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RPA in Banking Sector

Vaishak B[1], Tanvi Harish Bola[2], Rashitha Prasad Shetty[3], Pranamya V[4], Mr. Krishnamoorthy K[5]
[1, 2, 3, 4]*Department of Computer Science & Engineering, Mangalore Institute of Technology & Engineering Mangalore, India*
[5]*Department of Computer Science & Engineering Senior Assistant Professor Mangalore Institute of Technology & Engineering Moodabidri, Mangalore, India*

Abstract: ***The project presents an implementation of a prototype of robotic process automation (RPA) for banking system. The world has evolved digitally which is further getting automated. Transformation in automation field is a constantly evolving process where Robotic Process Automation came into the process of renovation and is playing a vital role. RPA is becoming a valuable tool in all the sectors mainly in banking and financial institutions. RPA is depicting how easy manual things can be achieved and has shown a lot of various benefits for different fields. The system utilizes RPA bots for the automating purpose. The aim of this work is to automate the repetitive tasks with path planning techniques to create a system that is able to navigate in given static environments.***

The Applications of bots have evolved swiftly over decades, proving to be a great achievement in technical field. Sales analytics is vital for retail decision-making, churn rate, product debuts, and trade promotions are improving people's lives by assisting them in resolving challenges they face on a daily basis. The use of robots has influenced humans' life in terms of saving time and effort. Robotics' constant advancement has created several growth potential in industries, education, utility facilities, and health care. Implementation of RPA in banking institutions for loan processing, credit card, fraud detection and user friendly bot has become very well successful. Its implementation has evolved the banking processes into a very advanced approach. In the present generation of technologies, organizations aim to reduce operational costs and provide better services to their customers

Keywords: Banks, Loans, Automation

I. INTRODUCTION

The Robot Process Automation (RPA) a framework for developing applications allows programmers to piece together a large system by connecting existing solutions to small problems. The main aspect of RPA is the way the program operates and interacts, which allows users to create repeated tasks easy without having to understand how specific hardware works. RPA allows a network of processes to be connected through flowchart.

Technological advancements have changed the way organizations operate. Business processes have increased the efficiency and enhanced manner to improve customer experience and save operational costs.

Reconciliation helps in reducing the conundrum of a company to find the faulty record entry. It is an important process in accounting which helps banks in matching bank statements with transactions.

Automating this process would focus on reducing the time and efforts invested by an individual to reconcile each and every account sheet of a bank. Reconciliation is mainly used in banking and financial services, health and insurance, telecommunication and utilities, and retail and commercial.

In the near future, robots will continue to revolutionize our lives beyond our wildest dreams, and they will continue to play a significant role in human existence and behavior. It creates effective learning, production, control, and usage while also providing modern facilities for our lives.

For hundreds and thousands of transactions it gets very difficult to match the balance in the bank with that in your accounting ledger. The proposed system will target all the main modules of the banking sector and the aim is to automate things like account creation and account closure, loan processing, credit card processing, deposits and withdrawals.

II. LITERATURE SURVEY

A. Literature Review

Varsha Menon, Avinash Aslekar [1]: A multiple regression analysis is conducted to determine the significant impact on having a separate loan processing department. This study conducted is mostly secondary and based on the use cases. This research paper is useful for the researchers, engineers, and students who would like to learn more about RPA in banks and suggesting a model for a key area by analyzing the results and have deep insights about implementation of RPA.

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Mário Romão, João Costa, Carlos J. Costa [2]: The paper is a simple example of BPM in a well-known Portuguese banking institution. There is a huge focus on operational risk, as it can generate significant losses resulting from failures in internal processes and unpredictable people's behavior, vulnerabilities of technological infrastructures and the absence of controls on the application systems. The processes are already redesigned to contemplate a specific model for decision-making, supported in an algorithm of AI.

Prateek Patri [3]: This paper explains how RPA works by running a set of process and it gives a lot of benefits to a bank along with improvement in quality, scalability, and resiliency in cost-effective means. Also explains how banks can process debit card and credit card automation benefits the banks in terms of processing time, error rate, accuracy, and reliability of the process.

