Integrating Power Platform to Streamline and Automate Financial Reporting Processes with EngineeRD

A Professional Readiness Experiential Program (PREP) Project Effort

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Coleman Early is a student at George Mason University graduating with a Bachelor of Science in Business with a concentration in Business Analytics and a minor in Sports Analytics. He plans to graduate in the spring of 2025 and hopes to pursue a master's in data science the following fall. In the meantime, Coleman is excited to continue his work as a research assistant, peer tutor, and cafe manager while completing his final undergraduate semester at Mason.

Minelle Desilva is a student at George Mason University graduating with a bachelor's degree in business with a concentration in Business Analytics. She is planning to graduate in the Spring of 2025. She strives to set her eyes on a business analytics career where she would use her data visualization skills and critical thinking to make decisions for a firm in their day-to-day operations.

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Interested in being an Industry Participant and or PREP Sponsor? Please reach out to bngac@gmu.edu, Thanks!

---- Client Testimonial ----

"The "Ca$hew" team had a challenging schedule to meet with my company due to the natural complexity of different student class schedules and our own business hours, so I was genuinely impressed to see how quickly the team resolved this with online collaboration, communicating project development news through detailed meeting recordings, weekly slide-presentations that were published online for reference anytime, using online communication software to exchange messages such as through Teams, and Jira for project task management.

They performed admirable when learning new complicated platforms for software development like Power Platform and project management methodologies like Agile. Ultimately their expense tracking and filing solution was beautifully designed, intuitive and well thought out with user experience (UX) in mind. In a matter of three months, they had a business value proposition that made sense and a software prototype that allowed us to take the solution and improve upon it over time through further testing with employees. I would highly recommend that this team continue to improve the product because it's a much need cost effective solution for small businesses who don't have the budget to spend on expensive financial tools."

- Rehan Mahmood | Founder, Chief Executive Officer, & Chief Solutioneer | EngineeRD

Introduction

EngineeRD is a small IT consulting and government contracting business that values renewable ideas and sustainable knowledge. EngineeRD emphasizes automation to enhance day-to-day tasks and operations. The goal of the project is to make improvements in the organization's existing financial processes for greater operational efficiency. The existing financial processes, although effective, are not the most efficient as the processes are time-consuming. The team worked on streamlining internal financial processes by leveraging Microsoft Power Platforms to develop a low-cost, effective, and efficient solution. The developed solution is known as "Ca$hew", a comprehensive financial automation and reporting solution that consists of the Ca$hew Power App and Ca$hew Dashboard.
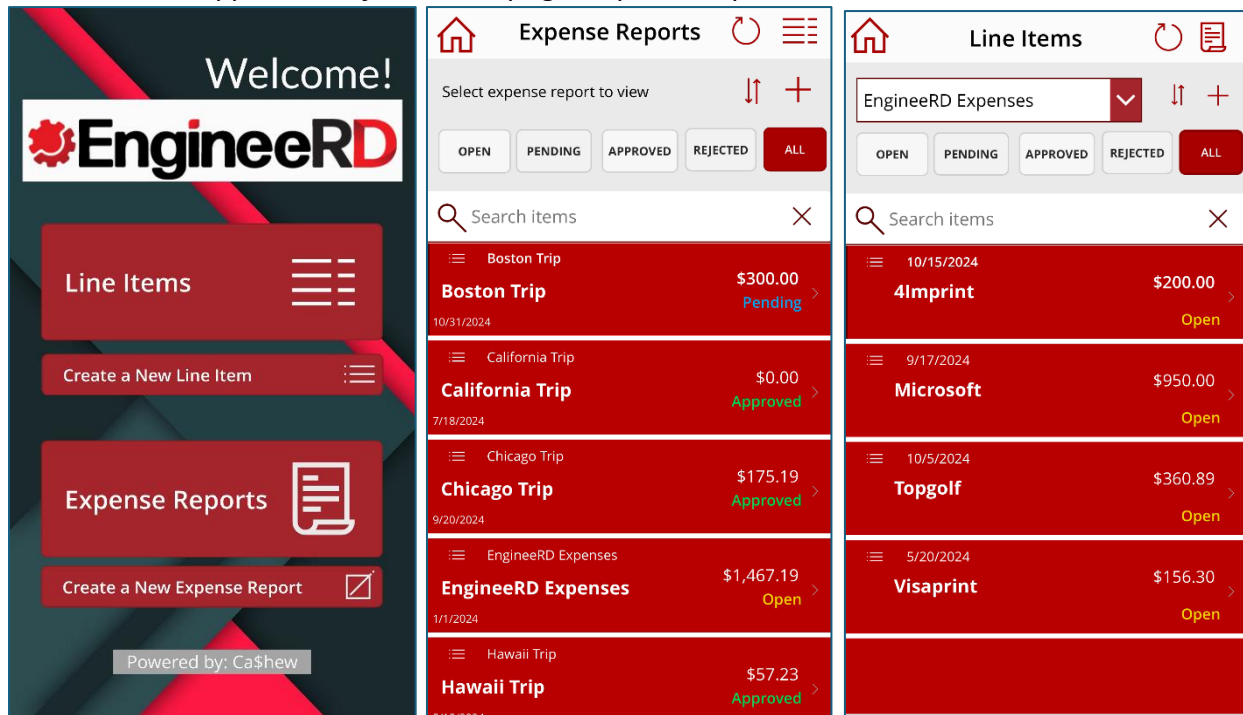
Business Challenge

