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Employee Onboarding Process Using Robotic Process Automation

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Abstract

The process of employee onboarding is a critical juncture in an organization's lifecycle, marking the introduction of new team members and setting the tone for their engagement and productivity. In the pursuit of efficiency, accuracy, and enhanced employee experiences, organizations are turning to innovative solutions. This abstract delves into the concept of leveraging Robotic Process Automation (RPA) to transform the employee onboarding process.Robotic Process Automation involves the deployment of software robots or "bots" to automate routine and rule-based tasks. In the context of employee onboarding, RPA offers a paradigm shift by mechanizing various tasks, such as data entry, document verification, system access provisioning, and training coordination. The abstract highlights the benefits of integrating RPA into the employee onboarding process, including increased operational efficiency, reduced errors, accelerated timelines, and standardized procedures.The abstract underscores the strategic significance of RPA in enhancing the overall employee experience. By automating administrative tasks, HR personnel can allocate more time to strategic initiatives that foster employee engagement and development

Keywords — RPA; HR; Robotic Process Automation;

I.INTRODUCTION

What is Robotic Process Automation (RPA)? Robotic Process Automation (RPA) involves the use of software robots or "bots" to automate repetitive and rule-based tasks within business processes. These bots can mimic human actions in software applications, interacting with various systems and databases to perform tasks efficiently and with high accuracy.

The Employee Onboarding Journey: A Transformative Approach Employee onboarding is a critical process that sets the tone for an employee's journey within the organization. It involves multiple steps, from collecting personal information and verifying documents to setting up access to company systems and conducting training sessions. However, traditional manual processes can be time-consuming, error-prone, and resource-intensive.

Here's where RPA steps in to revolutionize the onboarding journey. By leveraging software robots, we can streamline and accelerate various onboarding tasks while ensuring data accuracy and compliance. The aim is to

enhance the employee experience from day one, making the transition into the organization smoother and more efficient.

Key Benefits of RPA in Employee Onboarding:

- **Efficiency:** RPA eliminates the need for manual data entry and repetitive tasks, enabling HR teams to focus on more strategic and value-added activities.
- **Accuracy:** Bots perform tasks with exceptional accuracy, reducing the risk of errors associated with manual processes.
- **Speed:** RPA significantly speeds up the onboarding process, allowing new employees to start contributing to the organization's goals sooner.
- **Consistency:** RPA ensures that onboarding processes are standardized and consistently followed for every new employee.
- **Compliance:** By adhering to predefined rules and regulations, RPA helps maintain compliance throughout the onboarding journey.
- **Enhanced Employee Experience:** With faster and smoother onboarding, employees experience a positive and engaging introduction to the organization.
- **Data Security:** RPA ensures secure data handling by minimizing human intervention in sensitive processes.

Your Role in the RPA-Powered Onboarding Process: As we embark on this journey of incorporating RPA into our employee onboarding process, your role is pivotal. Your expertise and collaboration will contribute to the successful implementation and optimization of this innovative approach. You will have the opportunity to work alongside software robots to design, monitor, and continuously improve the onboarding journey for our new employees.

II.EXISTING SYSTEM

Employee onboarding is a critical process in organizations that involves integrating new employees into the company and ensuring they have the necessary resources and information to become productive members of the workforce. Robotic Process Automation (RPA) has emerged as a valuable technology for automating repetitive and rule-based tasks, making it an ideal solution for streamlining employee onboarding processes.

In an existing system, a manual employee onboarding process typically involves a combination of paperwork, coordination between different departments, and face-to-face interactions. Here's an overview of the steps involved:

Offer acceptance: Once a candidate accepts a job offer, HR sends them an official acceptance letter or email, welcoming them to the organization.

Pre-employment paperwork: The new employee is required to fill out various forms and documents, such as employment contracts, tax forms, direct deposit authorization, and emergency contact information. These documents are typically provided in hard copy or electronically, and the employee is responsible for completing and returning them to HR.

Background checks and verification: HR initiates background checks, which may include employment history verification, reference checks, and educational credential verification. The necessary paperwork and coordination are managed by HR to ensure the checks are completed.

Equipment and workspace setup: HR collaborates with the IT department and relevant teams to set up the new employee's computer, email account, software access, and necessary equipment. Physical workspace arrangements, such as providing a desk, chair, and other office supplies, may also be coordinated.

