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## UIPATH ANALYSIS IN ROBOTIC PROCESS AUTOMATION TOOLS

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**Abstract:** Robotic Process Automation (RPA) is a current tendency to automate repetitive processes in order to eliminate human error. RPA is a Low-Code technique and requires little to no programming knowledge. It is the technology that enables the task to be automated in the same way that a human would. It does not imply that humans will be replaced; rather, it refers to a computer software that imitates human behaviour. The process will be a stable one, and can manage large volumes and it provides large savings. Automating repetitive tasks with bots saves money, time and generating results faster than a human software tester. It increases credibility, bots can work effectively 24x7. There are many tools used in RPA technology. This analysis explores the topic of UiPath platform, which is one among RPA tool. Let's have a look up on UiPath platform that uses Drag-and-Drop functionality to build, deploy and manage the software robots the process.

**Keywords - Low-Code, Business processes, Tools, RPA technology, Drag-and-Drop.**

### I. INTRODUCTION

UiPath is a software company that specialises in robotic process automation. It was founded by Daniel Dines and Marius Tirca in Bucharest, Romania. UiPath is a Web based orchestrator provides a platform to develop software bots to automate business processes. It is a web Orchestrator based architecture developed on .NET Framework. UiPath Studio, UiPath Orchestrator and UiPath Robot are the main components of UiPath. It is easier to build, deploy and manage software robots that simulate the interaction of humans to perform certain tasks in business processes (BPs). The studio provides various activities and scopes to design and execute user defined bots. It is easy to use as it uses drag and drop approach when working with activities[1]. The orchestrator allows the user to upload bot to the cloud, deploy it, and manage its resources. It also manages bot queues, assets values etc. It can also manage multiple bots at the same time Robots are used to work like humans. There are two kinds of Robots. They are Attended Robots and Unattended Robots. Attended Robots always require human intervention whereas Unattended Robots will operate independently. UiPath offers five types of recorders—basic recordings used for a single activity, desktop recordings used to capture multiple actions that can take place between different apps, web recordings used for web and browser, image recording and Citrix recording are used for virtual environments, it is capable of image, text and keyboard automation[2]. Automation process provides solutions for business activities for routine office activities. It uses Various methods to convert tedious tasks into automated processes. The UiPath user will develop visual process steps by dragging and dropping related functions onto the graphical workspace. Business processes which are to be automated are designed, created, or recorded. Used drag-and-drop activities to create the workflow. Then Robots will work to perform the business process and an orchestrator acting as a control center assigns the task/procedure to the SR and evaluates the efficiency of each & everyone. Software Robots will understand which page is on a screen, then it computes the right action and can extract date, it will navigate to other applications, and it performs a wide range of defined actions. Advanced Software Robots will perform processes like engaging in chats and conveying, interpreting text, it understands unstructured data, and makes complex decisions etc. They are 100% accurate. UiPath developers do not need much programming skills. Recorders are available to convert user actions into automate. Many industries are concerned about workforce shortage in the near future and face major problems due to aging or over workforce in departments that rely on the best use of digital data[3]. SRs can automatically perform deterministic, repetitive, standardized, high volume and rule-based tasks by capturing and analyzes structured data and operate across multiple interop erasable systems. Software Robots are best suited to perform data entries, taking information from one application and updating with another application.

### II. ANALYSIS

UiPath developers will be automating the process, it will be running by the bot for 24 hours. It doesn't need any rest. It takes less time, less errors, and it contains more efficiency. time, less errors, and it contains more efficiency.

### III. FEATURES OF UIPATH PLATFORM

UiPath works with a wide variety of applications which includes including web and desktop applications. It has the drag & drop functionalities to develop the bots[4]. Provides exception handling mechanisms. It allows users to control all of the robots at the same time. Provides auto login features to run bots.

### IV. APPLICATIONS OF UIPATH

- 1) Sales
  - 2) Banking
  - 3) Healthcare
  - 4) Public sector
  - 5) Manufacturing
  - 6) Retail
  - 7) Telecom
- Sales

Invoice Development and Delivery - Bots can update accounting records, generate and send invoices from the appropriate email address, instead of manually repeating the data.

