



# Bits & Bytes

S&amp;C INDIA CAMPUS NEWSLETTER



## Inside

### RA India Hackathon 2023 – Cont.

Covered idea – ChatGPT helper for Rockwell Products

### The Role of AI over Galvanizing Line

Know more about the new era of efficiency, precision, and sustainability in steel manufacturing.

### Know Your Colleague

Vasudev Singh Negi's Journey to Success as a Software Engineer.

### Rockwell Cricket League – 2024

Read more about the breathtaking performance and updates about Rockwell Cricket League – 2024

## Guest Editor

Murali Manohar

Country Leader, Enterprise Software Sales - India



*My recent visit to the Pune ROK office in February was truly inspiring. It embodied the idea that passion can lead to purpose, as expressed by T.D. Jakes: "If you can't figure out your purpose, figure out your passion. For your passion will lead you right into your purpose."*

*The Pune team's enthusiasm was contagious. They weren't just excited about ROK's potential, but also driven by the vision of India becoming a major contributor, particularly in software. I was especially impressed by Ankit, Swati, and Paresh's enthusiasm to support team India in winning new customers. Their desire to see the value of ROK's products realized by real Indian customers was truly refreshing.*

*This positivity has translated into a significant achievement for ROK India! We've secured our first Plex MES customer - Mahindra Accelo, the largest and oldest auto vehicle recycler in India, and the founding business of the Mahindra & Mahindra Group.*

*This is a major milestone and just the beginning. We plan to build on this success and expand our Plex footprint across various customers and industries throughout India.*

*The future for ROK India is very exciting!*



INTERNAL

Unauthorized use and  
external disclosure prohibited

# Ajai Singh Visits India Campus: Inspiring Leadership and Team Spirit

Anshul Nigam

## Leadership Visit

In April, we had Ajai Singh visiting the India campus. Certainly, Team as always was excited to meet him in person. Let's explore some insights:

### Ajai Singh's Bold approach:

Ajai Singh, the Director of Industry solutions and Analytics team is known for his unique leadership style.

He championed the motto "Ownership", "Accountability" and "Sense of Urgency" and this has imbibed again into every team member's mind.

During his visit, he had 1:1 meeting with multiple members of the team both in Pune and Bengaluru. The team was excited to meet the leader in-person.

### Investing in People:

During his visit to Bengaluru & Pune, he had interacted with almost all the engineers who are working for Industry solutions and Analytics team. He was joined by Tanul, Piyush, Sarat & Vikas who flew from Pune & Noida.

We had jam packed agenda for his India visit. During the initial 2 days we spent in KL office where we talked on various topics like (Resource management, engagement model, platform dependency, GxP compliance to name a few). We also talked about various challenges faced and the road ahead.

*Overall, it was a tight packed 2 days resulting in a tighter bond with all the KL team members and thereby overall improvement in terms of the team's delivery and engagement.*

On the 3<sup>rd</sup> day he visited the RA office and again invested in people, we had a team meeting where he talked about the future for the group and team was excited to hear about the future for Pavilion8 and other products.

On Saturday along with Ajai we had Piyush, Vikas & me participated in Knowledge Lens Annual Day was a bonus., where we got to spend time with the team, act as a project jury, understand the culture, were able to meet almost all 600+ team members in person and we got exposed to KL technologies and breadth of solutions.





### Leadership session in India (Pune):

As soon as we knew that Ajai is visiting India, we picked up this as an opportunity for doing a leadership session with him along with Priti. This leadership session was a part of Initiatives for FY 24. The Topic for this session was "Cultivating a resilient mindset" and this was delivered in person in Pune, where Nandini and myself had handpicked leaders. The Sole purpose of this is to have a session with Ajai; he provided very meaningful and live context to the whole session.

His examples about leading in VUCA world were very practical. Overall, it was a great session and we wanted to thank Ajai for taking out time from his busy schedule for the same.

---

*Overall, it was a great visit with lots of learnings, strategy, and collaboration.*

---



## RA India Hackathon 2023

Vikas Vyas

Commuiqué

Completed the maiden Hackathon successfully. Amazing Hackers! The moment we've all been waiting for is finally here. The results of the RA-India Hackathon 2023 are out, and let's just say, the energy and innovation you've brought to the table have blown us away!

