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Abstract

This project applies ElectroNeek Studio Pro—a low-code RPA platform—to automate the full LUMA billing process, including login, invoice retrieval, and payment submission. ElectroNeek's Credential Vault ensures secure access, while retry mechanisms reduce interruptions during login and downloads [1]. The bot uses built-in PDF parsing to extract the total due and names files with the current month using the Date activity [1]. Email alerts are sent for both success and failure, enabling full operational traceability. The modular design (Login.neek, Payment.neek) allows for targeted workflow control and future scalability [2]. This solution embodies current best practices in digital finance automation and resilient enterprise RPA deployments [1][2].

Introduction

Modern utilities management requires high accuracy and reliability, especially for tasks like login authentication, invoice retrieval, and payment processing. This project proposes an automated solution using ElectroNeek Studio Pro, a low-code RPA platform known for its scalability and seamless integration with browser-based systems [1][3]. The solution automates login to the LUMA Energy portal [4], invoice download, and payment execution using stored credentials and card information [1]. Retry logic is embedded at key steps such as login and download to ensure resilience in case of failure. Once the invoice is retrieved, the bot extracts the total due using PDF tools and renames the file based on the current billing month using the Date activity [1]. It then proceeds to the payment page, enters stored card data, and completes the transaction. Confirmation and error notifications are sent automatically via email, ensuring full traceability. With modular task-specific workflows like Login.neek and Payment.neek, this design promotes maintainability, flexibility, and enterprise-grade reliability [2][5].

Background

Historically, organizations managed utility billing by manually accessing provider portals like the LUMA platform [4], downloading invoices, and performing payments with corporate cards. These processes were time-consuming and prone to error, often disrupted by login failures, page load issues, or inconsistent file handling. Manual workflows lacked efficiency and traceability, and frequently exposed finance teams to compliance and auditing risks due to inconsistent records and delays [5].

To overcome these limitations, this project introduces a Robotic Process Automation (RPA) solution built with ElectroNeek Studio Pro. It incorporates credential vaults, retry logic for login and download failures, PDF parsing, dynamic invoice naming using the Date activity, and automated payment flows [1][3]. Integrated email notifications enhance visibility for success or failure cases. The platform's modular, low-code architecture is ideal for managing structured finance processes with scalability and precision [1][3].

This automation transforms fragmented manual steps into a reliable and repeatable sequence, increasing task success rates and enabling faster, auditable, and scalable utility invoice management.

Problem

The manual process of paying LUMA invoices involves multiple points of failure, including login errors from outdated credentials, failed downloads due to browser incompatibilities, and inconsistent invoice naming practices that complicate audits. Without real-time alerts or feedback mechanisms, finance teams are forced to manually monitor task completion, creating delays and operational risks. These inefficiencies conflict with modern RPA standards that emphasize automation, traceability, and exception handling [5].

This project addresses those gaps using ElectroNeek Studio Pro to implement a robust automation framework. Key features include credential-secured login [1], retry logic for login and download failures, and browser navigation for retrieving invoices from LUMA's billing portal [4]. The bot extracts payment data from PDFs, names them using the Date activity [1], processes payments with stored card data, and sends confirmation or error alerts via email. This end-to-end solution aligns with industry standards for resilient and accountable RPA deployments [1][5], ensuring efficiency, accuracy, and maintainability in utility payment workflows.

