# AUTOMATION OF MESSAGE SENDING PROCESS USING RPA BLUEPRISM

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***Abstract*—Automating the sending congratulatory messages and images to colleagues in the WhatsApp messenger using its web version "WhatsApp Web" due to the lack of an official API for creating bots. Also, a chat bot, which was written with python and can recognize and respond to commands, was implemented. In the modern world, we often face the problem of lack of time. Each person has to do many different things every day. Therefore, sometimes people forget about the important thing: about maintaining a connection. Indeed, it takes a significant amount of time to pay attention to everyone. Because of this, people rarely write to each other, and sometimes they completely forget to congratulate a colleague on an important holiday for him. To get rid of the daily time spent, it was decided to create a program that would send cards to colleagues on holidays, birthdays, anniversaries and could also interact with them using command. The replies are sent out automatically without needing any human intervention by bot. WhatsApp automated messages are pre-set replies to messages received from new or existing customers on WhatsApp. This feature gives you the bandwidth to respond to customer messages even outside of business hours. The promptness and efficiency with which customers receive responses from your business are bound to improve their satisfaction. The aim of this research project is to propose an end-to-end model for human activity recognition.**

***Keywords*— Robotic Process Automation, Blue Prism, Bot, Application Programming Interface**

## I. INTRODUCTION

In the modern world, we often face the problem of lack of time. Each person has to do many different things every day. Therefore, sometimes people forget about the important thing: about maintaining a connection with their relatives. Indeed, it takes a significant amount of time to pay attention to everyone. Because of this, people rarely write to each other, and sometimes they completely forget to congratulate a loved one on an important holiday for him. To get rid of the daily time spent, it was decided to create a program that would send cards to relatives on holidays and could also interact with them using commands. Bots in the WhatsApp messenger are nothing new. Although they are used less frequently than in other applications, they are convenient tools for business. Bot Creators' articles say that bots on WhatsApp are different from other bots. Because of this, their implementation is more difficult, but bots turn out to be complete with the right approach. When analyzing already existing user projects on the Github.com site, it was discovered that there are bots that perform various functions. But no bots were found to send messages based on date and time.

## II. ADVANTAGES

- It is very accurate and time saving
- They help you get to know your customers. Conversational chatbots can help you get toknow your customers even better.
- They allow you to find out what their most common questions and needs are, as well as the products or services that interest them.

With the WhatsApp Business API, you can set automated responses and respond to customers in minimal time - massively improving customer service and boosting customer retention. It streamlines and automates workflows so that you can get more done in less time.

Blue Prism is an RPA Tool which holds the capability of virtual workforce powered by software robots. This helps the enterprises to automate the business operations in an agile and cost-effective manner. The tool is based on Java Programming Language and offers a visual designer with drag and drop functionalities.

Blue Prism is a software company that develops industry robotic process automation (RPA) software that enables businesses to automate complicated, end-to-end procedures.

Blue Prism created the Virtual Workforce Platform concept and is working on a robust, highly scalable, secure, and dependable enterprise Robotic Process Automation platform.

Blue Prism's software complements traditional IT solutions by utilizing an agile virtual workforce that adheres to rule-based business processes and interacts with systems similar to users.

Microsoft .NET framework is used as script to the Blue Prism. .NET is an open- source platform for building desktop, web, and mobile applications that can run natively on any operating system. The .NET system includes tools, libraries, and languages that support modern, scalable, and high- performance software development. An active developer community maintains and supports the

.NET platform.

In simple terms, the .NET platform is a software that can do these tasks:

- Translate .NET programming language code into instructions that a computing device can process.
- Provide utilities for efficient software development. For example, it can find the current time or print text on the screen.
- Define a set of data types to store information like text, numbers, and dates on the computer.

## SCOPE OF THE PROPOSED WORK

WhatsApp automated messages are pre-set replies to messages received from new or existing customers on WhatsApp. The replies are sent out automatically without needing any human intervention by bot. This feature gives you the bandwidth to respond to customer messages even outside of business hours. The promptness and efficiency with which customers receive

responses from your business are bound to improve their satisfaction. The aim of this research project is to propose an end-to-end model for human activity recognition.