## HACKATHON 2023 - WINNERS



Product Owner - Gaurav Kandhari

Team Lead - Girisha Magondi

Members - Tapendu Bhowmik,  
NaveenChandra Patil, &  
Srihari Andalam.

Product Owner - Brandon Lee

Team Lead - Brandon Lee

Members - Alex Berman &  
DongzuoTian.

Product Owner - Vaibhav Lawand

Team Lead - Vaibhav Lawand

Members - Pravin Chopade, &  
Saurabh Dugdhe.

Ideas	Evaluation Criteria	
Objectives	Categories	Points to be considered
1) Security code for accessing building/secured areas. 2) Common communication service for all customer communication 3) ChatGPT helper for Rockwell Products 4) AI model for Feed accuracy for Batch Process Industries 5) AI-Powered Question and Answer Modernization Hackathon	Product Innovation	Potential impact to current business Possibility to productize the idea Automation to the current flow Simplification to the process steps
	Technical Implementation	The architecture framework Choice of technology - new age technologies Complexity addressed
	WOW Team	Well researched POC Presented design & constraints Team effort

## Statement of Work - 3. ChatGPT helper for Rockwell Products

**Idea Owner:** Vaibhav Lawand**Team:** Saurabh Dugdhe and Pravin Chopade**Highlight:** Winner in 'Overall WOW' category



**Objective:** Develop a ChatGPT app that could help customers solve minor issues without going through the help and manuals.

**Description:** If a customer runs into any software/hardware issues, or if he needs some help with setting up the drives, he has to go through the huge product help and manuals to find out what is wrong or raise an issue on the Rockwell knowledge base. The idea is to train the ChatGPT bot with all of our help and manuals (also with the existing knowledge base) and promptly give a solution to the user. (If we already know one).

#### Use Case:

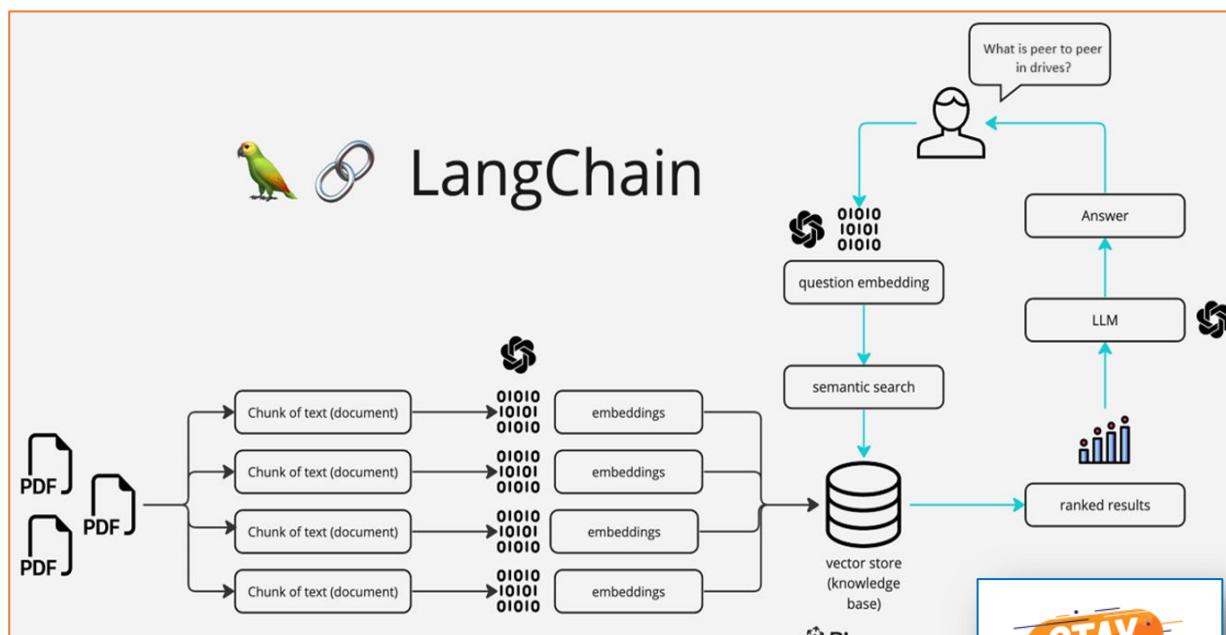
- Rockwell Drive product manuals are extensive, with each manual exceedingly around 200 pages, making it hard for customers to find relevant information.
- Customers struggle to navigate through these lengthy manuals, leading to frustration.
- The need for immediate assistance with minor issues and technical queries remains unaddressed.