#### Banking

Check KYC - Although dedicated KYC solutions are evolving, Bots can be used to automate parts of the KYC process.

#### Healthcare

Appointment Scheduling for Patients -The RPA bot makes appointments for patients based on their diagnosis, doctor availability, location and other factors like financial statements and insurance details.

### V. HOW DOES UIPATH WORKS?

UiPath implementation can help automate repetitive and rule-based processes. Robots can be trained to perform business tasks as needed. Furthermore, these bots can see the interface in the same way humans can. So, in short, they can support your personnel[5]. Bots work with humans in a way that will really benefit them. An added bonus is that you will be regularly updated on development. Since the robots live in the background on the workstation, they can complete their work without any interruption. As a result of all this, the productivity of your employees will increase.

### VI. BENEFITS OF UIPATH PLATFORM

**Improved productivity and speed** - UiPath implementation can help eliminate over the repetitive activities. This allows employees to recognize the benefits of UiPath and become more productive.

**Improved Compliance and cost reduction** - Bots activities can be monitored consistently. They perform constantly, lowering risk.

**Data Accuracy** - Bots are programmed to follow specific rules to perform business operations. This results in increased accuracy. Robots never get tired of doing repetitive tasks and never make mistakes.

**Upscale at speed** - RPA executes a large amount of processes in parallel in a various contexts including desktop and cloud platforms. Additional robots can be deployed quickly.

### VII. UIPATH REFRAMEWORK ARCHITECTURE

The ReFramework has the following 4 states:

1. Init State
2. Get Transaction Data State
3. Process Transaction State
4. End Process State

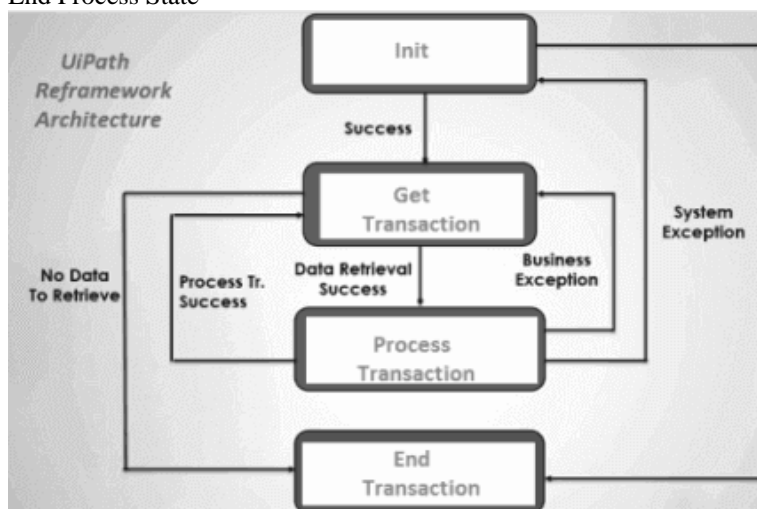


Fig 1. UiPath REFRAMEWORK

All these states are used to process the business transaction in the following manner:

### Init State

Any project that we start in ReFramework using this tool starts in the Init state. This is the case where Robot reads the initial project configuration and initializes the application. Once all the configuration is read and the application is initialized and successful, the transaction moves to the next state i.e. the Get Transaction Data, otherwise it ends the process by displaying a system error.

### Get Transaction Data State

The Get Transaction Data state is the next state after the Init state. In this state, you have two possibilities. If a **new process** is retrieved then it goes to the next state i.e. the Process Transaction state, else if all the transactions are processed then it goes to the End Process state.

### Process Transaction

In Process Transaction State, three results can come, i.e. either Success State, Business Transaction and System Error State. The success state is considered when the loop is performed and the next transaction data is taken into account. The business rule exception occurs when a specific action is performed after which the execution state goes back to the received transaction data state. The system error transaction is used to take all the necessary steps through the error. In this stage, all the applications will be closed, and execution will be loop backs into the Init State.