Methodology

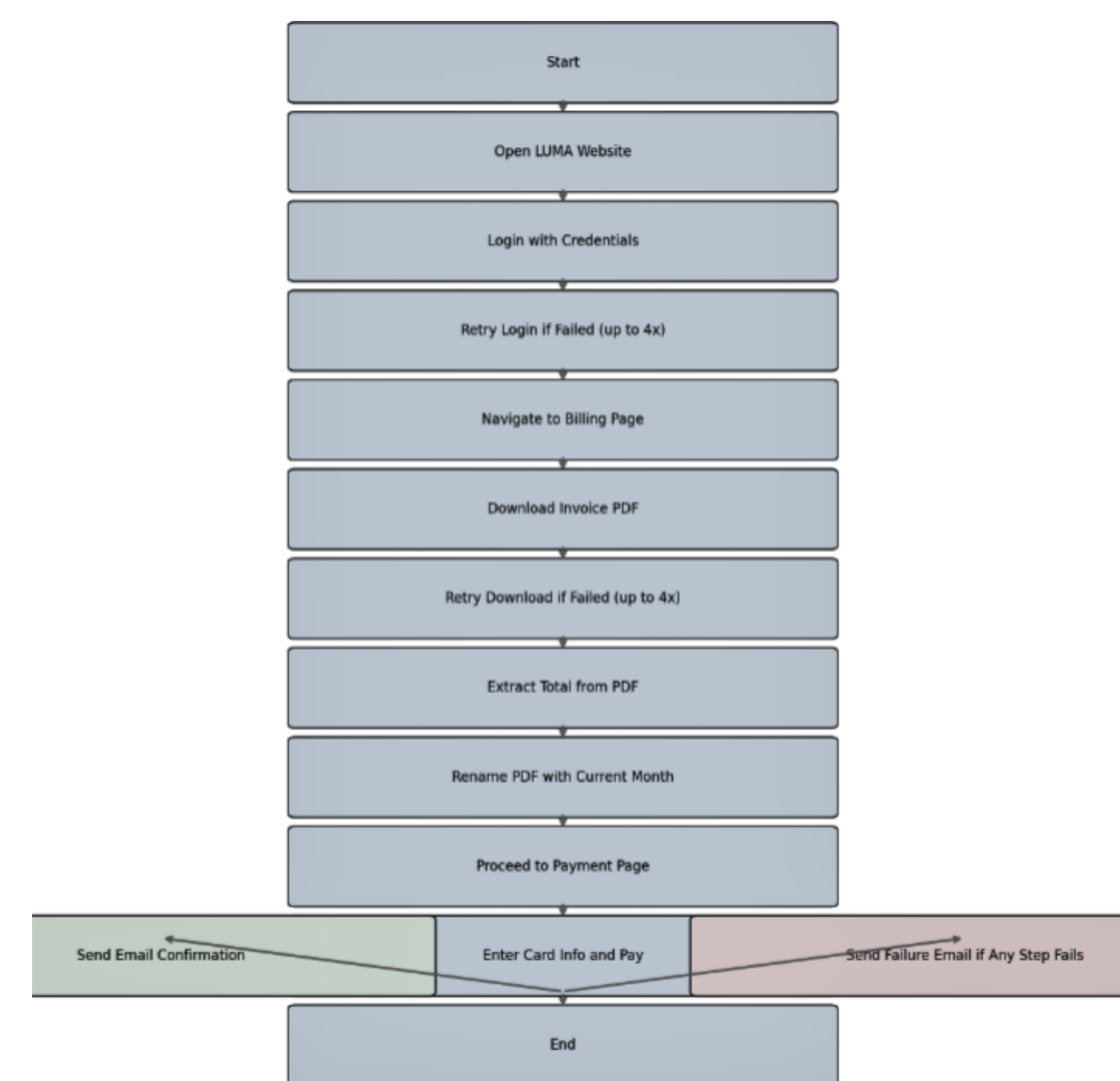


Figure 1
ElectroNeek Studio Pro Workflows Flowchart

The automation begins by launching a browser session directed to the official LUMA customer portal [4]. Credentials are securely retrieved from ElectroNeek's Credential Vault [1], and input actions simulate a real user login. If login fails due to network or session issues, the system retries up to four times using structured error-handling logic [1][5]. This first phase is executed through the Login.neek workflow, which ensures a secure and fault-tolerant entry point into the system.