#### Solution:

Our solution is a chatbot powered by AI and trained on Rockwell Drives product manuals and support documentation. Features include:

- Natural Language Processing (NLP) for conversational interactions.
- 24/7 availability for immediate assistance.
- Access to a vast database of product information and troubleshooting guides.
- Ability to guide users through common issues step by step.
- User-friendly interface accessible through web and mobile apps.

**Design:** The following diagram illustrates the solution architecture:



STAY  
TUNED  
*For more hackathon  
solutions in the  
next edition!*

# The Role of LogixAI in Galvanizing Line

Praveen Rawat

## Revolutionizing Steel Production

In the realm of industrial production, the marriage between traditional processes and cutting-edge technology continues to reshape the landscape. One such innovation making waves is the integration of Artificial Intelligence (AI) over galvanizing lines, heralding a new era of efficiency, precision, and sustainability in steel manufacturing.

### The Galvanizing Line: A Crucial Stage in Steel Production

Before delving into the impact of AI, it's essential to understand the significance of the galvanizing line in steel production. Galvanization is the process of applying a protective zinc coating to steel or iron to prevent rusting. This coating not only enhances the longevity of the steel but also provides corrosion resistance, making it indispensable in various industries ranging from construction to automotive.

The galvanizing line represents a critical stage in this process, where the steel substrate undergoes cleaning, fluxing, and finally, immersion in a bath of molten zinc. This complex process demands precision and consistency to ensure the quality and integrity of the galvanized steel.

**The AI Revolution:** Enter Artificial Intelligence, poised to revolutionize every aspect of the galvanizing line. AI algorithms, powered by machine learning and data analytics, offer a suite of capabilities that optimize production, improve quality control, and minimize waste.

### 1. Predictive Maintenance

One of the most significant advantages of AI in steel production is predictive maintenance. By analyzing vast amounts of data from sensors and equipment, AI algorithms can predict potential equipment failures before they occur. This proactive approach not only reduces downtime

but also prevents costly repairs, ensuring smooth operations over the galvanizing line.

### 2. Quality Control and Defect Detection

AI-enabled vision systems play a pivotal role in quality control along the galvanizing line. High-resolution cameras coupled with machine learning algorithms can identify surface defects, such as scratches or impurities, with unparalleled accuracy. This real-time inspection allows for immediate corrective action, maintaining the highest standards of product quality.

### 3. Process Optimization

AI algorithms optimize various parameters throughout the galvanizing process, including temperature control, zinc coating thickness, and line speed. By continuously analyzing data and adjusting parameters in real-time, AI maximizes efficiency while minimizing energy consumption and waste. This optimization not only enhances productivity but also reduces environmental impact, aligning with sustainability goals.

## Journey to FactoryTalk Analytics

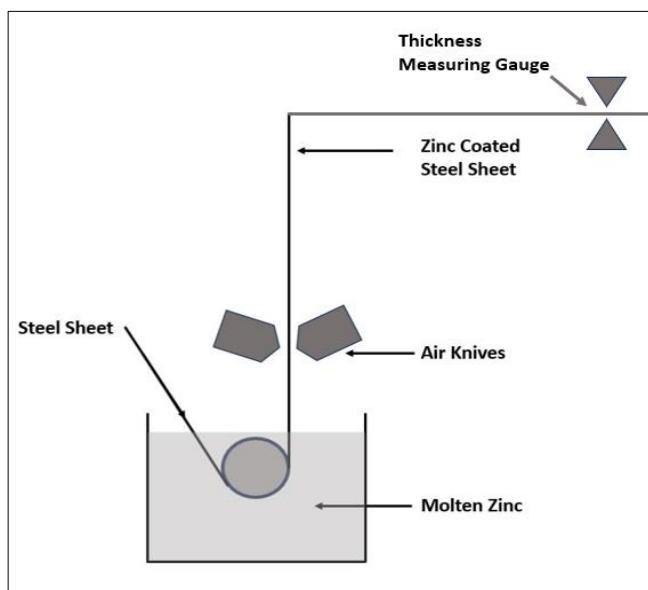
Earlier Galvanization processes used to be carried out based on manual quality checks. Operators used to face a big challenge to get running parameters even visualized and hence managing the zinc coating is something that was a great challenge. Furthermore, zinc being a costly material, it was a hard need of optimizing the zinc coating over the steel sheet.

