ROBOTIC PROCESS AUTOMATION TO IDENTIFY USER ACCESS BY SINGLE SIGN - ON IN MULTIPLE SERVERS

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Abstract: An automation capability configured with the end user environment to change the manual and repetitive tasks is termed as Robotic Process Automation. Automation process brings down the manual work of employees and puts their efforts to update the automation module. Process automation involves various manual small tasks being converted to different automation processes using various developmental software tools like Uipath, NICE, Blue Prism, etc. User Access Notification with single sign – on for Mulitple Servers is a concept of Robotic Process Automation wherein multiple servers with different user credentials are used to login in the particular server. This makes it more difficult for other people to check the particular person's presence in the office or company. This access notification equalises all the credentials from different servers and logs in the remaining servers making it visible for all and allows the other person to confirm the user's presence in the company. There are many processes and departments in the IT sector like HR Department, BPO's, Banks, etc where RPA can be implemented. Now the Robotic Process Automation is at the very early stage and it is now being implemented in various IT companies. RPA can create virtual integration between multiple systems while executing repetitive work more accurately than employees.

1. INTRODUCTION

1.1 Robotic Process Automation: An automation capability configured with the end user environment to change the manual and repetitive tasks is termed as Robotic Process Automation. Automation process brings down the manual work of employees and puts their efforts to update the automation module. Process automation involves various manual small tasks being converted to different automation processes using various developmental software tools like Uipath, NICE, Blue Prism, etc. User Access Notification with single sign – on for Mulitple Servers is a concept of Robotic Process Automation wherein multiple servers with different user credentials are used to login in the particular server. This makes it more difficult for other people to check the particular person's presence in the office or company. This access notification equalises all the credentials from different servers and logs in the remaining servers making it visible for all and allows the other person to confirm the user's presence in the company. Now the Robotic Process Automation is at the very early stage and it is now being implemented in various IT companies. RPA can create virtual integration between multiple systems while executing repetitive work more accurately than employees.

Many things have changed in the world of technology for over past decade and Robotic Process Automation is one of them. An entity which is capable of being programmed by a computer for doing complex tasks is known as a Robot. In terms of Robotic Process Automation (RPA), the task would be to mimic the human actions. A sequence of steps that lead to meaningful activity or task is known as a Process. When a task happens automatically it is known as Automation.

Therefore the software which manipulates the data is called as the Robotic Process Automation. RPA is a rapidly growing technology in the IT industry.

Fig 1.1 Robotic Process Automation

In this era of IT industry, everything is getting automated and major IT companies in India is using RPA to reduce the man power and reduce the rate of human errors. According to a recent study, it will have an economy impact of $5-7 trillion dollars. By the year 2025, major IT companies in the world would move towards automation and most of them have started to work on RPA. There are many processes and departments in the IT sector like HR Department, BPO's, Banks, etc where RPA can be

implemented. Now the Robotic Process Automation is at the very early stage and it is now being implemented in various IT companies. In this era of IT industry, the companies are trying to automate everything that they can, to reduce the cost and to bring down the human errors. Robotic Automation tools are up to 65% less expensive than offshore-based fulltime employees.

1.2 Objective : The main objective of this paper is to bring down the manual execution of tasks done on a daily basis and automate it which will bring down the time of action and also help in executing more tasks. It takes few hours daily to complete a particular task manually but by using Robotic Process Automation, we can ensure that it is completed way sooner with very less error rates and by reducing the cost and time. The main goal of RPA is to improve operational excellence and customer experience through increased efficiency, agility and performance in day to day activities across the enterprise which results in the increase of customer satisfaction. RPA can create virtual integration between multiple systems while executing repetitive work more accurately than employees. Operational excellence and customer experience after the use of RPA can be well increased alongside by the use of RPA.

To reduce the workload of employees who performs the tasks of reporting the server access manually which would be time efficient and error free. Instead, these employees can concentrate on high skilled jobs which require additional man power to perform the complex tasks. This RPA helps employees to overcome the disadvantages and it helps the employees to focus on strategic IT implementations to deliver huge returns.