Orientation and training: HR schedules an orientation session to provide an overview of the company culture, policies, and procedures. They may also coordinate specific training sessions to familiarize the new employee with their role, department, and any required job-specific training.

Introduction to colleagues and team members: HR facilitates introductions between the new employee and their colleagues, team members, and key stakeholders. This may involve organizing informal meet-and-greet sessions or assigning a mentor or buddy to assist with integration.

Benefits enrolment: HR guides the new employee through the process of enrolling in employee benefits, such as health insurance, retirement plans, and other available programs. They provide necessary information and forms for the employee to make their selections.

Employee handbook and policies: HR provides the new employee with an employee handbook that outlines company policies, procedures, and code of conduct. The employee is expected to review and acknowledge their understanding and compliance with these guidelines.

Ongoing support and feedback: HR remains available to address any questions or concerns the new employee may have during the onboarding process. They serve as a point of contact for general inquiries and may also gather feedback to ensure a positive onboarding experience.

It's worth noting that this overview represents a general manual employee onboarding process. Each organization may have its own specific variations and additional steps based on their internal procedures and industry requirements

III.LITERATURE SURVEY

Role of Robotics in HR: Currents Trends and Impact

Author: Ms. Suvarna G. Kotalkar

Year : 2021

Description:

Robotic automation is changing how businesses operate and how human resource (HR) processes are conducted. In order to improve efficiency and boost production, the sector is using automation technology. There are advantages and disadvantages to embracing this breakthrough, and many industries are adopting the robotic method, which raises concerns about job loss. This research demonstrates how robots may enhance organizational processes or take the place of human labor while adding value. According to the most recent market research, the use of robots boosts the production workload, boosts revenue, boosts productivity, enhances organizational decision-making, and boosts the economic growth of the nation. On the other hand, as people were being replaced by robots, employment declined and reliance on machines grew. Any industry's human resources (HR) department is regarded as its foundation. To achieve the corporate objective, it plays a planned role in managing personnel, high-quality talent acquisition, employee engagement, retention, Payroll, and compliance management. The report that details the benefits and drawbacks of automation predicts that machine technology will take over the HR division.[3]

Robotic Automation Of Employee Onboarding Using Neural Computing

Author: Sahil Sarthak Biswal, Ashwin Ganesh, Dr. P. Madhavan

Year : 2020

Description:

Handling these systems for business support and operations requires a significant amount of human resources due to the repetitive, normal, and labor-intensive duties in the IT sector. The simple reality is that staff would be able to focus on higher-value activities with enhanced speed and efficiency at far lower costs to the organization if these menial chores were automated. By using automation software to carry out activities and processes in applications and process them in the same manner a person would, robotic process automation (RPA) may do this. It may be used regardless of industry or application and generates immediate profitability while enhancing accuracy across whole company activities. It produced game-changing outcomes for many firms and is already having an effect at those using virtual workforces. The major goal of this proposed work is to improve the employee onboarding procedure so that documentation may be automatically generated on a regular basis, saving hours of labor. Automation allows for the fast completion of the onboarding paperwork while reducing the possibility of errors that might occur when done manually. All papers generated throughout the recruiting process can be included in this documentation.[1]

Impact of Robotic Process Automation (RPA) in Human Resource Operations

Author: Basavaraj, Hemakumar

Year : 2022

Description:

"HR automation is a process of improving the efficiency of the human resource department by freeing employees from tedious manual tasks and allowing them to focus on more complex tasks such as decision-making and strategic planning.The Robotic automation process can applied using robotic technologies in businesses to automate and perform repetitive and continuous operations. It makes more time for employees to focus on high-quality tasks. As a result, it affects improving productivity and gets more efficiency in the various functions in a business organization. The research paper emphasizes the impact of robotic process automation (RPA) on human resource operations. The study also highlights the role of RPA in HR operations. The present study depends mainly on secondary data and the required research data is collected from reports and websites. Data were analyzed using a statistical tool such as percentages.[4]

Efficient Automated Processing of the Unstructured Documents Using Artificial Intelligence

Author: Dipali Baviskar, Swati Kotecha Ahirrao, Vidyasagar Potdar, and Ketan

Year : 2021

Description:

The unstructured data impacts 95% of the organizations and costs them millions of dollars annually. If managed well, it can significantly improve business productivity. The traditional information extraction techniques are limited in their functionality, but AI-based techniques can provide a better solution. A thorough investigation of AI-based techniques for automatic information extraction from unstructured documents is missing in the literature. The purpose of this Systematic Literature Review (SLR) is to recognize, and analyze research on the techniques used for automatic information extraction from unstructured documents and to provide directions for future research. The SLR guidelines proposed by Kitchenham and Charters were adhered to conduct a literature search on various databases between 2010 and 2020. 1. The existing information extraction techniques are template-based or rule-based, 2. The existing methods lack the capability to tackle complex document layouts in real-time situations such as invoices and purchase orders, 3. The datasets available publicly are task-specific and of low quality. Hence, there is a need to develop a new dataset that reflects real-world problems. [7]

IV. PROPOSED SYSTEM

The proposed work for employee onboarding Robotic Process Automation (RPA) aims to further enhance the efficiency, effectiveness, and user experience of the onboarding process. Leveraging the latest advancements in RPA technology, the following initiatives are proposed:

Intelligent Data Extraction and Validation: Implement advanced machine learning algorithms to automate the extraction and validation of employee data from various sources, such as resumes, application forms, and HR systems. This will improve data accuracy, reduce manual effort, and enhance the speed of onboarding.

Seamless System Integration: Develop robust integration capabilities to establish seamless connectivity between different systems involved in the onboarding process, including HR systems, document management systems, payroll systems, and learning management systems. This will enable real-time data synchronization, eliminating data silos and ensuring consistent information across platforms.

Dynamic Workflow Automation: Implement intelligent workflow automation to dynamically assign and manage onboarding tasks based on predefined rules, employee profiles, and organizational requirements. The system will automatically route tasks to the appropriate stakeholders, track progress, and send notifications and reminders to ensure timely completion.

Advanced Document Generation and Management: Utilize natural language processing (NLP) and template-based automation to generate onboarding documents such as employment contracts, offer letters, and employee handbooks. Develop a centralized repository to store, organize, and retrieve these documents securely, enabling easy access for HR personnel and new hires.

Self-Service User Account Provisioning: Introduce self-service portals or chatbot interfaces to empower new employees to initiate and manage their user account provisioning process. This self-service functionality will enable employees to request access to systems and applications, automating the approval process and expediting the provisioning of necessary resources.

Enhanced Reporting and Analytics: Implement advanced analytics and reporting capabilities to provide HR departments and management with comprehensive insights into the onboarding process. Generate real-time dashboards and customizable reports to track key metrics, monitor performance, identify bottlenecks, and make data-driven decisions for continuous process improvement.

Personalized Employee Engagement: Leverage RPA and artificial intelligence (AI) technologies to create personalized onboarding experiences for new employees. Implement interactive chatbots or virtual assistants to guide employees through the onboarding journey, answer queries, and provide relevant information tailored to their roles and needs.

Integration with Learning and Development Programs: Integrate the onboarding RPA system with learning management systems (LMS) to seamlessly enroll new employees in training programs, assign e-learning modules, and track their progress. This integration will ensure a smooth transition from onboarding to continuous employee development.

Continuous Process Optimization: Establish a feedback loop and continuous improvement mechanism by collecting feedback from employees, HR personnel, and managers involved in the onboarding process.

