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RPA Based Digital Marketing Robot

Mr. Shashank Karn [1], Mr. Sumit Chaurasia [2], Mr. Kedar Davate [3], Dr. Milind Nemade [4], Dr. Namrata Ansari [5], Robonomics AI India Private Limited

[1] U.G. Student, Electronics Engineering, K.J.S.I.E.I.T, University of Mumbai, Mumbai, India
[2] U.G. Student, Electronics & Telecommunication Engineering, K.J.S.I.E.I.T, University of Mumbai, Mumbai, India
[3] H.O.D, Electronics Engineering, K.J.S.I.E.I.T, University of Mumbai, Mumbai, India
[4] Associate Professor, Electronics & Telecommunication Engineering, K.J.S.I.E.I.T, University of Mumbai, Mumbai, India
[5] L-1804, Purva Highlands, Survey #19, Mallasandra Village, Holiday Village Road, Kanakapura Road, Bangalore - 62, India
Email id: Shashank.karn21@gmail.com,

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Abstract: - In the modern era of advertising, the role of marketing has increased exponentially. The marketing strategies of big brands nowadays highly rely on digital media. A new method of marketing known as digital marketing has evolved more than the rest of the marketing strategies. Digital marketing has now become the need of the hour for various brands and e-commerce platform. The proposed system will help such brands to reach out to the end user more efficiently and frequently. The proposed system is based on the implementation of Robotic Process Automation (RPA) which is a method used for deployment of software-based robots that mimic the functionalities of human operating a machine.

Keywords: Digital marketing, RPA, software robot.

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1. Introduction

Robotic process automation (RPA) is a platform that can use by professionals to automate the process that involves business processes. This technology involves the deployment of software based robots or artificial intelligence (AI) agents. [1] Traditional process automation tools that were developed involved a software developer producing a list of tasks that is to be performed and deploying a script that was able to automate the whole process. These Scripts were based on any suitable programming language and were interfaced with front end applications using Application Program Interfaces (APIs). In comparison to traditional process automation systems, RPA records the tasks performed by the user for that particular process and mimics it by repeating those tasks precisely as presented by the user. All this is done with the help of a Graphical User Interface (GUI) this helps in better understanding of the automation process. [2]

With RPA technology an individual doesn't need to have high programming skills to automate a task, he/she can automate any given task just by recording the same task being performed by a human and then just replay that recording. RPA based robots can use the user interface of the system to record and perform the task. This helps in efficient performance of tasks and also accuracy is high and time consumed to complete the task is quite less as compared to humans performing the same task. [4], [5]

2. Proposed Model

A. Main Framework

The Flowchart in Fig.(a) represents the primary framework that is designed in UiPath studio. The above structure helps the robot to decide the method of posting on

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social media platforms. There are two methods available for this purpose they are

(i) Custom URL posting that is represented by the URL flowchart block in Fig.(a) and its detailed workflow is provided in Fig. (b).

(ii) Keyword-based posting that is represented by the keyword flowchart block in Fig. (a) and its detailed workflow is provided in Fig.(c).

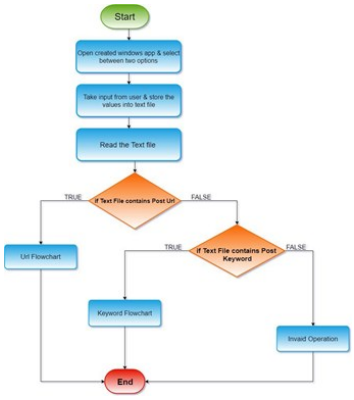

Fig (a) Main Framework

B. Custom URL Framework

The flowchart in Fig. (b) Represents the custom URL posting method. In this method, the robot uses the URL provided by the user via windows application provided. The robot then shortens the URL by using the TinyURL web portal which provides the service of shortening of large URLs to very small URLs that can be posted on any social media platforms without getting affected by character limit which can cause issues on some social media platforms like Twitter.