Kevin C. Moffitt, Andrea M, Miklos A[4] : This paper repurpose the role of the auditor by replacing perfunctory tasks and emphasizing higher order thinking skills that will eventually lead to enhanced audit quality. The future of auditing can be made simpler by introducing the concept of RPA and describing its usage in auditing. Considering the RPA-based audits and a series of research questions the objective is to create a dialogue in this evolutionary area.

Mohammed Shijas Thekkethil, Vinod Kumar Shukla, Fatima Beena, and Ashok Chopra [5]: This paper explains how bots can be trained to overcome all the manual works, how banks can improve efficiency with installation of RPA. Also talks about how RPA can mitigate fraud risks through various methods such as reassessing current processes, eliminating human errors, enhanced trade monitoring, automated threat detection, and searching for anomalies and much more.

Nilesh Iyer, Harsh Gori, Diksha Kumawat, Uday Rote [6]: This explains how RPA sustainably reduces the tedious amount of hard work and more importantly, saves time that goes in manually finding the details of each person. The above-mentioned system will also help the corporate to make decisive decisions more efficiently and to manage their day-to-day reconciliation process. Nowadays, people are preferring online banking, due to this shift of people bank employees must follow a complex procedure and find it difficult and time consuming at times as they must find the defaulters and check whether the number of defaulters and non defaulters match the bank amount.

Hongng Li, Liping Wang, Jianjun Qin, Baonan Yang [7]: The system is mainly composed of client interface and teller interface and client interface. The Banking business mainly includes the functions of opening an account, account deletion, depositing, withdrawing, inquiring the balance, etc. This design system uses cross-platform Qt Creator as the system development tool, builds the interface of banking system on Qt Creator, uses Mysql database to store the managed information and the data are added, deleted, modified and checked.

Lucija Ivancic, Dalia Susa, Vesna Bosilj [8]: RPA is a relatively new technology available on the market, the scientific literature on the topic is still scarce. This paper aims to inform on how academic community defines RPA and how it has been investigated in the literature in terms of the state, trends, and application of RPA. In order to do so, the systematic literature review (SLR) based on Web of Science and Scopus databases have been conducted.

J G Enriquez, A Jimenez-Ramirez, F J Dominguez-Mayo, J A Garcia-Garcia [9]: This paper aims at a systematic mapping study with the aim of analyzing the current state of RPA and identifying existing gaps in the industrial literature. It also presents an analysis of the primary studies which describes the current state of the art of RPA. Secondly, considering the RPA study performed by Forrester, these paper reviews 14 of the main commercial tools of RPA, based on a classification framework defined by 48 functionalities and evaluating the coverage of each of them.

Anupam Mondal, Monalisa Dey, Dipankar Das, Sachit Nagpal, Kevin Garda [10]: The main source of communication between humans is done through web applications such as WhatsApp, Instagram, and Twitter etc as a form of speech and textual conversation. This paper focuses on designing a textual communication application namely chatbot in the educational domain. The proposed chatbot assists in answering questioned by the users.

III. PROBLEM STATEMENT

Banks are one integral part of the economy without which a country fails to have a strong financial position. With the advancement of technology, Implementation of RPA has been in different parts of the world in various financial institutions have advanced the technology. Even in India, with the increase in number of competitors and improving the efficiency to attract more customers, banks are forced to bring changes to their previous modes and styles of operations.

The banks usually provide different types of loans such as Educational Loans, Business Loans, Personal loans, Vehicle Loans, Gold Loans, Home Loans, Loan against Insurance Policy, and Loan against PPF. Different loans have different procedures for the application. There are certain pre-qualification steps involved in the processing and consideration of loans.