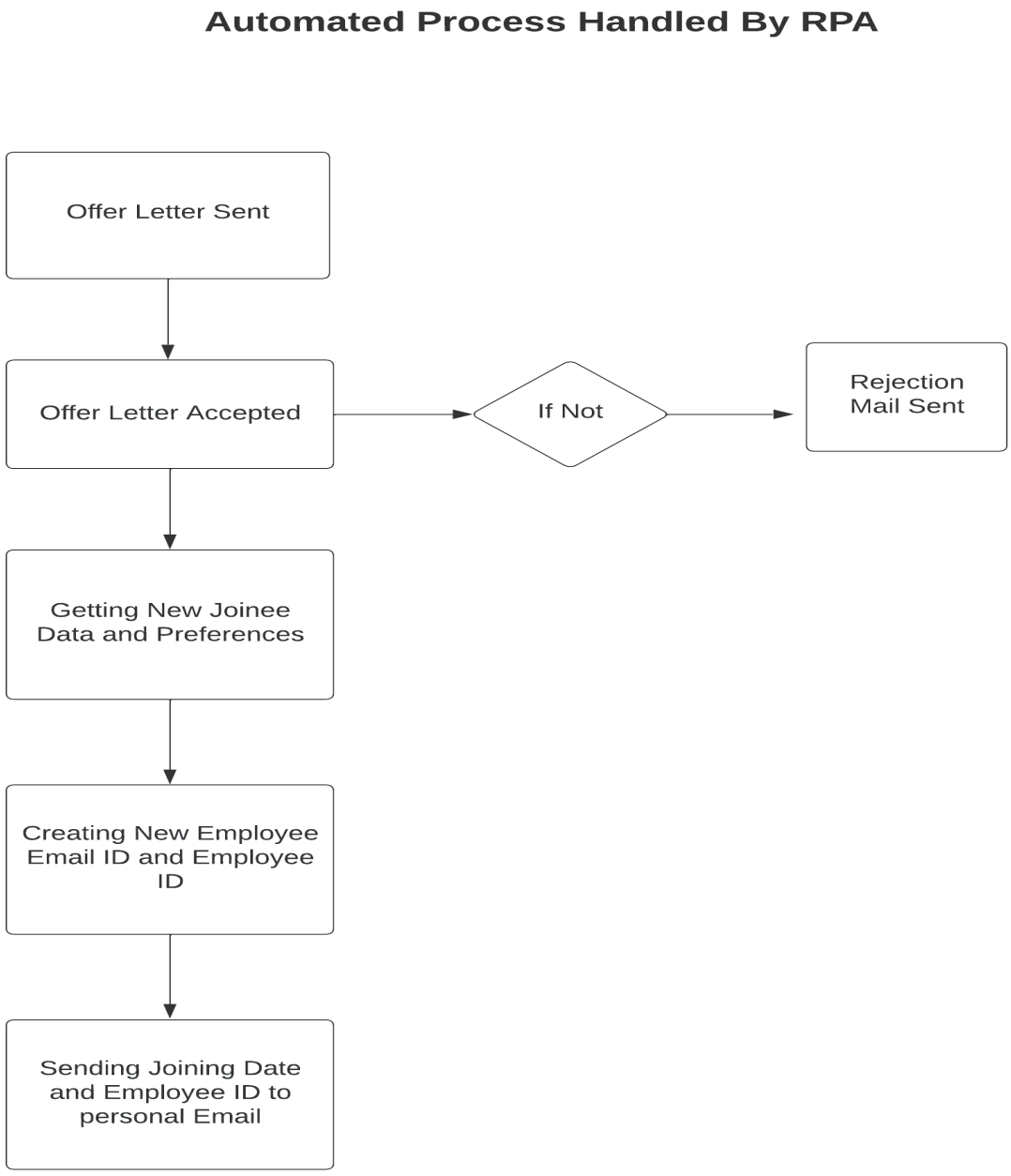

Figure 1: Proposed System Architecture

V. IMPLEMENTATION

Step 1: Browser Automation

Browser automation is a key component of employee onboarding Robotic Process Automation (RPA) that enables the automation of tasks and interactions within web browsers. It plays a crucial role in streamlining and optimizing various onboarding processes that involve web-based applications, portals, and systems. Here's an overview of how browser automation is utilized in employee onboarding RPA:

Application Access and Navigation: RPA bots leverage browser automation to access and navigate through web-based applications and portals involved in the onboarding process. Bots can automatically log in to HR systems, document management systems, learning management systems, and other relevant applications, eliminating the need for manual login and navigation.

Data Entry and Retrieval: RPA bots utilize browser automation to enter and retrieve data from web forms, input fields, and data grids. They can populate employee information across multiple systems and applications by automatically entering data from a central source, such as an HR database. This eliminates manual data entry and reduces the risk of errors and inconsistencies.

Document Generation and Management: Bots can automate the generation and management of onboarding documents through browser automation. They can interact with web-based document generation tools or portals to populate templates with employee data, generate documents such as contracts or offer letters, and store or distribute them through web-based document management systems.

Self-Service Portals and Forms: Browser automation enables bots to interact with self-service portals or web-based forms that facilitate employee-driven onboarding activities. Bots can navigate through the portals, retrieve required forms, pre-fill them with employee data, and submit them on behalf of the employee. This improves the user experience and expedites the completion of necessary forms.