### End Process state

This is the last state in which the transactions enter, after all of them have been executed. So, in simple words, it is used to terminate the process. UiPath is a popular and progressive Robotic Process Automation (RPA) tool that enables users to automate various aspects of business processes. It provides an open-source platform that promotes collaboration and automation of repetitive tasks[6].

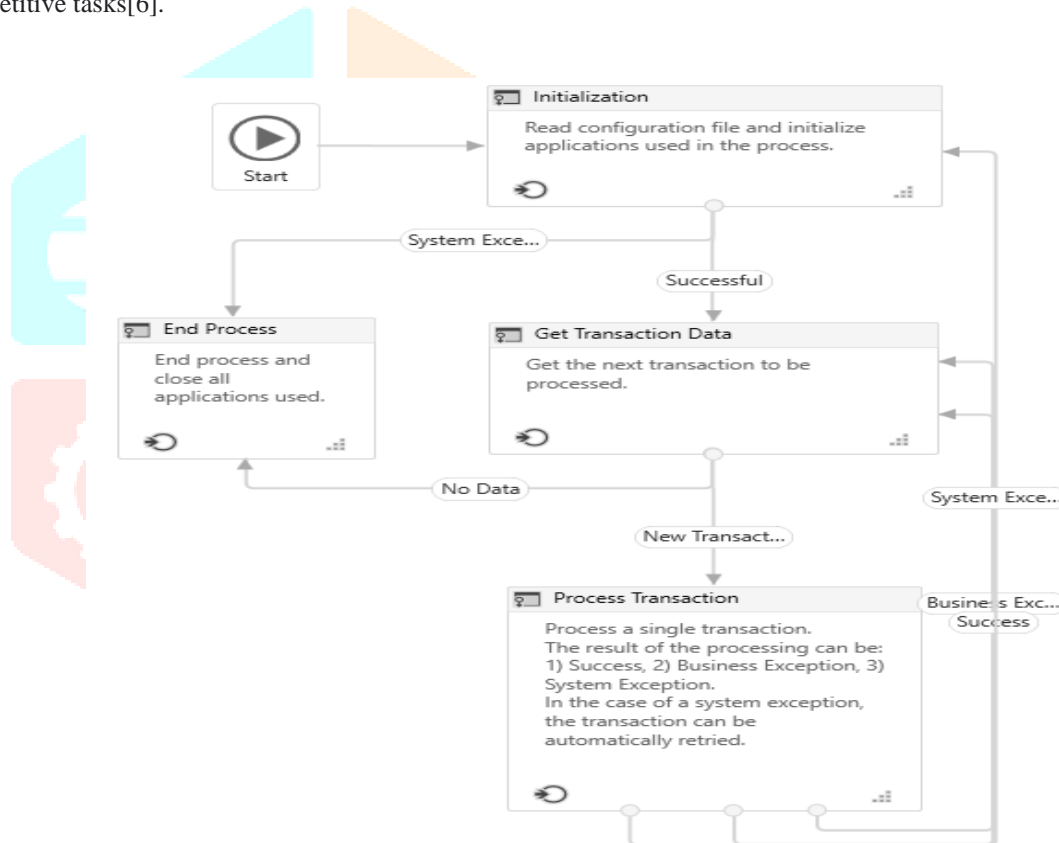


Fig 2. Transaction Process in UiPath REFRAMEWORK

## VIII. UIPATH IMPLEMENTATION

### Listing out the steps To Automate

All business processes are not suitable for RPA. Businesses should have a strategy to pick the right processes and then prioritize them for automating the processes.

### Perform Feasibility Assessment

Perform a feasibility assessment for each steps to automate the process.

### Readjust

Based on the feasibility assessment report, identify the processes that are not structured, standardized, optimized, recorded, or not executed as planned. In this stage, try to reoptimize and restructure the process. On considering feasibility assessment report, need to identify processes which are not structure.

## Gather User Stories

A user story describes the characteristics of an application to be built from the perspective of an end user. It goes into detail about the requirements of the user. It is also important to get a detailed description of each process to be automated.

## Start Development Process

In this stage, the development process begins based on the user request.

## Test RPA Process

Perform through testing to study performance in all possible scenarios and if any bugs found when the process is executing, developing team should fix all the bugs.