When being onboarded into the EngineeRD environment, the PREP team was assigned the overall task of improving the organization's financial sector. The purpose of the project was to develop a comprehensive financial automation and reporting solution package that streamlines the key financial processes by integrating Microsoft Power platforms. Before the project, EngineeRD's expense tracking process required multiple instances where receipts needed to be uploaded, and line items had to be input manually. This consumed the employees' valuable time, along with the potential for errors produced during data entry. Furthermore, there were separate locations for expense tracking and expense reporting. This included the tedious recurring process of downloading, naming, saving, uploading financial documents, and categorizing them. The business required a solution that could save resources (i.e., time and money), along with being intuitive to the user.

Activities Done to Address the Business Challenge

Initially, the PREP team spent a couple weeks becoming accustomed with EngineeRD's software platform environment. They became well-versed with the agile methodology; utilizing Jira to track tasks and responsibilities; and familiarized themselves with SharePoint, Power Apps, and Power BI. After receiving some training for the applications that the business used, the PREP team began gathering user stories to determine the current state of EngineeRD's financial processes, where they discovered the tedious processes (areas of concerns) the organization had in place.
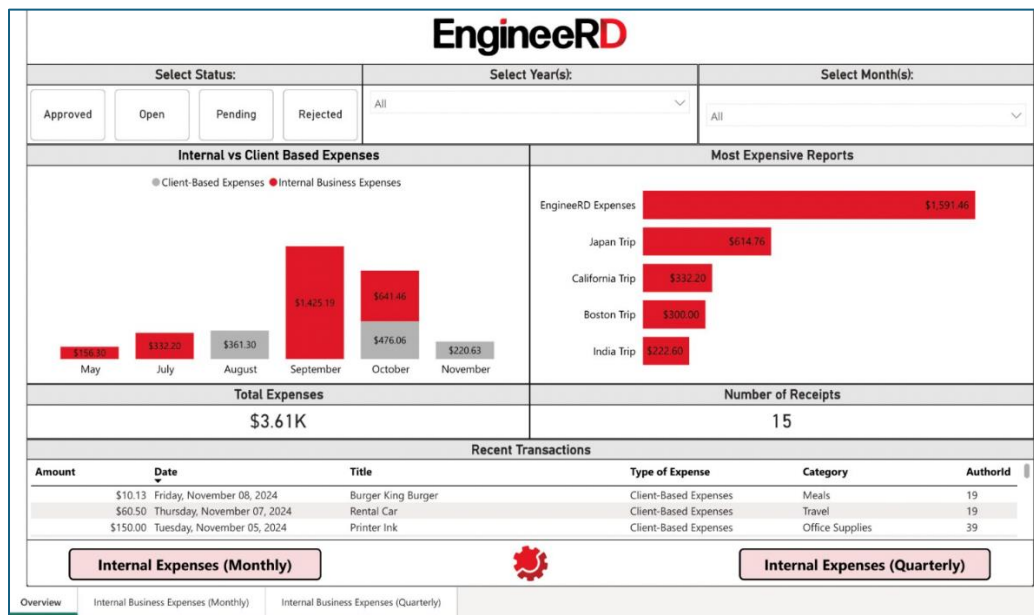
The PREP team developed a package solution named Ca$hew, which included a Microsoft Power App for expense tracking and a Microsoft Power BI dashboard for expense reporting. The Ca$hew power app utilized submission forms for the employees to create expense reports and submit line items, categorizing them by the expense report it falls under. This method created a way for all expenses to be submitted, its data and receipts to be collected and stored, and then approved all in one place. One of the time-saving features in the app was artificial intelligence (AI) receipt scanning capability. Once the receipt for the line item was scanned, the name, date, and amount would fill into the form – leveraging automation rather than the users' inputting expense and receipt information manually.