Training and Learning Management: Browser automation allows bots to access and navigate learning management systems (LMS) and online training platforms. Bots can enroll new employees in relevant training courses, launch e-learning modules, and track their progress within the browser interface. This automation ensures that employees receive the necessary training as part of the onboarding process.

Checks and Verifications: RPA bots can perform compliance checks and verifications by automating interactions with web-based systems or databases. Bots can retrieve and validate employee credentials, certifications, or background checks by accessing external verification services or regulatory databases through browser automation. This ensures adherence to compliance requirements during onboarding.

Task Management and Notifications: Browser automation allows bots to monitor and interact with web-based task management systems or collaboration platforms. Bots can retrieve assigned tasks, update task statuses, and send notifications to employees or stakeholders through browser interfaces. This automation streamlines task management and improves communication during the onboarding process.

Data Validation and Error Handling: Bots can utilize browser automation to perform data validation by verifying the accuracy and completeness of information displayed on web interfaces. They can cross-check data across multiple systems and applications, identify discrepancies or errors, and trigger appropriate actions or notifications to rectify the issues.

Step 2: Excel Automation

Excel automation is a crucial aspect of employee onboarding Robotic Process Automation (RPA) that involves automating tasks and processes within Microsoft Excel spreadsheets. Excel automation enables the efficient handling of data, calculations, reporting, and document generation in the employee onboarding process. Here's an overview of how Excel automation is applied in employee onboarding RPA:

Data Import and Export: RPA bots automate the import and export of data between various systems and Excel spreadsheets. Bots can retrieve employee data from HR systems, applicant tracking systems, or other sources and populate Excel templates or spreadsheets with the required information. They can also export data from Excel to update records in different systems.

Data Validation and Cleaning: RPA bots utilize Excel automation to perform data validation and cleaning tasks. They can apply predefined validation rules to ensure data accuracy and integrity. Bots can detect and correct data

inconsistencies, remove duplicate entries, and format data according to specific requirements, improving the quality of employee data during onboarding.

Calculations and Formulas: Excel automation enables bots to perform calculations and apply formulas to manipulate and analyze employee data. Bots can automatically calculate values based on predefined formulas, generate summary reports, and perform data aggregations or transformations within Excel spreadsheets. This automation simplifies complex calculations and speeds up data processing.

Document Generation: RPA bots leverage Excel automation to generate onboarding documents and reports. By populating Excel templates with relevant employee data, bots can automatically create documents such as offer letters, contracts, employee lists, or training schedules. This automation eliminates the need for manual document creation and ensures consistency across generated documents.

Reporting and Analytics: Excel automation allows bots to generate customized reports and analytics dashboards. Bots can extract data from various sources, consolidate it within Excel, and generate visual reports or charts to provide insights into onboarding metrics, completion rates, or compliance status. This automation enables HR departments and management to make data-driven decisions.

Data Manipulation and Data Entry: RPA bots utilize Excel automation to manipulate data within Excel spreadsheets. Bots can sort and filter data, perform bulk edits or updates, and apply conditional formatting to highlight specific information. They can also extract data from Excel and enter it into web-based forms or applications, automating data entry and reducing manual effort.

Data Storage and Archiving: RPA bots leverage Excel automation to store and archive employee onboarding data. Bots can create backups of Excel spreadsheets, save them in designated folders, or upload them to document management systems. This automation ensures the secure storage and easy retrieval of employee data for future reference or compliance purposes.

Data Analysis and Decision Making: Excel automation enables bots to analyze employee data and support decision-making processes during onboarding. Bots can apply predefined rules or algorithms to identify patterns, flag anomalies, or perform data comparisons within Excel. This automation helps HR personnel and management make informed decisions based on data insights.
By leveraging Excel automation, employee onboarding RPA enhances data management, reporting, and document generation.

Step 3: Email Automation
Email automation using Robotic Process Automation (RPA) involves using software robots to automate various tasks and processes related to email management. Here's an overview of how email automation using RPA typically works:
Email monitoring: RPA bots continuously monitor designated email accounts or folders for incoming messages. They can access email servers or platforms using protocols like POP3 or IMAP.

Email categorization and prioritization: Upon receiving a new email, the RPA bot analyzes its content, subject, sender, and other relevant attributes to categorize and prioritize it. This allows for efficient handling and routing of emails based on predefined rules or criteria.

