

RPA basics

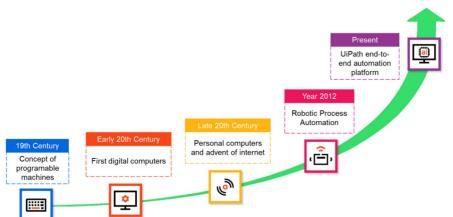
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Automation is the technology by which you execute a process off a procedure with minimal human assistance.

Physical Automation = use of physical robots and specific control systems to automate physical processes

Software Automation = use of software to automate processes that people undertake on computers.

Overview of History of Automation



In the 19th century, the Industrial revolution brought along many advancements like the telegraph and telephone, and with them came the concept of programmable machines. This century witnessed the electrification of factories and the setting up of many production units, which created the need for centralized control.

The need for centralized control led to the fundamental steps of devising simple on/off mechanisms in the 20th century. This need later led to the development of the first electronic digital computer, followed by personal computers and the Internet. In the latter half of the 20th century, the advancements in data-storage technology, software to write computer programs, advances in sensor technology, etc., contributed to the progress in automation technology.

In the 21st century, Robotic Process Automation (RPA) was introduced. RPA, in its early stage, was focused on automating repetitive and rules-based, un-intelligent tasks. We are witnessing RPA evolve with AI to develop cognitive automation in contemporary times.

Robot Process Automation

Technology that enables a software program to mimic human action while interacting with computer applications accomplish require tasks.

RPA is a software technology that is easy to build, deploy and manage software robots that emulate human actions interacting with digital systems and software.

Salient Aspects of Robotic Process Automation



- With RPA, you can develop software Robots that can mimic human actions. It can be accomplished in a low-code environment.
- It can make operations more efficient. For example, a Robot can execute tasks assigned to it much faster compared to a human.
- RPA can help workers become more productive and release their bandwidth to focus on other aspects of their work.
- RPA can free the workers from mundane, tedious, repetitive tasks. They can consequently focus on tasks that involve creativity and human decisions.

Features of Robotic Process Automation



Benefits :

- 1) INCREASE EXECUTION SPEED
- 2) REDUCE PROCESS EXECUTION COST
- 3) IMPROVE ACCURACY
- 4) EASIER SCALING
- 5) IMPROVES COMPLIANCE AND GOVERNANCE
- 6) RAPID ROI

INDUSTRIES BEST-SUITED FOR RPA

- ① Banking and Finance : retail credit assessment, fraud prevention, account settlement, payment clearance.
- ② Insurance : claim management process, enhance customer experience, lower operational costs, better customer insights.
- ③ Healthcare : patient management, care settlement, billing process, patient discharge process
- ④ Manufacturing : bins of materials, plant office experience, back office operations.
- ⑤ Customer Service : chatbots, voice assistance devices, automated call centres.
- ⑥ Mail / Transportation / Logistics : specific packages, intra-city transport, local bookings

UiPATH

It's a global software company that enables organizations to become a fully automated enterprise with the help of UiPath Platform.



- ① Discover : To identify the automation opportunities in an organization with the help of AJ.

Tools provided are:

- ① Automation Hub = web application where you collaborate within the organization to identify new ideas.
- ② Task capture = creates activity maps by recording the actions taken to complete a process. These maps are then used to build robots.
- ③ Process mining = transforms data into a visual map
- ④ Task mining = AI-based tool used to help and recommend which tasks can be automated.

- ② Build : UiPath provide low-code build environments to build simple to advanced automations. The products used are:

- ① Studio : advanced automation software that gives everyone from business users to advanced RPA developers the right automation canvas to build great software robots.
- ② Studio X : no-code platform to automate simple everyday tasks.
- ③ Document Understanding : helps robot understand documents to extract, interpret and process data even from PDFs, images, hand writings and scanned documents.
- ④ Integration Service : helps to automate faster, and at scale by centrally accessing UI and API integration within the same environment and deploy both in a single automation.
- ⑤ Marketplace : find ready built automation components and resources making automation easier.

- ③ Manage : you can manage, deploy and optimize automation at an enterprise scale. Products offered are:

- ① Orchestrator : used to deploy and monitor robots.
- ② AI center : helps to tackle a whole new set of use cases by incorporating AI and ML models into your automations.
- ③ Test Hammer : test management tools for enterprise testing that's a lightweight, open, flexible and customizable.
- ④ Data Service : powerful no-code data modeling and storage tool that gives developers simple, easy, productive access to data, variables and tools they need across the entire UiPath platform.
- ⑤ Insights : used to track, measure, and forecast the performance of the entire automation program.

- ④ Run : software robots are intelligent, reusable, flexible and eager to take on tasks.