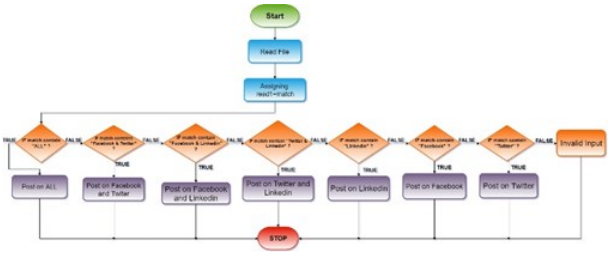

Fig (b) URL Framework

C. Keyword Framework

The flowchart in Fig. (c) Represents the Keyword based posting method. In this method, the robot uses the keyword provided by the user via windows application provided. The robot then extracts the latest article that is available on google and uses the URL of that article to post it on social media platforms. The shortening of the URL is performed as mentioned in the previous subsection.

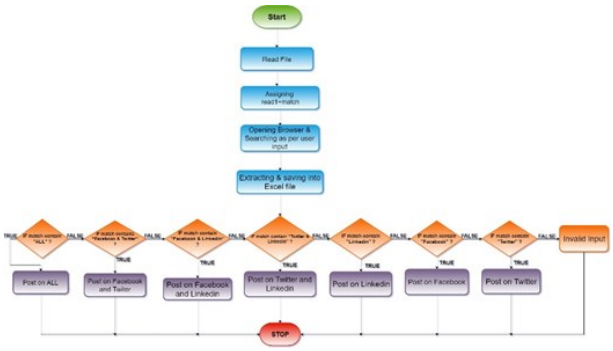

Fig (c) Keyword Framework

3. Software Used

A. UiPath Studio

UiPath studio is an RPA based process automation tool that helps in automating even most complex tasks within a very few periods. UiPath studio provides a platform where anyone can create their workflow that can be used to automate a particular task. No unique skill set is required to use UiPath studio. UiPath studio provides an environment to create workflows for two-dimensional process modelling efficiently. Recording facility provided by UiPath studio helps in mimicking the actions of humans on the machine. Fig (d) represents the main window of the UiPath Studio

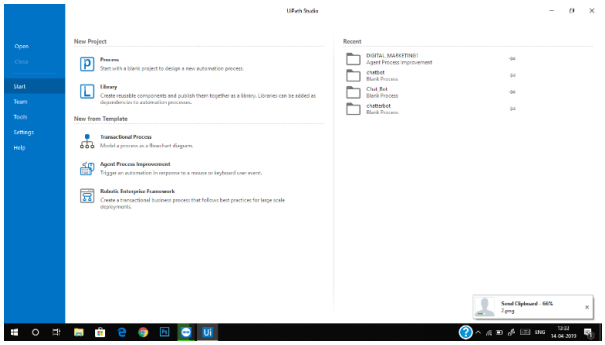

Fig (d) UiPath Studio

B. Microsoft Visual Studio

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Microsoft Visual Studio is an integrated development environment (IDE) provided by Microsoft for developing windows based applications. It can also be used to develop programs, websites, web applications, web services, and smartphone application. Microsoft Visual Studio uses Microsoft software development platforms like Windows Application Program Interface (APIs), Windows Forms services, Windows Presentation Foundation, Windows Store, etc. Microsoft Visual Studio can support upto 36 different programming languages and allows the code editing and debugging facility. Some of the built-in languages provided are C, C++, C++/CLI, Visual Basic .NET, JavaScript, TypeScript, XML, XSLT, HTML, and CSS. Support for other languages like Python, Ruby, Node.js, and M are also included. [6]

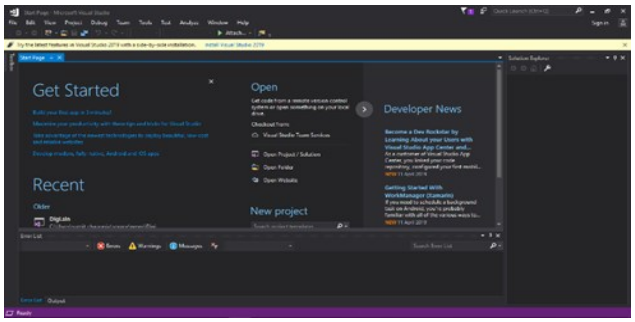

Fig (e) Microsoft Visual Studio

C. IFTTT Web Platform

IFTTT is a platform that is used for triggering purposes. With IFTTT activities like a social media post, IoT based triggering, etc. can be performed. IFTTT stands for If This Then That which means the triggers can be executed based on the occurrence of an event. [7], [8]
Following concepts can be deployed using IFTTT:

Building blocks of IFTTT include services which were previously known as channels. These services range from web applications like YouTube or Amazon. These services can also be described by actions that are controlled with various APIs like Email, SMS, etc. [7] Triggers represent the 'this' part of IFTTT applet. They are process or actions that can trigger a service or response which constitute the 'that' part of IFTTT applet. IFTTT applets that were previously known as recipes are the predicates that are developed using Triggers and Actions.[8]

Ingredients are the necessary data provided to the applet so that applet can run accurately and perform actions based on the data contained in the form of components exclusively. In the proposed model the IFTTT service is used for triggering the effect of social media post. The trigger used here is the point of completion of extraction of data by the robot based on the data provided by the user.

Fig (f) IFTTT Platform (source: google)

D. Web Browser

The web browser used in the proposed system is Google Chrome. The google chrome can be easily integrated with UiPath studio by using web extensions. Another reason for using google chrome is that its quite efficient when it comes to browsing websites and also performing time-consuming tasks.

Fig (g) Google Chrome

4. Results and Implementation

A. Configuring Windows Application Created With UiPath Studio.

The windows application is created using Microsoft Visual Studio and is based on the .NET framework. The app is designed to take client/user inputs regarding post activity. In Microsoft Visual Studio we created two forms, one for information regarding predefined URLs given by the user and second for posting news article related to the topic user wants to advertise. The start window of the application provides two options to

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the user as shown in the fig.4.1, clicking on either of them opens a new window related to that particular option. The app is configured with UiPath studio with the help of the feature known as agent process improvement provided by UiPath studio.

Fig (h) Main Window of the Application Created using Visual Studio

B. Configuring IFTTT with UiPath Studio Robot

The IFTTT platform is being integrated with the UiPath studio robot by using the my applet activity and creating applets that are able to read a mail sent from the robot to IFTTT and triggering the posting activity as soon as IFTTT receives the mail. Fig (i) shows the different applets that are created using IFTTT platform.

Fig (i) IFTTT Applets

C. Operation of the robot.

In IFTTT, we created various applets according to the social media platforms. The basic idea behind these applets is that when an email tagged with the specific hashtag is sent to trigger@applet.ifttt.com then content in the body of the email should be posted on the specific social media platform related to that specific hashtag. Services used in IFTTT by this project are facebook page, twitter, linkedin, facebook. In the variable url1 shorten url of the content that is supposed to be posted on social media platforms is stored. The URL is shortened using TinyURL and is necessary because some of the social media platforms have a character limit in their posting section. This url1 is then sent as the body of an email, and through IFTTT applets the post activity is accomplished on various social media platforms. Fig (j) shows the e-mail integration performed in UiPath studio which is used by the robot to send mails to IFTTT.

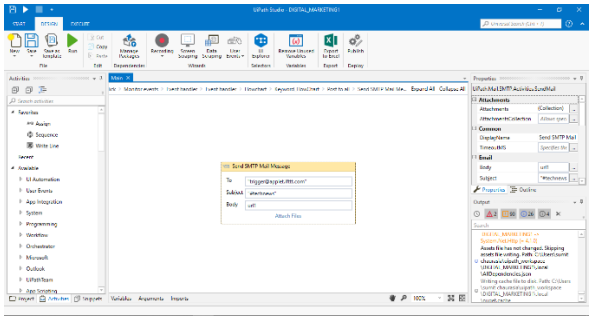

Fig (j) Mail Sequence in UiPath Studio

D. Posts on social media platforms by a robot

Following figures represent the social media platform posts that were posted using the robot created in UiPath studio. The social media platforms used for the operation were Facebook (fig (k)), LinkedIn (fig (l)), Twitter (fig (m)).