Email parsing and data extraction: RPA bots can extract specific data from incoming emails by parsing their content. For example, they can identify and extract information like customer details, order numbers, or specific keywords, using techniques such as text recognition or regular expressions.

Automatic responses and acknowledgments: RPA bots can generate automated responses or acknowledgments for certain types of emails. For instance, they can send predefined replies to frequently asked questions, confirmation emails, or status updates, reducing the need for manual intervention.
Task assignment and routing: Based on the content and purpose of an email, RPA bots can assign tasks or route emails to the appropriate individuals or departments. This can be done by analyzing keywords, sender information, or predefined rules. By automatically assigning tasks, the bots streamline the workflow and ensure prompt handling of incoming requests.

Integration with other systems: RPA bots can integrate with various software systems, databases, or applications. For instance, they can update customer information in a CRM system, create support tickets in a helpdesk software, or trigger actions in other business applications based on email content.

Report generation and analytics: RPA bots can generate reports or analytics based on email data. They can track metrics such as response times, email volumes, or customer sentiment analysis, providing insights into email performance and productivity.

Email archiving and organization: RPA bots can assist in organizing and archiving emails by applying appropriate labels, tags, or folder structures. This ensures easy retrieval and compliance with record-keeping requirements.

Error handling and exception management: RPA bots can handle errors or exceptions encountered during the email automation process. They can log errors, send notifications, or escalate issues to human operators for resolution, ensuring smooth and reliable email management.
Overall, email automation using RPA optimizes email processing, reduces manual effort, enhances response times, and improves overall efficiency in managing email communications within an organization. It enables employees to focus on higher-value tasks while ensuring timely and accurate handling of incoming emails.

V.RESULTS

- Employee onboarding process using Robotic Process Automation (RPA) can streamline and automate various manual and repetitive tasks involved in the onboarding process, making it more efficient and accurate.

- The onboarding process typically involves several tasks, such as collecting and verifying employee information, creating employee records, assigning job roles, conducting training, and setting up payroll and benefits. RPA can automate tasks such as data entry, form filling, document management, and notification management, making the process faster and error-free.

- Using RPA for employee onboarding can result in improved productivity, reduced time-to-hire, and enhanced accuracy in data management. It also allows HR professionals to focus on more strategic tasks such as employee engagement and retention.

- RPA can also integrate with existing HR systems such as HR information systems (HRIS) and applicant tracking systems (ATS) to pull and push data, minimizing manual intervention and improving data accuracy. RPA bots can handle multiple onboarding tasks concurrently, reducing the workload on HR professionals.

- In summary, leveraging RPA in the employee onboarding process can bring about a faster, more efficient, and accurate onboarding process while reducing the workload of HR personnel, enabling them to focus on more strategic initiatives.

Using RPA for employee onboarding resulted in the following benefits:

- Improved accuracy: With RPA, the chances of errors in data entry and document management are significantly reduced, resulting in improved accuracy in employee records.
- Increased productivity: RPA can automate many repetitive and manual tasks, reducing the workload of HR professionals and increasing their productivity.
- Faster onboarding process: RPA can automate tasks such as data entry, form filling, and document management, reducing the time taken for onboarding.
- Seamless integration: RPA can integrate with existing HR systems, making data management more streamlined and efficient.