- ① Attended robots : work along with humans on their desktops and act as a personal assistant.
- ② Unattended robots : work independently in the background.
- ③ Automation Cloud Robots : SAS robots hosted in the UiPath automation cloud.

- Unattended Robots = work independently in the background.
- Attended Gear Robots = SAS robots hosted in the UiPath Automation Cloud.
- Test Robots = ensure the quality of every automation and application before they go live.
- Engage: provides for engaging people and robots as a team for collaboration
- Apps = cloud-based low-code application development platform to build and share custom applications.
- Assistant = desktop application used to interact with the robots through the easy-to-use graphical UI.
- Actor Control = used to switch tasks from robot to humans and vice versa for approvals, escalations and exception handling.

UiPath Platform's Core Components



Types of Robots



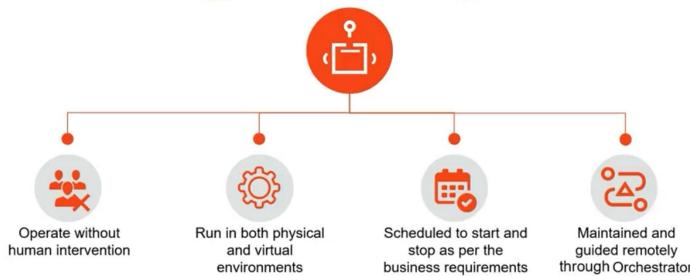
Types of Robots



UiPath Attended Robots



UiPath Unattended Robots



UiPath Studio

Used to develop automation processes. It provides visual, drag-and-drop, low-code environment and comes with pre-built components for defining automation.

Studio Features:

- 1) **Productivity** = By using drag-and-drop activities and managing dependencies available in Studio, the automation solutions can be built quickly and easily, increasing the productivity of the developer.
- 2) **Code Quality** = Quality of the code can be controlled by using its in-built features like workflow analyzer, creating custom rules and validation.
- 3) **Extensibility** = Studio is extensible with the help of project templates, browser extensions, automate SAP and Oracle's technologies, the solutions can be extended depending upon the project requirements.
- 4) **Version Control** = Studio is compatible with Git, TFS, SVN integration, pull diff and compare changes.
- 5) **Debugging** = Studio has multiple debugging options.

6) Reusability

U,Path Orchestrator

It's the heart of Automation Management and is used to create, monitor and deploy resources in an environment.

It enables the user to manage the automation from a browser or mobile device.

It's an application that controls and monitors the productivity of robots and deploys the studio workflows to the robots.

It also manages the robots by scheduling them

Once you create a process, you just assign a robot to execute this process in a specific environment and run it as a Job.

Primary functions of orchestrator:

- 1) Serving as the control room
 - 2) Monitoring the robots network through a mobile device or web application.
 - 3) Ensuring correct delivery of package to the robots
 - 4) Managing the queue
 - 5) Scheduling the robots
 - 6) Triggering the robots
 - 7) Storing and indexing logs
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Studio Activities Packages

Activities are building blocks and designed to help you create a clear and smooth automation process. An activities are integrated into packages that cover specific areas of interest. The activities can be managed by using the tools available at the application level of the project level.

Activity Packages are a bundles of activities that can help automate a certain application. U,Path Studio includes several activity packages by default as dependencies for all newly created projects.

These activity packages are: System activities, Mail activities, Excel activities, UI automation activities.

" Manage Packages "

o) System Activities :

Contains all the basic activities used for creating automation projects.

They enables robots to manipulate data tables by adding or extracting information and directly interact with directories and files on the user's machine performing and action a human user wants.

o) Mail Activities :

It facilitates the automation of any email related tasks covering various protocols such as IMAP, POP3, SMTP. U.PATH also features activities that are specialized for working with Office and Exchange. These includes sending, receiving and deleting emails and sending attachments.

i) Excel Activities:

It helps users automate all aspects of Microsoft Excel, it contains activities that enable the user to read information from a cell, column, rows or ranges, rank to order spreadsheets on workbooks, execute macros and extract formulas. The users can also sort data, scroll down it, or append additional information.

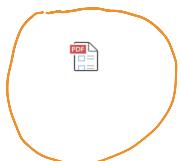
ii) UI Automation Activities:

It enables the robots to simulate human interactions, such as performing mouse and keyboard commands or typing and extracting text for basic UI automation.

You can use technologies such as OCR or image recognition to perform image and text automation. It enables you to create triggers based on UI behaviour, thus enabling the robots to execute certain actions when specific events occur on a machine. You can also perform browser interactors and window manipulation using this package.



U.PATH Activity packages available



U.PATH version control