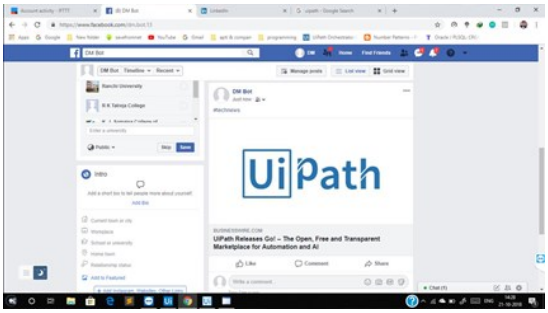

Fig (k) Post on Facebook

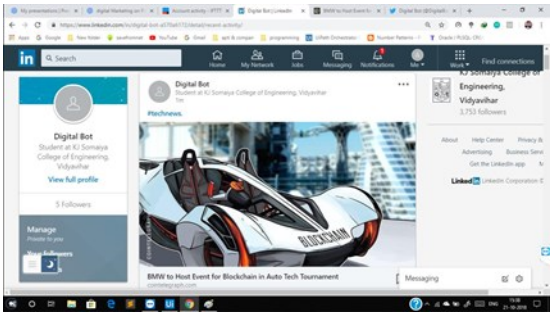

Fig (l) Post on LinkedIn

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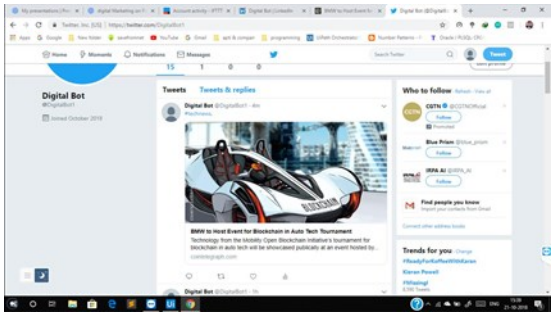

Fig (m) Post on Twitter

5. Conclusion and Future Scope

The proposed system can fulfill the purpose of digital marketing via social media platforms. The end user will be able to receive the updated content about the product/website regularly by increasing the frequency of the posts. This will enable the product manufacturer another website developer to directly communicate with the end user with the help of social media, advertising their product in the most efficient way possible.

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Authors Profile

Mr. Shashank Karn was born in Mumbai, India in the year 1997. He is currently pursuing Bachelors degree in Electronics Engineering from K. J. Somaiya Institute of Engineering and Information Technology. He has filed and published four patents. His research interest includes IoT, Computer Vision, Artificial Intelligence and Robotic Process Automation.

Mr. Sumit Chaurasia was born in Mumbai, India in 1997. He is graduating in Electronics and Telecommunication Engineering from K.J Somaiya Institute of Engineering and Information Technology, University of Mumbai, Maharashtra, India in 2019. He successfully published two patents. His career Interest is in Robotic process Automation, Internet of Things and looking forward opportunities in I.T sector.

Mr. Kedar Davate was born in Maharashtra, India in 1997. He is graduating in Electronics and Telecommunication Engineering from K.J Somaiya Institute of Engineering and Information Technology, University of Mumbai, Maharashtra, India in 2019. He successfully published two patents. His career Interest is in Robotic process Automation, Internet of Things and looking forward opportunities in I.T sector.

Dr. Milind U. Nemade was born in Maharashtra, India 1974. He graduated from the Amaravati University, Maharashtra, India in 1995. He received M.E (Electrical) degree with a specialization in Microprocessor Applications in 1999 and Ph.D. (Electrical) in 2010 from M.S. University of Baroda, Gujrat, India. Now he is Professor and Head of Electronics Engineering Department in K.J. Somaiya Institute of Engineering and Information Technology Sion, Mumbai, University of Mumbai, India. He presented and published *four* papers in national, *fifteen*

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papers in international conferences and *fifteen* papers in international journals. He filled and issued *three* patents. As a Principle and Co-investigator, he completed *nine* minor research projects sanctioned by the University of Mumbai. He is guiding five students under the Ph.D. course currently in different universities. His research interest includes Speech and Audio processing.

Dr. Namrata F.Ansari was born in Maharashtra, India in 1976. She graduated from the Shivaji University, Maharashtra, India in 1998. She received M.E (EXTC) degree with a specialization in 2008 and Ph.D. (Electronics) in 2018 from Pacific University, Udaipur, India. Now she is Professor and Dean Academics in K.J. Somaiya Institute of Engineering and Information Technology Sion, Mumbai, University of Mumbai, India. She presented and published *four* papers in national, *Ten* papers in international conferences and *five* papers in international journals. She filled and issued one patent.

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