2. EXISTING SYSTEM

2.1 Overview : The overview of this topic is where in a particular administrator of all the systems takes log of the presence of the employees by checking the server details manually. Each day, the administrator spends an average of five hours to check an employee database of around 1000 employees. This arises because there are multiple servers in the company and different employee logs in to different servers based on their work. The log-in process is checked by the administrator by checking a series of Excel Sheets. The administrator then logs-in the other servers in order to let people from various departments that the particular employee is present for that particular day. This follows a set of protocols or set of instructions to check the log in credentials of the employee who checks in the server. The main aim of the robotic process automation is to automate the process which follows a set of protocols or set of instruction and to reduce or save the time. This also works if the employee works at home or employee works in any other place and it shows the time of log in and gets recorded in the report. This process is time consuming and takes a lot of time for the administrator to complete the process. This process, off late is followed by many companies and each company takes the log of the employees manually resulting in human errors and also taking more time to generate the report.

2.2 Methodology : This process at first checks all the servers available in the company by pinging the servers to know the connectivity. If the employee logs in Server 1, the admin checks and logs-in to the other servers. This process takes time and also not that efficient because of the fact that the person can give out fake presence and also miss out a few employees name in the server list where it is checked. When an employee is logging into a particular server, then the employees logging in to other different servers might not be able to know the presence of the worker and can only know once the person manually takes in the details and logs in the other servers. The process is done daily by a person manually and this manual work of finding and taking out log details of the employee in the company for check of presence is the existing system followed in companies. This existing system consumes a lot of time and also the generated report is not that efficient to analyze the complete report. This methodology is being used to calculate and generate the reports of employees manually on a day to day basis. There are not many drawbacks in the existing but the complete system which is generating the program is a drawback. Major drawbacks of the system are time consumption, less efficiency, more man power usage and less accuracy. Time consumption is the major and huge drawback as it takes a lot of time by the employee to generate the report manually daily by spending more than five hours to generate a report of 1000 employees working in the company. This can also take a lot of man power to generate many reports if the employees working in the company are more. Also, the efficiency in the process is less compared to any other process as the person generating the report might lose out a few details of the employees and it becomes a tedious task at last to figure out who the missed out person was. The overall efficiency in the process is also less when compared to other processes where data of the employees are taken on a daily basis to generate the reports.

3. PROPOSED WORK

3.1 Overview : The proposed system for the existing execution of the process is the complete automation of the system which is done manually by the employees who spend more than five hours to take details of 1000 employees. The proposed system can bring down the complete time consuming process and can generate the Server Reports in few minutes. The process also involves the Main Asset file and Input files to be loaded along with the input excel files for which the report needs to be generated.

The input files once loaded, start the process of comparing the details with the main Asset File along with the particular primary details which has been mentioned in the query for comparison. The output file is also generated as an Excel file and has the specific primary key for each input file which checks with the Asset file(in this case Asset Code, Machine Serial Number, User Name).

The output excel file has all the details of the employees and the servers they have logged in and this helps in checking whether the person is present for the day or not. This helps in not only lowering the time for generation and also the report can be taken any time of the day unlike the other day which needs to be taken only at the end of the day.

4. IMPLEMENTATION

This implementation includes the three server reports Big fix server, Cisco Umbrella server, and Symantec Server. These reports includes the user credentials of the employee for all the three servers. In all these three servers we should set the primary id or unique id in all the server reports to compare with master sheet which includes the all the user credentials of the employee of all three servers. For example, the Big Fix server report has the "Asset Code" as the primary id and this primary id is compared with master sheet. Similarly for the Cisco Umbrella Server Reports "Machine Serial Number" is kept as the primary id and for the Symantec reports "User Name" is kept as the primary id and these reports are compared with the master sheet.