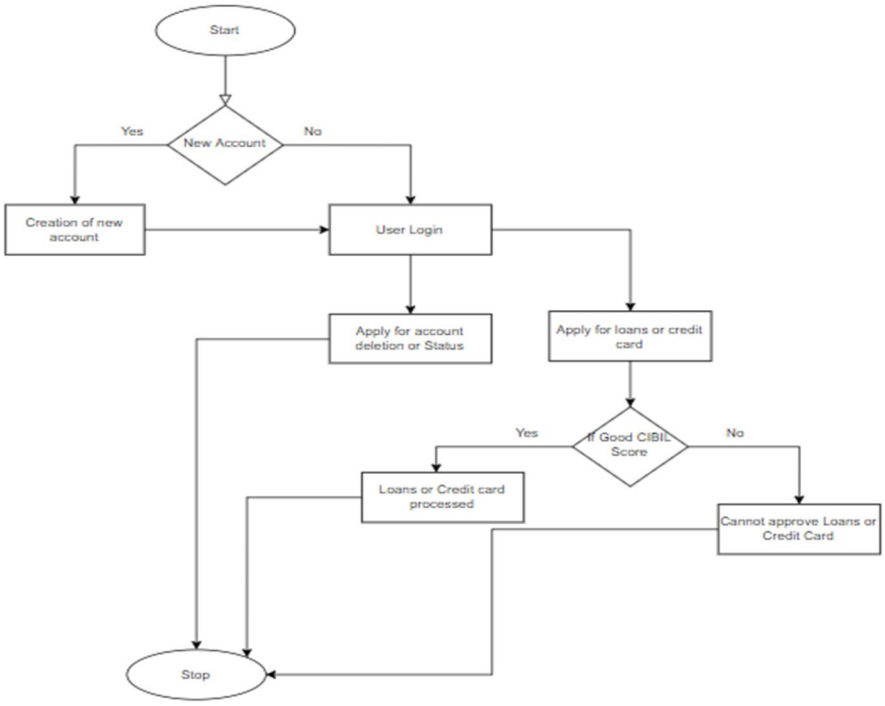
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IV. METHODOLOGY

The main aim of this project is to identify the key areas where RPA could be implemented in banks to simplify the processes. As per implementation of robots in banks for the operations will have a huge impact on the sector, as it improves efficiency of operations in banks. Implementation of RPA, banks would also be able to answer the queries 24*7, which will also have a considerable effect on the economic gains than on the remuneration of the employee. We provide an end-to-end service, and can be involved in projects that involve databases and building user-facing websites. These results generated are then transferred to the core of the banking systems. The results are also then attached to the loan processing system.

A. User Flow



B. Account Creation and Deletion

Account will be created with the details from the document uploaded during registration. Bot will auto fill the required data. Account number will be emailed to the user by bot. When the user wants to delete the account the bot will automatically delete the account. Bot will send confirmation mail saying account is deleted. Only user or the nominee will be able to delete the account.

C. Customer Service

There will be multiple queries every day that the banks face ranging from account information to application status to balance information. It becomes difficult for banks to respond to queries with less time. Bots can automate such processes to respond to queries in real time and reduce turnaround time to seconds, freeing up human resource for more critical tasks. With the help of RPA can also resolve queries which needs decision making. With the help of Chatbot can understand the natural language to chat with customer and respond like human.

D. Credit Card Processing

Manual credit card application processing used to take weeks to validate and approve credit card. The long waiting period was frustrating to customers and cost to banks. With the help of RPA, banks can now process the applications within hours. RPA comes into picture in such multiple systems simultaneously to validate the information like required documents, background checks, credit checks and take the decision of the basis of rules to approve or disapprove the application.

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E. Loan Processing

Once a RPA is implemented for this process, after the arrival of a loan request, the robot itself logs on to the loan processing system and automatically pulls out the required data for processing. The credit score is checked for the loan processing by the robot. The generated results are then transferred to the core of the banking system. The results are also then attached to the loan processing system.