## Reconfirm and Deploy

Once the initial tests and errors are corrected by the development teams, confirm the results are perfect and deploy the complete developed solution[8].

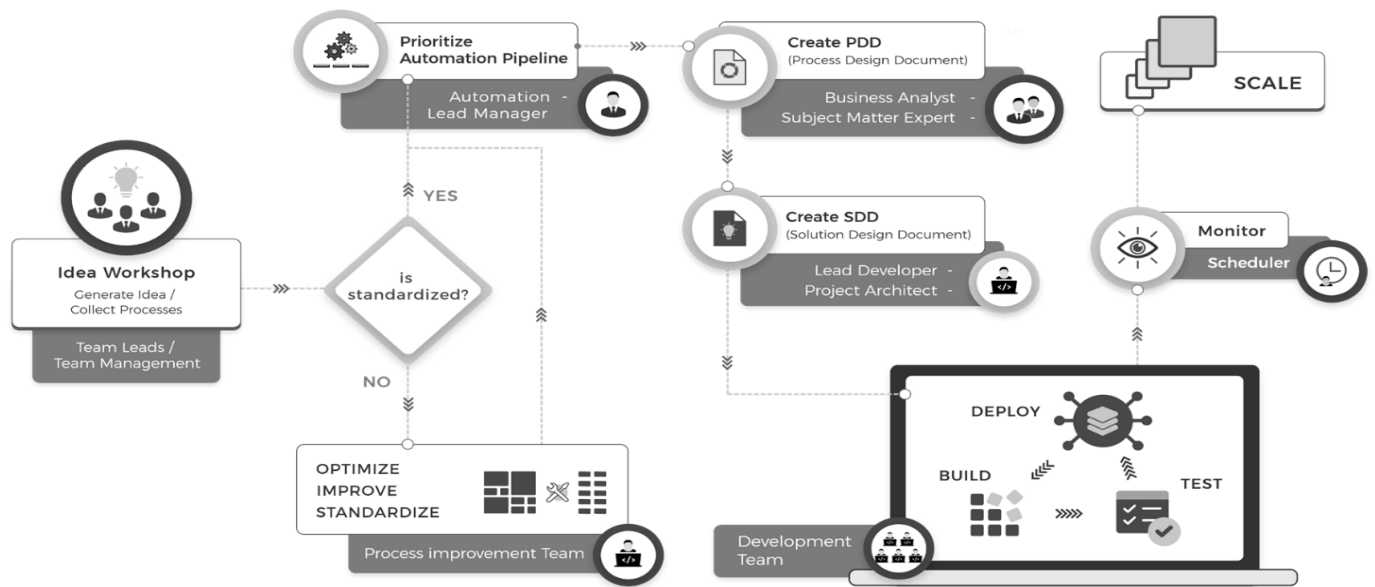


Fig 3. UiPath Implementation

## IX.UIPATH LIFECYCLE

### Discovery Phase

In this phase, the requirements of the client is decided whether the process can be automated or not. If the process can be automated, then the complexity of the process is analysed.

### Solution Design Phase

The next step is Design phase, solutions or steps will be designed to automate a task, which consists of the information about each of the process/steps. Once all the client requirements are analyzed and the design document is created, the next step is to decide on certain requirements for the project like budget, time to spend, number of people working on the project, etc.

### Development Phase

The Next phase is Development phase wherein the Automation Developer creates Automation Scripts using UiPath tool. There may or may not be coding requires, depending on the task to be automated.

### UAT (User Acceptance Tests)

In this phase of the RPA lifecycle, the developed bot is tested either by the testing team or the development team itself. The bot is tested in a pre-production environment to test how users can use this bot to automate a specific task. If the test is successful, it proceeds with the next phase, but, if the test fails, the bot goes back to the development phase where the errors found in the testing phase are corrected and tested again. is done.

### Deployment & Maintenance Phase

After the development and testing of the bot, the bot is deployed to the production environment. After deploying the bot, users can use it. But, if there is a problem with the bot, it goes back to the testing and development to solve the problem.

### Execute Bots

The bots are then executed and reviewed to see if they produce relevant results in this final step.