## III. SOFTWARE AND HARDWARE REQUIREMENT

**Hardware:**

- Processor - 2.0 GHz 32 or 64-bit processor
- RAM - 2 GB RAM (32-bit) or 4 GB RAM (64-bit)
- Hard Disk - At least 20 GB of available hard-disk space

**Software:**

- Operating System - Windows 7/8/10
- Scripts - Microsoft .NET Framework 4.8
- Tool - RPA Blue Prism

## IV. SYSTEM ARCHITECTURE

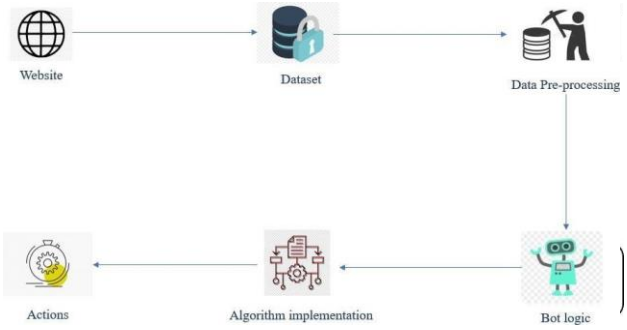


**Fig 1 System Architecture**

The system architecture defines the flow of the process. The website searches for the dataset and the data set is stored in the SQL database. There the data is pre-processed and bot logic is used to get the information about the process. Then finally the algorithm is implemented using bots and action taken.

## V. LITERATURE SURVEY

**Future for scientific computing using python. Rakesh Kumar. 2015.** Computational science (scientific computing or scientific computation) is concerned with constructing mathematical models as well as quantitative analysis techniques and using computers to analyze as well as solve scientific problems. In practical use, it is basically the application of computer simulation as well as other forms of computation from numerical analysis and theoretical computer science to problems in different scientific disciplines. The scientific computing approach is to gain understanding, basically through the analysis of mathematical models implemented on computers. Python is frequently used for high-performance scientific applications and widely used in academia as well as scientific projects because it is easy to write and performs well. Due to its high-performance nature, scientific computing in Python often utilizes external libraries like NumPy, SciPy and Matplotlib etc.

**Design of automation scripts execution application for selenium web driver and testing framework. Rishab Jain C and Rajesh Kaluri. 2015.** To develop and deliver software to the customer, validating its quality is highly important. Software testing can be performed manually or using automation tools to identify defects, assess the quality of the product and gain confidence in the software being developed. Automation tools helps in design and execution of test scripts saving time and cost involved in manual testing. This paper mainly focuses on the automation testing tools currently available to support design and execution activity, challenges faced by manual tester in executing automation scripts, approaches in executing of automation scripts using TestNG and its disadvantages and then overview of the proposed web application which overcomes the problems faced by manual testers, reduce the time spent on initial set-up activity to carryout test scripts execution and overcome disadvantages of execution using TestNG.

## VI. PURPOSE OF THE PROJECT

Nowadays, the popularity of messengers is growing, so it is important to automate processes and create bots. Using the web version of the messenger does not limit the bot's capabilities, so this method is working for creating bots created for private use. The file system used in the program works more stable, since the main code does not change.

## VII. MODULES

- Data pre-processing
- Bot logic
- A* Algorithm
- D* Algorithm
- Deployment

**Data Preprocessing:**

Preprocessing simply refers to perform series of operations to transform or change data. It is transformation applied to our data before feeding it to algorithm. Data processing refers to perform operations on data to retrieve, transform, or change data, especially by computer. It is technique that is used to convert raw data into clean data set. In other words, whenever data is gathered from different sources, it is collected in raw format, which is not feasible for analysis. Then it converts raw format into readable format (graphs, documents, etc.), so that it can be interpreted by computers and utilized by employees throughout an organization. It transforms raw data into meaningful information.

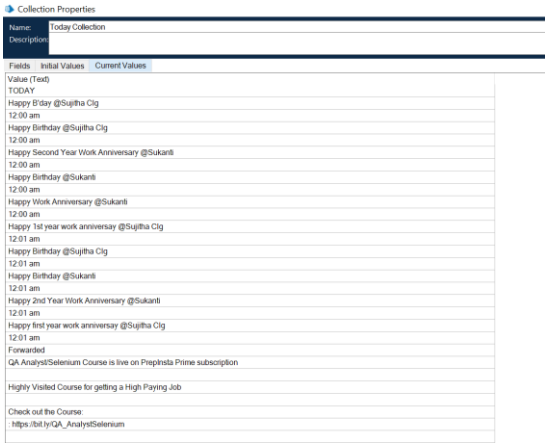


**Fig. 2: Getting the data for preprocessing**

**BOT LOGIC:**

A bot is an app that users interact with in a conversational way, using text, graphics(such as cards or images), or speech. Azure Bot Service is a cloud platform. It hosts bots and makes them available to channels, such as Microsoft Teams, Facebook, or Slack. The Bot Framework Service, which is a component of the Azure Bot Service, sends information between the user's bot-connected app and the bot. Each channel can include additional information in the activities they send. Before creating bots, it's