Now open the tool and create new project and save the project. In this implementation we should create the user types, properties and instances for the three servers. After creating User Types, we should create a property for each User Type. For example if you create user type CAR it has properties like vehicle number, color of the car, etc. Similarly for Big Fix Server, each employee has an Asset Code, Department Name, Machine Serial Number, etc. Then create the properties for each three servers. After creating properties for three servers create user type called QUERY PARAMETERS named READ file for each of the servers which reads the file of the respective user credentials of the employee from the excel file which has the details of the employees. In the User Type Query Parameters we should create a path to link the excel sheet so click on the query parameters and right click and create a new instance named "excel path bigfix" to create a path to link the big fix reports. Check the initial value and link the path where the file is available. Similarly create a excel path to each and every report in the file.
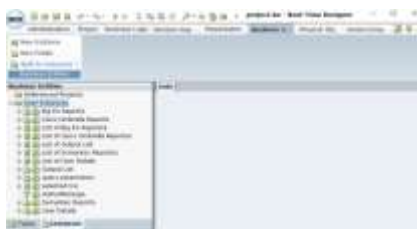

Fig .1 Types and Properties

The reports are linked with the tool and after completing creating a path to the excel file create callout in the presentation layer to display to the client. After creating a callout in the presentation layer create a new button to load the user details, big fix file, symantec files, and cisco files. These buttons when clicked it will load the data into the table. Status message is used when you click the user details it shows the status as "Reading the user details. After creating a callout in the presentation layer create a new button to load the user details, big fix file, symantec files, and cisco files. These buttons when clicked it will load the data into the table.

Status message is used when you click the user details it shows the status as "Reading the user details". Similarly it shows the status message when you click on the other buttons. After creating the button click on the button and go to settings to set the action to be performed for the each respective button created. In the user details button set the action to read the user details of the employees from the excel file and describe the action name and click on the ok button. The status message is fairly important in the process which is the only source of update the user can know of on where the process is running. The process can develop new data between the input and the output file and sometimes can open a new output file or can also update the input file itself. The file can also take much time to execute according to the inputs the user has given. Similar to the user details read button create buttons for the other servers and set the action link to read the data from the excel files for the respective servers and set action name and then click ok to read the data.

5. RESULT ANALYSIS

Testing is the most important phase in the Software Development and in any field. In this case of automation testing process, dummy values are used to check the rate of error and on how the process execution is completed. The success of the testing process in determining the error mostly depends upon the test criteria. Test cases are performed to check the accuracy in the results obtained by comparing the expected result and the actual result. The input and the output parameters were tested and the results are tabulated in the table 5.1.

S.NO	SERVER NAME	PROCESS	STATUS
1	Big Fix Server	If the Primary ID of Big Fix Server matches the User Credentials in the Master Sheet, then it loads the data.	Success
		If the Primary ID of Big Fix Server does not match the User Credentials in the Master Sheet, then it does not load the data.	Failed
2	Cisco Umbrella Server	If the Unique ID of Cisco Umbrella Server matches the User Credentials in the Master Sheet, then it loads the data.	Success
		If the Primary ID of Cisco Umbrella Server does not match the User Credentials in the Master Sheet, then it does not load the data.	Failed
3	Symantec Server	If the Primary ID of Symantec Server matches the User Credentials in the	Success

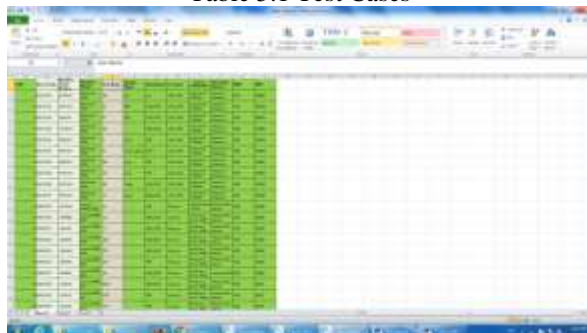| | | Master Sheet, then it loads the data. | |
| | | If the Unique ID of Symantec Server does not matches the User Credentials in the Master Sheet, then it does not loads the data. | Failed |