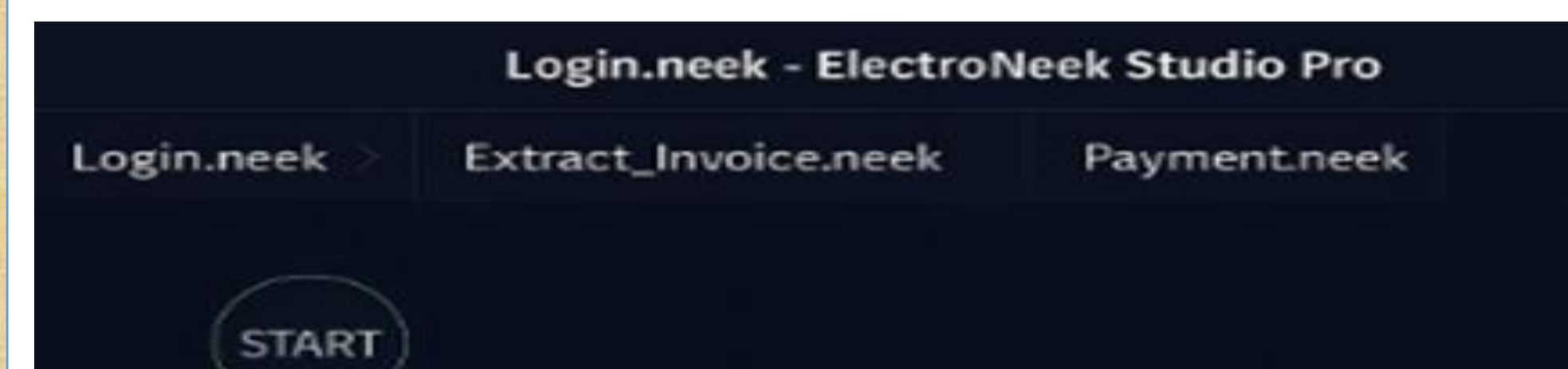


Figure 2
Studio Pro showing all three Workflows for the Bot

Methodology

Upon successful login, the bot navigates to the billing section using ElectroNeek's browser automation tools. It attempts to download the invoice as a PDF. If the download fails—due to interface lag or rendering errors—a retry loop reinitiates the attempt until successful or the retry threshold is reached. After a successful download, the PDF is parsed for the total payment amount, and the file is renamed dynamically using the current billing month via the Date activity [1].

The bot then transitions to the payment page, where stored card information is used to process the transaction. Email notifications are triggered for both success and failure outcomes. This methodology relies on modular workflows (Login.neek, Invoice_Download.neek, Payment.neek), following best practices in RPA design to ensure modularity, reliability, and scalability [1][3][5].