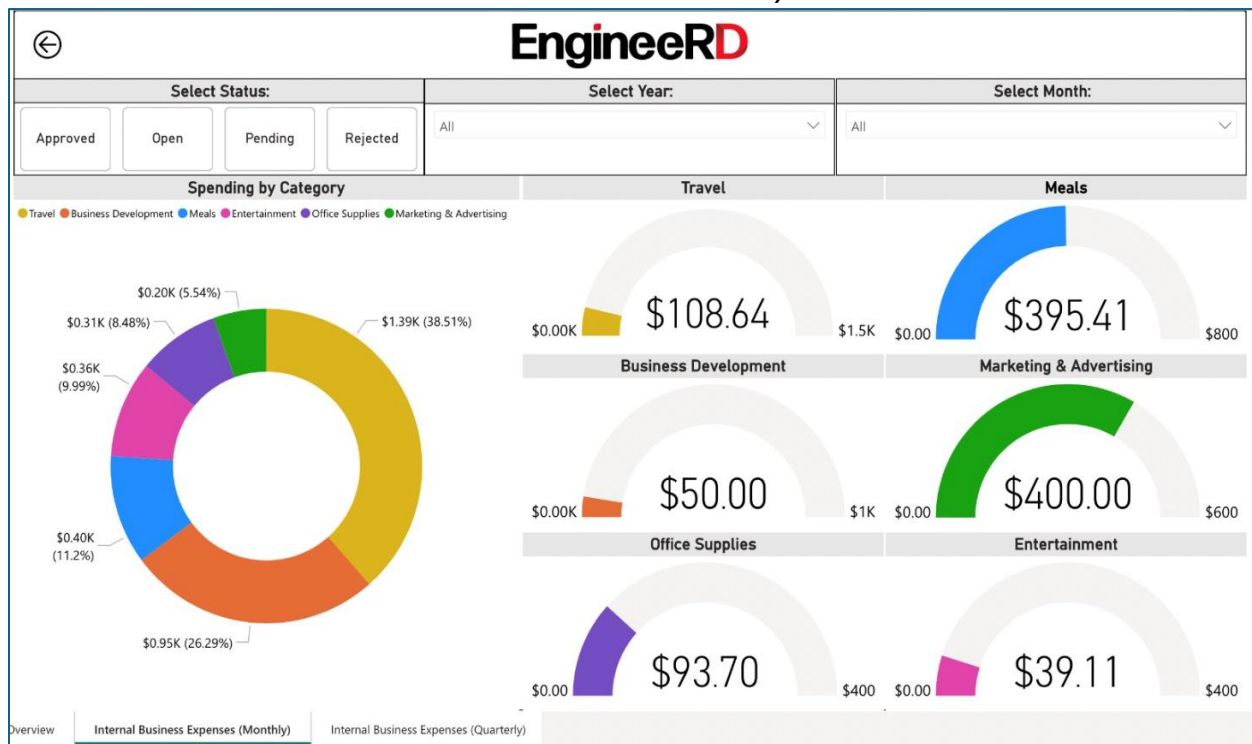*Power App: Views of the Homepage, Expense Report Screen, & Line Items Screen*

With the Power App being stored in two SharePoint lists, the PREP team's Power BI dashboard would reflect all the collected data in an organized way. The dashboard created an easy way for employees to view financial spending trends and compare them to budgeted values. The Ca$hew package works cohesively as the data collected from the Power App is connected to the Power BI Dashboard, allowing charts and metrics from the dashboard to be updated in real-time as line items are being uploaded to the Power App.

Power BI Dashboard: Overview

Power BI Dashboard: Monthly View

Overall, the success factors of the Ca$hew solution incorporated the necessary compliance, cost-friendliness, time-savings, customizable requirements, effectiveness, and prioritized clean visualizations. Users can submit, access, view, sort, and filter data in a concise, yet informative manner.