SNAPSHOTS

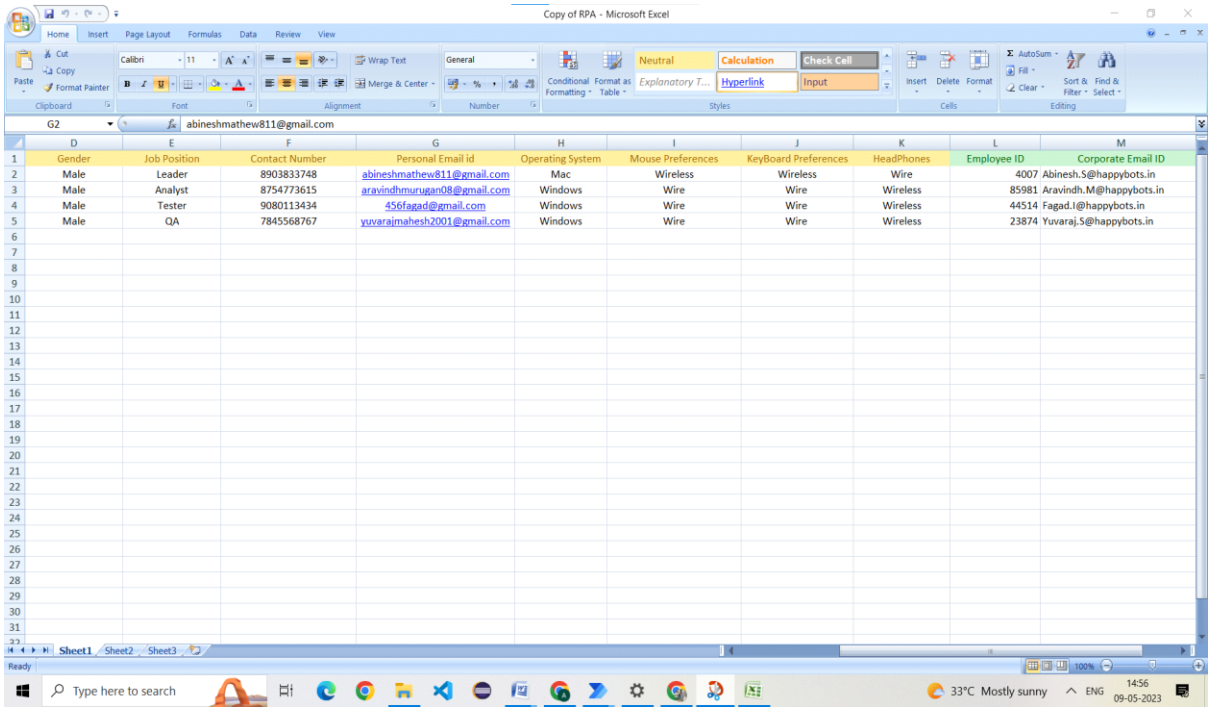

Figure 10: Excel Output

The above Figure 10 shows the auto generated Employee ID and Corporate Email ID stored in Excel.