important to understand how a bot uses activity objects to communicate with its users. This diagram illustrates two activity types, conversation update and message, that might be exchanged when a user communicates with an echo bot. The Bot Framework Service sends a conversation update when a party joins the conversation. For example, on starting a conversation with the Bot Framework Emulator, you might see two conversation update activities (one for the user joining the conversation and one for the bot joining). To distinguish these conversation update activities, check who is included in the members added property of the activity. The message activity carries conversation information between the parties. Includes removing missing data and complexity with naming category and so on.

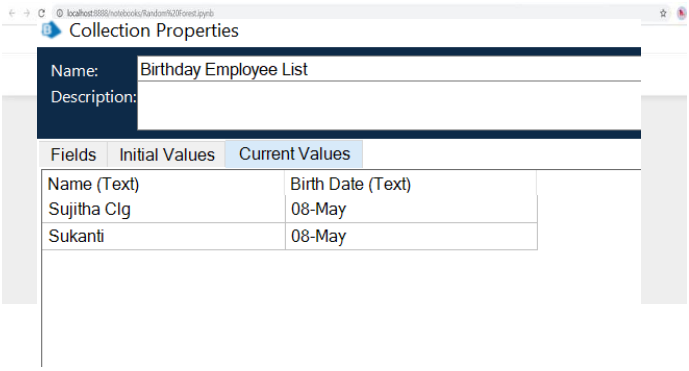


**Fig. 3: Bot uses its logic**

### A* ALGORITHM

The A* algorithm is a path search algorithm that is used to find the most optimal pathbetween two points, i.e., with the smallest cost. Anytime A* Algorithm has a flexible time cost and can return the shortest path even if it is interrupted as it generates a non-optimal solution first and then optimizes it. This allows for faster decision making as the robot can build upon previous calculations instead of starting from scratch.

### D* ALGORITHM

D*, Focused D* and D* Lite are incremental search algorithms to find the shortest path between two points. They, however, are a mixture of A* algorithms and new discoveries that allow them to add information to their maps for unknown obstacles. They can then recalculate route based on new information, much like the Mars Rover. How Does It Work?

The working of D* Algorithm is similar to that of A*, the algorithm first defines f, h and creates an open and closed list. After this, the D* Algorithm determines the current node's g value using the g value of its neighboring nodes. Each neighboring node makes a guess about the current one's g value and the shortest g value is adapted as the new g value.

### DEPLOYMENT

Each module has a set of deployment properties associated with it by default; these are stored in the deployment descriptor file. If you want to specify different values for these properties, you can edit them directly in the descriptor file or in the IBM Integration Designer module deployment editor. Any changes that you directly make to module deployment properties in deployment descriptor files are typically overwritten when the deploy code is next regenerated. However, you can use the module deployment editor to specify and retain changes to module deployment properties. The module deployment editor saves your changes to a deployment side file, which is used to automatically update the module deployment properties in the deployment descriptor files whenever the deploy code is regeneratedor the module is installed on the server. Model deployment is the process of putting machine learning models into production. This makes the model's predictions available to users, developers or systems, so they can make business decisions based on data, interact with their application (like recognize a face in an image) and so on.

## XI. CONCLUSION

Based on the analysis and the results of the experiment, a number of conclusions were drawn, including further areas of research. Nowadays, the popularity of messengers is growing, so it is important to automate processes and create bots. Using the web version of the messenger does not limit the bot's capabilities, so this method is working for creating bots created for private use. The file system used in the program works more stable, since the main code does not change. At the moment, the bot has great potential, since the main functions were written. You can make almost anything out of them. As the next task, you can add the number of commands to the bot, for example, display the weather forecast, or display the schedule of a TV channel. Thus, a bot was developed that allows you to automate the process of sending congratulations to relatives, and also has good potential for further work with WhatsApp.

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