Table 5.1 Test Cases

Fig 5.1 Reading User Details File

The above Fig 5.1 is the master sheet of all the user credentials which contains the all the information about the user details and their User Name,Machine Serial Number,etc.In this master sheet file we will assign the username,machine serial number and asset code as the primary key and we compare it to the three server reports which gives us the final output file.This file also includes the location,Department, and all the other secondary details.This file is used for reading the all the employees details which is then used for comparing with other three server reports.By comparing with the other three server reports a output file is triggered with which contains the final report of the all the three server reports.
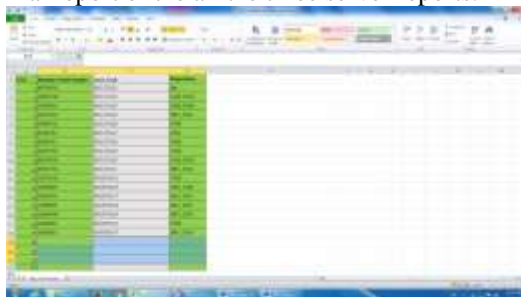

Fig 5.2 Big Fix Excel File

This excel file screenshot Fig 5.2 is one of the three server reports. This file contains the information about the big fix server reports of the employees. In this big fix server reports Asset code is considered as the primary key and this primary key is compared with the master sheet which contains the all the details of the employees. This big fix server reports is one of the server reports. This file also includes the Machine Serial Number and department. This Asset code is compared with master sheet which is used for reading the user details.
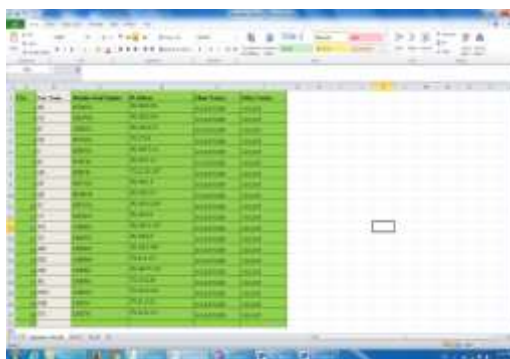

Fig 5.3 Symantec Excel File

This excel file screenshot Fig 5.3 is one of the three server reports. This file contains the information about the Symantec server reports of the employees. In this Symantec server reports User Name is considered as the primary key and this primary key is compared with the master sheet which contains the all the details of the employees. This Symantec reports contains the client version and policy version. This file also includes the Machine Serial Number and IP Address .This User Name is compared with master sheet which is used for reading the user details.
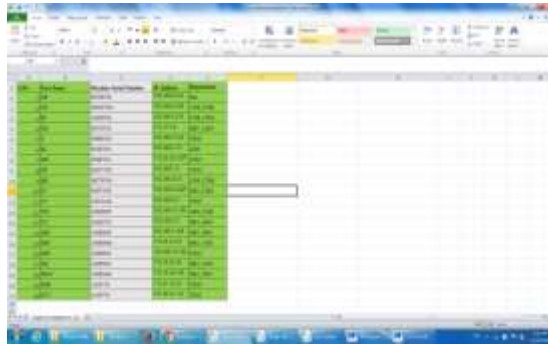
Fig 5.4 Cisco Umbrella Excel File

This excel file screenshot Fig 5.4 is one of the three server reports. This file contains the information about the Cisco Umbrella Server reports of the employees .In this Cisco Umbrella Server reports Machine Serial Number is considered as the primary key and this primary key is compared with the master sheet which contains the all the details of the employees. This Cisco Umbrella server reports is one of the server reports. This file also includes the Machine Serial Number, department, User Name etc. This Machine Serial Number is compared with master sheet which is used for reading the user details.
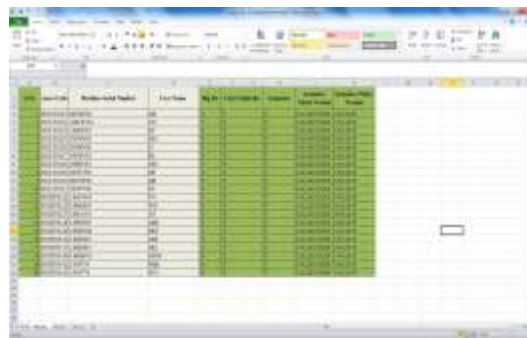

Fig 5.5 Output Excel File

This Output file Fig 5.5 has the sheets compared where in the Server details of the other Excel sheet files are taken and he primary key are matched accordingly. This output file is the final file which is taken care of by the person who makes sure that the complete data is sent to the HR and the next set of instructions is executed with the retrieved data. This output file retrieved with the other excel files after comparison with the other User details file and the server file is used for the usage and the development process with the other teams in the company. The company may then utilize all the other details as such to mark the particular employee's presence or a particular employee's data in the database.

