- [13] *(CPU – Neural networks for accepting large data)*
- [14] *Computer vision- most active research area for deep learning*

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