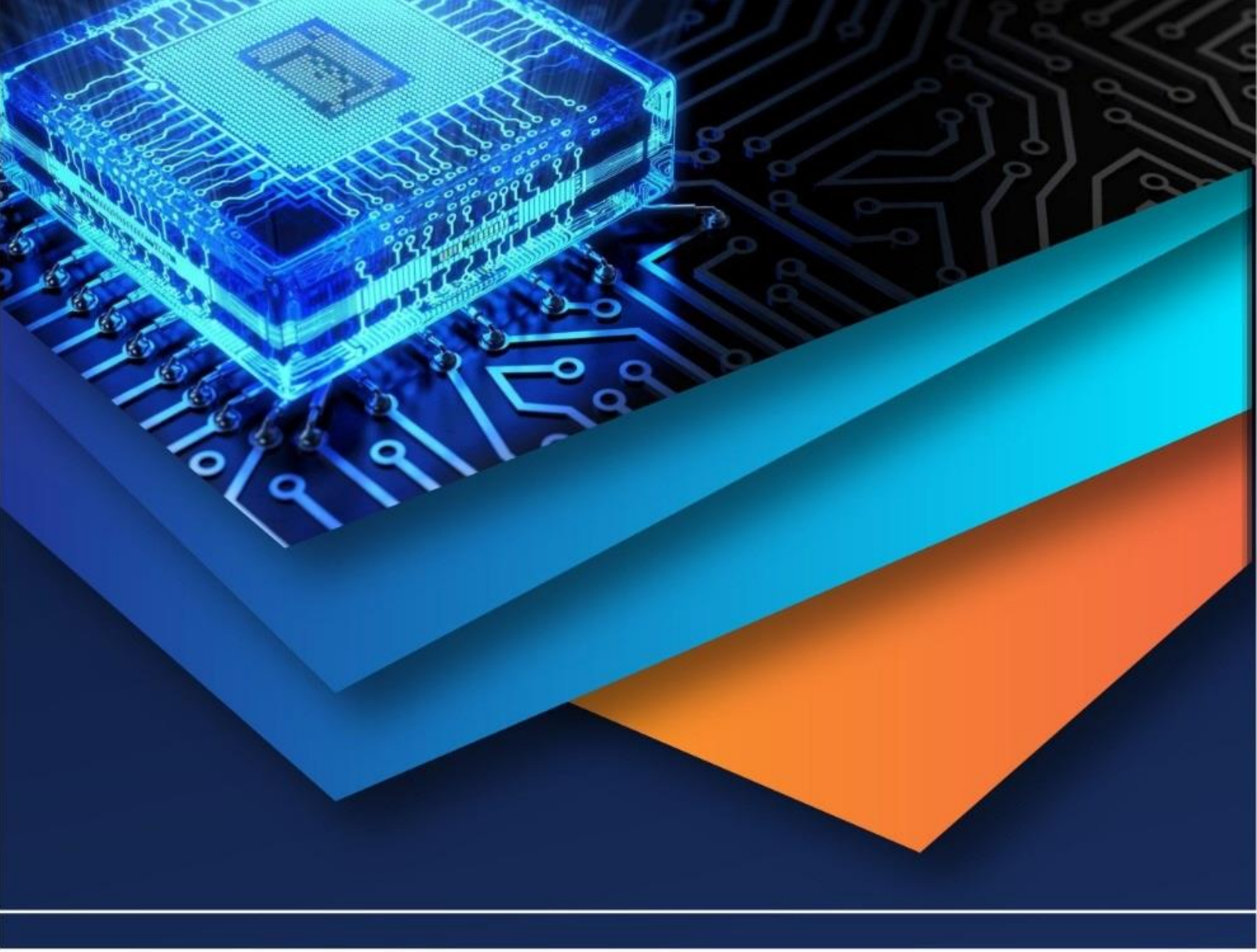
V. RESULTS

Once a Robot is implemented for this process, after the arrival of a loan request, the robot itself logs on to the loan processing system and automatically pulls out the data required for a credit check from the credit reporting website and then forms a document file of the report showing CIBIL details and attaches it to the system in which the loan is being processed. The CIBIL score is also copied to the loan processing system by the bot. The robot itself logs on to the website owned by the government for the verification of customer details and the documents submitted.

The results are then attached to the loan processing system. It is clear that instead of running all the checks manually, the employee can implement and run the bot by a single click, which will also reduce the time taken for this process. By saving enough time, the employees can concentrate on other operations of the banks and can also provide better customer service to their clients. The result of automating such mundane tasks would be seen in the form of improved productivity, a sharp reduction in the error rate, and turnaround time.

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