Results & The Positive Impact
The implementation of Ca$hew will have significant positive impacts on EngineeRD's financial processes. Specifically, impacts in terms of the increased use of automation, error reduction, efficiency, and transparency. Ca$hew reduces manual efforts for users at all levels of the organization through the use of automation. For instance, as shown in the "*Power App: Create Line Items Page & AI Receipt Scanning*" image on the next page, employees are able to easily create line items for expense reports by using the receipt scanner that automatically populates information into the required fields.

This reduction in manual efforts also increases user efficiency. Users are also able to gain real-time updates regarding expense reports by using the Power BI dashboard, rather than manually searching for the information and then creating visualizations (further aiding in the user's task efficiency). Another positive impact is a reduction in errors as the use of automation minimizes data entry mistakes. A reduction in errors when entering expense information allows for better data accuracy, making sure that the results of any data analysis conducted on the expense information are as accurate as possible. Lastly, transparency within the organization is enhanced as all decision makers will be able to gain instant access to expense reporting information and visualizations that reflect expense reporting through the SharePoint lists and the Power BI

dashboard. Ultimately, the tedious and manual recurring process of downloading, naming, and saving financial documents is alleviated with the use of Ca$hew.

Power App: Create Line Items Page & AI Receipt Scanning

Conclusion

The PREP team was tasked with developing and delivering a solution package that will effectively impact EngineeRD's financial operations in reporting expense reports and line items through the Ca$hew Power App along with the Ca$hew dashboard that provides a visual representation for better decision-making. Moreover, our goal was to provide a smooth transition for the EngineeRD team to use the developed solution package following the project's close. To execute our solution, we provided the comprehensive Turnover Documentation, Operations & Maintenance Manual, and Standard Operating Procedure that provides a detailed description on using the Ca$hew App and Dashboard, along with implementation plans on how EngineeRD would use the solution. Furthermore, we provided a list of factors that could be built upon the solution package we delivered. As a result, the team addressed the business problem and provided visions for a more advanced future solution.

PREP Student Reflection

The experiential learning opportunity with EngineeRD provided our group with invaluable experience and practical skills that have significantly contributed to our professional growth. Collaborating with Theo and Tiffany (former PREP students and current fulltime employees of EngineeRD) gave us firsthand experience navigating a corporate hierarchy, mirroring the dynamics of an entry-level role. We, first, would engage directly with our immediate supervisors and ultimately reported to Rehan, the CEO. Through this, we learned the importance of clear communication and efficient reporting in a professional setting. EngineeRD also introduced us to an agile work environment where we stayed focused and organized using Jira, which became an integral part of our workflow. Additionally, we developed technical proficiency in the Microsoft Power Platform by building Power Apps, creating customized Power BI dashboards, and implementing Power Automate flows. This hands-on experience sharpened our technical skills and taught us how to translate business needs into effective solutions.

Creating state diagrams using tools like Visio, Miro, and Lucid Charts allowed us to visualize and refine business processes comprehensively. We also improved our presentation skills through consistent practice, including weekly updates, practice presentations, and our delivery of a polished final product pitch to sell our solution. The iterative process of working on our planned solution, incorporating feedback, and reassessing our approach taught us resilience and adaptability in a realistic work setting. Beyond the chance to grow our technical and presentation skills, working with EngineeRD reinforced the importance of balancing a hybrid work style with other commitments, such as academics, other jobs, and our personal lives which helps in preparing us for the complexities of modern work environments.

EngineeRD's approach offered a blend of guidance and autonomy, encouraging us to solve the business problem independently while providing support whenever needed. This has prepared us for what is expected when we enter a professional role. Furthermore, Rehan took the time to meet with each of us one-on-one at both the beginning and end of the semester. These meetings were particularly impactful, as he helped us frame our future goals, critiqued our resumes, reviewed our LinkedIn profiles, and emphasized the value of personal branding. He even offered to reimburse us if we passed a Microsoft Certification exam, showing the extent to which EngineeRD was invested in our growth.

This experiential learning opportunity allowed us to see the end-to-end process of systems analysis and design when applied in an actual organization, from onboarding and user story interviews to planning, designing, developing, and delivering a comprehensive solution. Working with EngineeRD allowed us to enhance our technical and professional capabilities and provided us with a meaningful and practical glimpse into the corporate world, equipping us with skills and experiences that will benefit us long into our careers.