6. CONCLUSION AND FUTURE ENHANCEMENT

This Robotic Process Automation is going to be the future technology as many other companies in IT industry is implementing this RPA as it can reduce the error rates and give improved accuracy. According to one of the leading reports in 2021 there will be more than 4 million robots doing office and administrative and sales and related tasks. According to a recent study, it will have an economy impact of $5-7 trillion dollars. By the year 2025, major IT companies in the world would move towards automation and most of them have started to work on RPA. Robotic Process Automation has major impact in outsourcing industry and it has become major market and business model changer. RPA tools are evolving and future RPA tools will have AI and Cognitive Learning features or machine learning features built in the tools. RPA and AI are likely to have a transformative effect on how companies operate and what services they buy but we are still in a relatively early phase of that trend. The use of Artificial Intelligence in this technology is going to be an evolution in IT industry in next 10 years. It is an expanding field and it can be extensively used in banking sector if your business involves high volume of transactions with sizeable manual effort in tasks that are based on these transactions or follows a set of protocols then RPA technology can be used to save the total cost and time and effort put by humans. RPA tools are already being used in the business and some of the popular tools. According to one of the reports six areas of the bank are going to get completely automated. Incorporating AI and Machine Learning for advanced decision making can be built using the various tools.
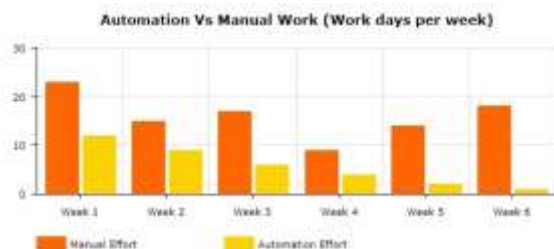
Fig 6.1 Automation VS Manual Work Chart

The above picture shows us the comparison between the automation and manual work. This graph shows the time taken in manual work and time taken during the automation. In this graph time taken for manual work is represented and compare to the automation effort it takes higher time because the administrator has to take the reports of all the employees in all the three servers. But in automation effort it takes less time and it is very accurate and error free. This automation effort is very useful for the system administrator to generate the reports of the employees in all the three servers. This is used when the organization needs to take the details of 1500 employees and this requires lot of time which is shown in the Fig 6.1 and it takes lot of efforts. But in automation it triggers the report of the three servers of Big fix Server, Cisco Umbrella Server and Symantec Server. This brings down the time of execution resulting to execute more tasks in short period of time. The Manual Work which is being done by various persons in a company would be done in a short span of time making this system unique and wherein if involved in future developments can bring in a lot of change accordingly.
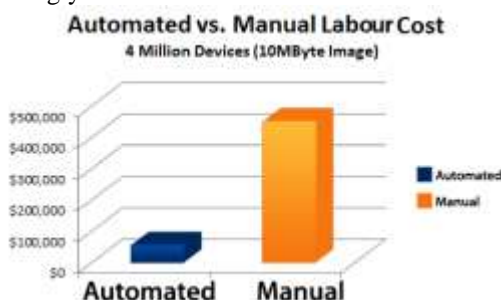

Fig 6.2 Automation VS Manual Work Labour Cost Chart

The chart above describes the cost involved in Automation Process and Manual Process wherein this also deals and proves that the Automation Process is way more easier and involves less labour usage and the cost of production is also less. This also involves process wherein there is high profit for each process and low time consumption making it more efficient in all aspects. Manual work not only consumes the time but cost is also relatively high in manual labour cost which is shown as a chart in Fig 6.2. The cost of the automation tool is relatively low compared to employee cost and offshore cost. This makes the complete automation process more efficient and also makes it easier for the company to increase the profitability than the time consuming and the tasks which brings out low profit compared to the automation processes.