Initially, a sensor got installed by the customer in the line to get quality check parameters with the help of Automation based Visualization. That helped the customer a bit to achieve monitoring of quality parameters where operator became

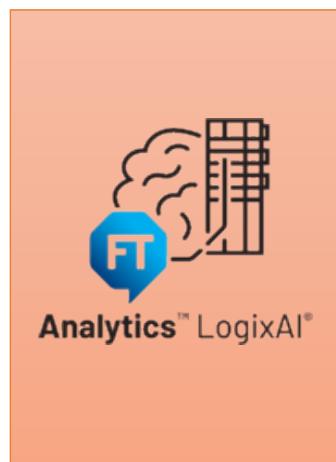
able to take manual decisions at field level to maintain quality at certain level. But the specific challenge was a reactive approach.

Because the Thickness Gauge was installed several meters away from the point of zinc layering; a strong need for concept was there by which on-the-go sensing could be achieved right at the happening spot.

Rockwell Team collaborated with the customer with a concept of soft sensing where LogixAI got introduced & positioned. The value props were to predict the zinc coating thickness using soft-sensing capability of LogixAI enabling the control system or operator to make decision according to zinc coating set-point by managing the control variables.



This innovative execution began nearly in the mid of 2023. Cross-Vertical collaboration happened followed by multi-brainstorming sessions, several strategic approaches, and of course multiple failures as well.



This is the first successful implementation of FactoryTalk Analytics LogixAI in India at Tata Steel.

Praveen Rawat Solution Consultant	Gopal Routh Solution Consultant	Rahul Dhone Solution Consultant	Amit Gupta Consultant Manager	Sandeep Redkar Consultant Leader	Deepak Tyagi EU Account Manager	Pankaj Aswal SWC Lead
Hardeep Singh Lead Engineer Project	Sumit Tripathi Project Engineer	Navdeep Kumar Sehgal Execution Manager	Amar Pal Project Manager	Sachin Bhatia S&S Business Lead		

As an outcome, our continuous result-oriented mindset delivered something that we were obsessed with, and The line can now work being operator-less and is independent on the Thickness Measuring Gauge.

LogixAI has started delivering the Soft-Sensing Predictions which then got leveraged by the Control System using our APC (Advance Process Control) Instructions to manage the parameters that define the zinc coating.

A continuous running plant now became operator-less & is running without the sensor giving real-time predictions and maintaining the quality. The user-friendly interface of FactoryTalk Analytics LogixAI doesn't require any Data-Scientist. This has enabled the customer in such a way that the client team is confident in configuring multiple models by themselves.

**Challenges and Future Prospects:** While the integration of AI over the galvanizing line offers tremendous benefits, it's not without challenges. Data security, algorithm reliability, and workforce adaptation are among the hurdles that manufacturers must navigate. However, with advancements in AI technology and concerted efforts to address these challenges, the future looks promising for AI-powered steel production.

**Conclusion:** The incorporation of AI over the galvanizing line represents a paradigm shift in steel manufacturing, ushering in an era of unprecedented efficiency, quality, and sustainability. As industries embrace this transformative technology, the potential for innovation and growth knows no bounds, reaffirming AI's status as a cornerstone of the Fourth Industrial Revolution.

# Market Exploration to Introduce PLEX ERP in India

Ankit Kumar



## EDGILE Assignment

In an era where businesses are constantly seeking ways to innovate and expand into new markets, the Indian landscape presents a promising opportunity for Manufacturing ERP solutions.

With its burgeoning economy and increasing digital adoption, India stands as a beacon of growth potential for enterprise software providers.

Considering this, Rockwell Automation is embarking on a strategic stretch assignment, empowering our sales teams to explore the PLEX ERP market in India.

