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Analyzing the Robotics Automation Testing Techniques Life Cycle and its Advantages

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Abstract: - This paper shares the meaning of Robotics automation testing. In several domains which uses robotics for performing their organization's tasks, it is mandatory that they have such testing techniques which will save their time which can be utilized in other tasks. Like any other testing, Robotics automation testing also have a unique way of testing the robotics application. This paper will explain meaning of robotics, robotics automation testing, types of robotics automation testing as well as its advantages.

Keywords: - Robotics engineering. Robotics Automation testing, Advantages.

Introduction: - In the era of high-tech applications, there is continuous demand of clients to deliver their projects on time. Many organizations these days are using the concept of Robotics to ease their tasks. To perform all kind of tasks, in order to save time, robotics technique is used by the businesses. There are many tasks where the humans can be replaced by robotics which can perform the task at a much higher speed. There are many repetitive tasks which makes the workers occupy most of their time which otherwise can be utilized doing other important tasks. This kind of task can be replaced by using robotics techniques.

Advantages of Robotics Process: - [1]

Apart from saving time there are many advantages of implementing robotics techniques in an organization: -

Figure1 Advantages of Robotic Techniques.

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1. Saves Time: - Using the robotics techniques in an organization saves a lot of time which can be utilized in other tasks. Having robots to perform tasks can give more time to the employees which can be utilized by them in other efficient tasks.

2. Increased efficiency: - The performance rate by robots is much higher than that of human beings. Th robots can work endless hours unlike human beings which in turn can help the employees to increase their efficiency to perform better.

3. Increased productivity: - Having increased efficiency rate by using robotic techniques in most of the tasks the productivity of each employee can be increased and also the employees can give their 100 percent in performing other tasks. All the time-consuming tasks can be done using robots.

4. Decreased work load: - There are multiple tasks which need to be done repetitively by the employees which puts unnecessary workload pressure on the employees which might decrease their efficiency at work place. Therefore, if the organization is using robotics to perform such tasks a lot of pressure can be removed from an individual which they can use in performing other important tasks.

5. Increased Clients: - Whenever an organization implements robotics in performing most of the tasks then they can deliver the projects at a much higher speed as compared to the organizations not using robotics techniques. Hence, this will attract more clients to the organization as they will have faith to receive their projects at a higher speed and efficient results.

Why Robotics Automation Testing: -

Like any other application, robotics technique can also give errors. They can replace the human beings but if the coding is not up to the mark, then the robotics applications can also give error results or outputs which are far away from expected results. Therefore, it is mandatory that once the robotics is implemented it should be tested for error. Again, manual testing process is time consuming so that testing should be done using automation techniques. Like any other testing Robotics automation testing have its own life cycle or in other words it owns unique testing techniques. Following are the robotics automation testing life cycle: -

There are 4 Robotics Testing life cycle stages: - [2]

1. Planning and designing: - The RPA designer discusses with the client about their requirements. Based on the requirement specification the designer starts designing the modules which will be included in the RPA. They will create all the flow charts, diagrams to explain every module of the RPA in detail.
2. Development: - Based on the design stage output the developers starts coding each module of the RPA. In order to save time, they will write scripts using automation testing tools which can be used for saving time. All the automation scripts are written in this stage.

3. Testing: - Once the designing phase is completed, the testers will start testing the robot in different environment to check whether it is working as it is supposed to work. There should be dedicated testing team to test the scripts. The QA should be efficient to test the bots in all possible environment to make sure that it is functioning properly in all kind of platform and giving proper output while giving specific inputs.

4. Implementation: - Once all the modules are designed and tested for any kind of error, then in this stage all the modules are integrated and tested and implemented and checked that the robotic is functioning without any errors. If there is any error or bugs then the bot will go again through all the previous mentioned stages till the time it does not give any bugs.

Figure2 Robotic Testing Life Cycle.

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Importance of Robotics Automation: - [3]

1. Improvement in efficiency: - The efficiency rate using robotic technique is much higher than those who does not use robotics techniques. This is so because the human beings can only work for few hours but in case of bots, they can work without getting tired for endless number of hours. Hence the efficiency with which they give results increases as compared to human beings.

2. Saves Time and energy: - The robotics technique helps to reduce time taken to perform a task. There are few tasks which are repetitive and if done by humans than it will take a lot of time to perform, so if there are robots who can makes the tasks easy and takes lesser time than it will become easy for human beings. The robotic technique is used to make easy such tasks which are repetitive and hence saves a lot of time of the employees.
3. Increased Accuracy rate: - Human beings tend to make mistakes. If they are occupied in performing repetitive tasks than there is possibility that they make mistake which will cost them a lot. Even a small mistake can lead them into trouble. But if robotic technique is used than the accuracy rate increases. The machine cannot make mistake until all the inputs given are up to the mark. For enhanced accuracy rate it is mandatory that the implementation of the robotics is done efficiently. If there is mistake while implementing the technique than the result will also give errors. Therefore, proper testing of robotic is important.

4. Improved customer services: - Using the robotics techniques in the organization removes unnecessary pressure from the employees which is helpful for them to attend to customer's queries. If the employees are engaged in performing the dull tasks, then they will not be able to attend to their clients queries which will result in poor customer service and loss of clients.

5. Increased number of clients: - The clients get attracted to the organization which provides them with fast hand over of the projects with complete satisfaction. So, the organizations who uses robots in their work place, will have the tendency to attract more clients due to fast delivery of the projects.

6. Enhanced communication channel: - There is a lot of information to be stored on daily basis in businesses which should be communicated among all the employees. If the employees themselves are doing information logging work, then they will be occupied in this and the information will not be able to be communicated among all the employees. On the other hand, if there is dedicated system like robots which can store and update the information from time to time and this can be communicated throughout the organization in no time.

7. Security: - While having implemented robotic techniques to handle the information and data, the level of security is increased. As everything is automated and done at coding level, there are less chances of leaking of important data. If it is handled by humans then there are chances that due to minor mistakes the data or information may leak which will have a very bad impact on the organization.

Tools used for Robotic Automation Testing: - [4]

Robotic technique is used in the organization to save time and energy and makes the tasks easier for the employees. So, it is very important that the robotic is tested properly before implementing in it real time environment. To make the testing of robots easier one can use one of the various automation testing tools for the robots: -

1.Blue Prism: - This tool provides the drag and drop feature which helps to perform automation testing of the robot.

2.Automation anywhere: - It is one of the popular automation vendors which makes any complex automation testing easier to perform.

3.Pega: - It is a tool which helps to perform routine tasks in a much easier way.

4. Jacada: -This is most popular for RPA. It helps to automate the tasks which are time consuming and also repetitive.

5.Winautomation: - This tool has the capability to perform parallel automation tests scripts which is also used to reduce time taken to perform tests.

Conclusion: - Hence, in this paper we understood the high - tech robotic techniques. It is very commonly used in many organizations to make the tasks easier and save time. Like any other application, robotic technique also has life cycle for its implementation. For proper functioning of robot, it is very important that the robot is tested before its implementation. For this one can use one of the many automation testing tools to make the task easier.

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