## X. TRANSACTION PROCESS

### Data Input Sequence

This Data Input container is connected to the start node and is meant to hold all the activities related to retrieving the data required to run the project. The read transaction parameters are stored in a predefined new transaction variable of type Boolean.

### Flow Decision

The flow decision activity is to analyze the data that was retrieved based on the condition represented by the data stored under the new transaction. The true branch of the flow decision leads to the Transaction processing, while the false branch leads to the End process sequence.

### Transaction Processing

A transaction processing that processes transaction objects and then returns the initial data to the input sequence.

### End Process Sequence

An End process sequence that includes all steps which must be taken at the end of an automation process, such as saving a workflow[7].

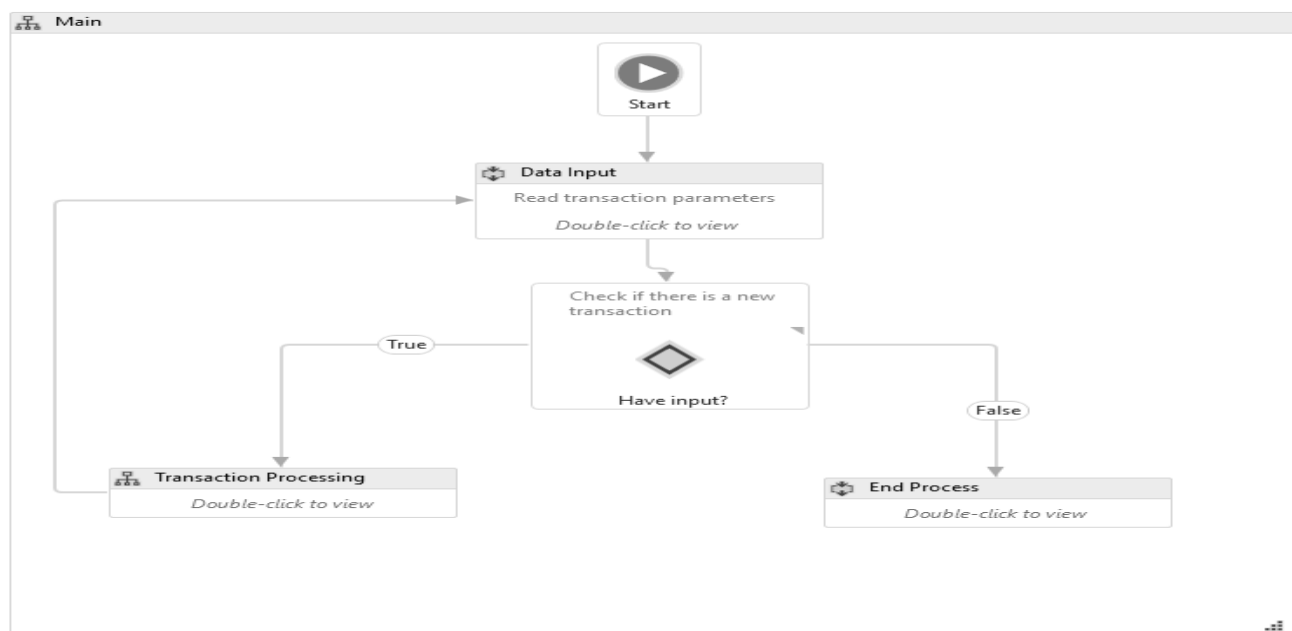


Fig 4. Transaction Process

## XI. CONCLUSION

RPA is the use of technology to automate business operations or workflows. UiPath is an RPA tool used for performing PDF automation, Web automation, and Windows desktop automation. It can be used to automate redundant tasks. Finance, insurance, healthcare, and banking are just a few of the industries where UiPath is used. It is an automation tool for large-scale end-to-end automation. It provides solutions for businesses process to automate routine office activities. It saves time to update the same processes and it reduces the limit of bugs. UiPath has a wide range of features that are essential for the effective implementation of automation in an organization. RPA is being used in various fields including remote applications, scraping techniques, data management techniques etc. UiPath with its unique features eliminates the difficulties in moving manual processes to automation.

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