FIGURE 3
RESULTS WITH THE PAYMENT CONFIRMED

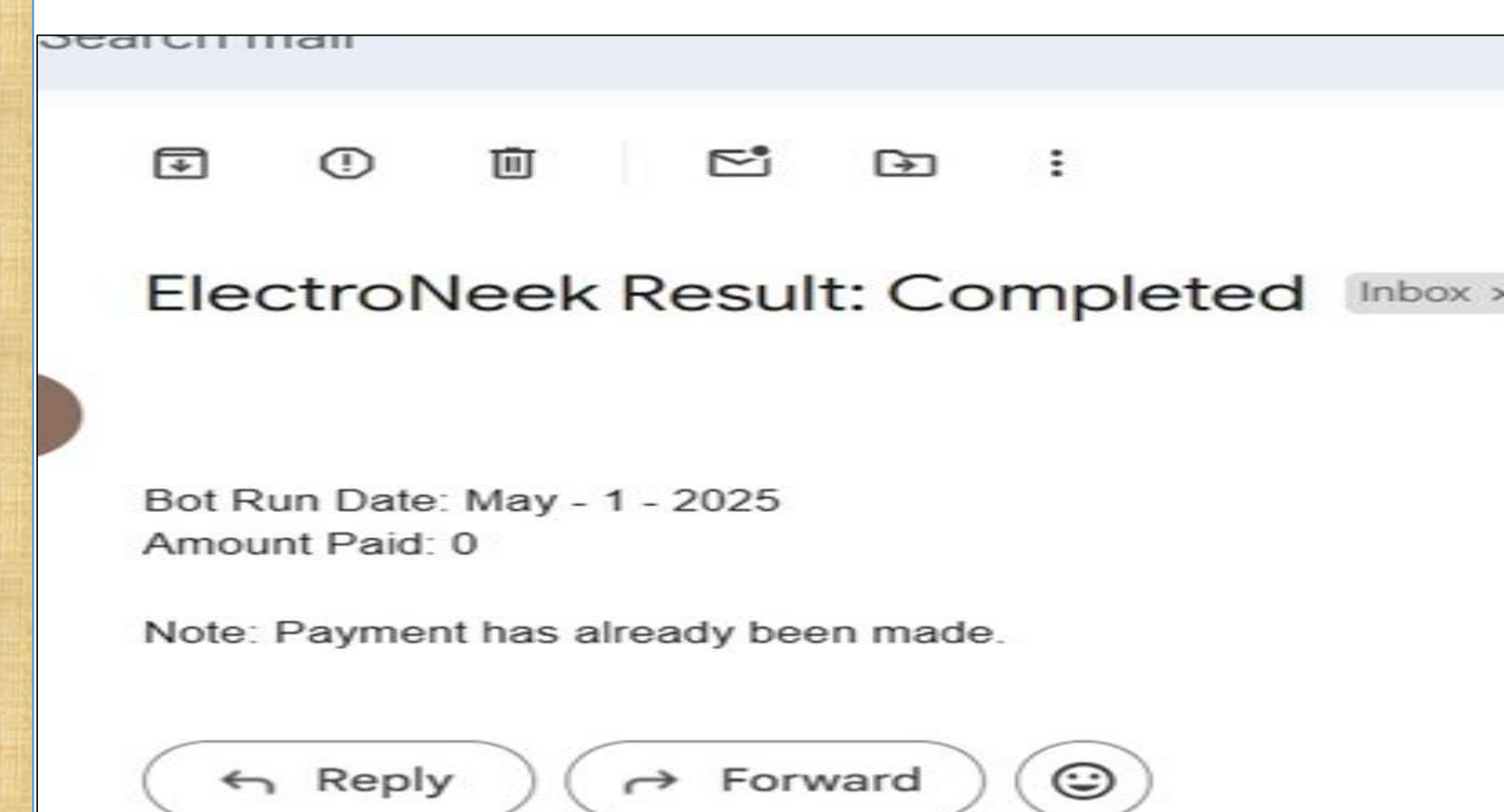


FIGURE 4
RESULTS WITH NO PAYMENT TO BE MADE, BUT TASK COMPLETED

Results

After multiple test cycles and simulations, the automation system developed in ElectroNeek Studio Pro consistently performed login, invoice retrieval, and payment submission with high reliability and precision. The bot securely accessed the LUMA Energy portal, used stored credentials from the Credential Vault [1], and renamed downloaded invoices using the Date activity for standardized documentation [1].

Resilience was achieved through retry logic that responded to browser delays, session timeouts, or network issues. The system attempted critical actions like login and file download up to four times before restarting the workflow [1][5], in alignment with RPA reliability principles [5].

Results

Additionally, the system's email notifications ensured real-time updates for both successful and failed executions, enabling proactive user intervention. This feature, combined with the modular architecture—including workflows like Login.neek and Payment.neek—enhanced the solution's scalability, maintainability, and overall responsiveness [3].

Conclusions and Future Work

This project successfully demonstrates how ElectroNeek Studio Pro can be used to fully automate the LUMA Energy invoice management process, from secure login to payment confirmation. By integrating credential vaults, intelligent retry logic, structured file naming, and email alerts, the system achieved significant improvements in consistency, accuracy, and operational efficiency.

The use of a modular architecture not only reduced development time and testing complexity but also made the system highly adaptable to future changes in the LUMA platform or billing structure. Most importantly, the automation proved capable of recovering from common error scenarios, making it a practical, scalable, and professional-grade RPA implementation. Moving forward, enhancements will include integration with Microsoft Power BI for visual reporting, multi-user credential support, real-time SMS or messaging notifications, expanded error logging, and audit-ready reporting modules to better serve finance departments and improve traceability. These developments aim to scale and harden the automation for broader enterprise use.

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