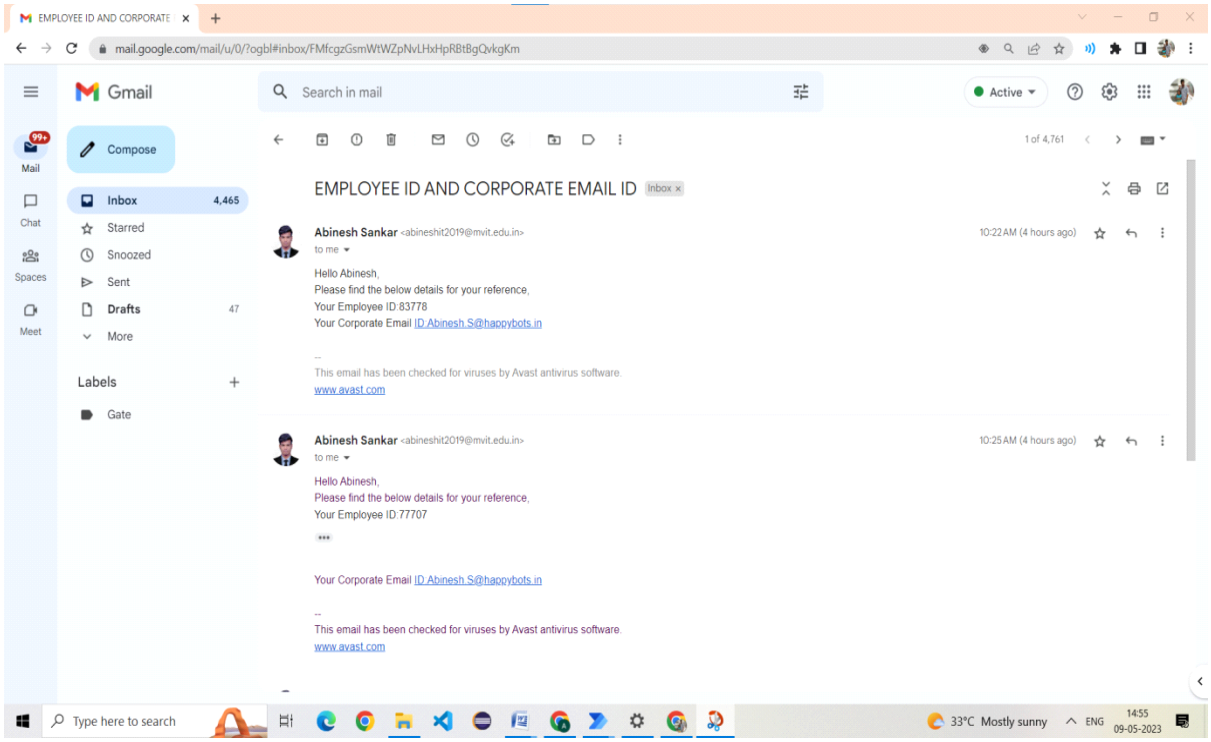

Figure 11: Email Output

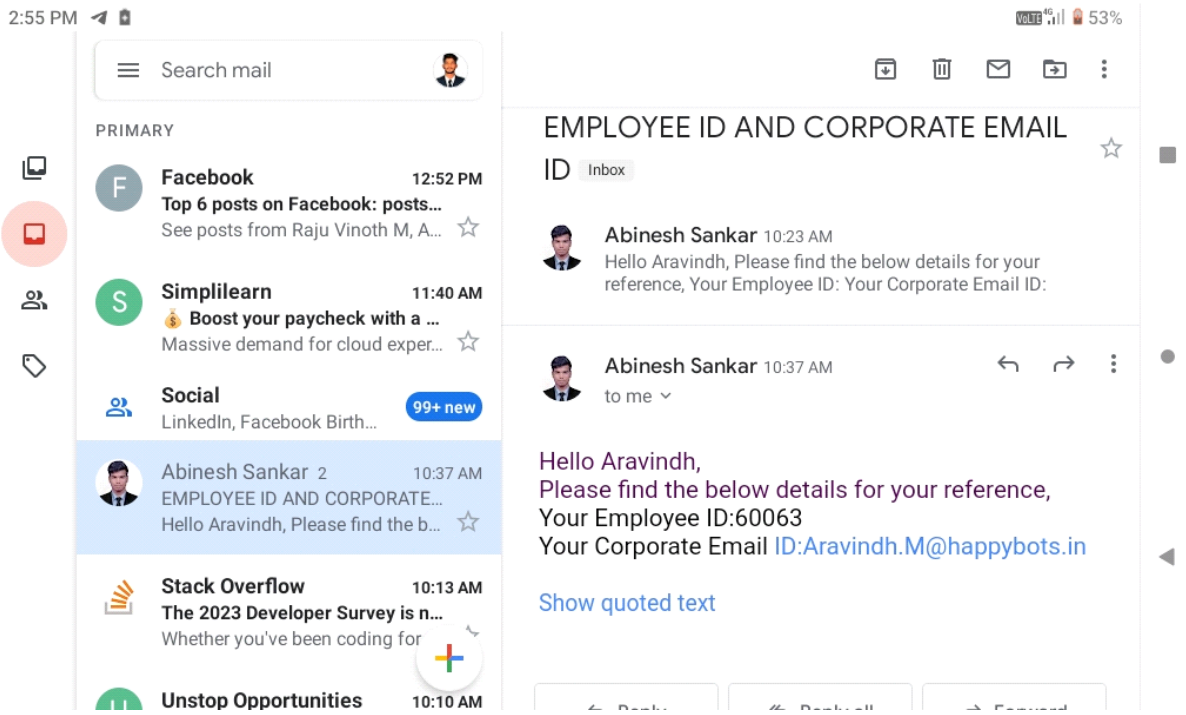

Figure 12: Email Output

The above Figure 11, 12 shows the Employee ID and Employee mail ID sent through their personal email ID using RPA.

VI. CONCLUSION

In conclusion, implementing Robotic Process Automation (RPA) in the employee onboarding process can greatly improve the efficiency and accuracy of the process. RPA can automate repetitive and time-consuming tasks such as data entry, document processing, and communication with different departments. This allows HR professionals to focus on more important tasks such as training, mentoring, and ensuring a positive onboarding experience for new employees.

RPA can also improve compliance by ensuring that all necessary forms and documents are accurately filled out and submitted on time. This can help to reduce errors and eliminate delays in the onboarding process.

Overall, using RPA in the employee onboarding process can help organizations to streamline the process, reduce costs, and improve the experience for new employees. It is important to ensure that RPA is implemented in a way that complements the existing process and that the appropriate measures are taken to ensure data security and privacy.

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