This article delves into the significance of this initiative and outlines the Manufacturing ERP Market Size in India and key prerequisites to launch PLEX ERP into the Indian Market.

### Comprehensive list of features that manufacturers look for in their ERP:

- Supply Chain Management
- Product Lifecycle Management
- Production Management
- Management of Materials/Resources (MRP)
- Asset Management
- Order Management
- Project Management
- Quality Management
- Focus on Transportation Essentials
- Industry Requirements- Discrete/Process Manufacturing
- Finances/Manufacturing Accounting

### Manufacturing ERP Market Size - India (Post Covid Market Research):

As per a report published in April 2023 by Maximize Market Research Private Limited, Indian

Manufacturing ERP Market value is USD 424.12 million in 2022. Growth rate of 6.32 percent from 2023 to 2029.



### India Manufacturing ERP Market Segmentation Analysis:

By enterprise size, the market is segmented into SMEs and Large Enterprises. Among all these SMEs, the enterprises segment held the highest market share in 2022 and is expected to keep its dominance over the forecast period. The Indian market comprises around 60% of the SMEs.



By deployment type, the market is segmented into Cloud and on-premises. Among these, the Cloud deployment segment holds the highest market share in 2022 and is expected to keep its dominance over the forecast period. Speed has become an essential competitive differentiator in the present market scenario, and the companies investing in new solutions expect to see the

results quickly. The cloud-based manufacturing ERPs are best suited for small and midsize enterprise businesses, which have lower upfront costs, ease of access, and system stability.

The Food & Beverages segment led the India Manufacturing ERP market, by offerings and is anticipated to continue its dominance during the forecast period. With the growing consumer choice and demand for high-quality fresh, chilled as well as frozen products, the F&B industry is demanding manufacturing ERP solutions to streamline the overall process.

### **Key prerequisites for launching Plex ERP into the market**

**1. Understand the Indian Market:** Conduct thorough market research to understand the specific needs, challenges, and trends in the Indian manufacturing industry. Identify the target audience, industry verticals, and potential competitors.

**2. Localization and Compliance:** Ensure that Plex ERP is localized to meet Indian regulatory requirements, taxation rules, and industry standards. Highlight compliance features to address the unique business environment in India.

**3. Build a Strong Value Proposition:** Clearly articulate the value proposition of Plex ERP for Indian businesses. Highlight how Plex ERP can streamline manufacturing processes, improve efficiency, reduce costs, and contribute to overall business growth.

**4. Industry-Specific Solutions:** Emphasize Plex ERP's industry-specific capabilities. Tailor your messaging to address the specific needs of different manufacturing sectors in India, such as automotive, electronics, food, and beverages, etc.

**5. Partner with Local Implementation Experts:** Collaborate with local implementation partners or consultants who have expertise in the Indian market. Building partnerships with firms that understand local business practices can enhance the success of Plex ERP implementations.

**6. Offer Customization and Flexibility:** Highlight Plex ERP's ability to be customized to suit the unique requirements of Indian businesses. Flexibility in adapting to different manufacturing processes can be a strong selling point.

**7. Emphasize Cloud Benefits:** Highlight the advantages of PLEX being a cloud-based ERP solution. Stress factors such as scalability, flexibility, and accessibility from anywhere can be particularly appealing to businesses of various sizes in India.



**8. Address Data Security and Compliance:** Address concerns related to data security and compliance. Emphasize how PLEX ERP adheres to the necessary data protection regulations and standards applicable in the Indian context.

**9. Offer Trial Periods or Demonstrations:** Provide potential customers with the opportunity to experience Plex ERP through trial periods or live demonstrations. Allowing them to see the system in action can increase confidence in the product.

**10. Pricing Strategy:** Develop a competitive and flexible pricing strategy.

### **Conclusion**

There seems a significant market size available for Cloud Manufacturing ERP in India. The SaaS market has really picked up fast in the last decade. When it comes to market size PLEX ERP is the best fit for SME Category. If we can make the PLEX product market fit and create a partner ecosystem for sales and implementation locally, it can result in achieving higher growth in the coming future. Plex products are built for manufacturing, born on the plant floor, and forged in innovation.

# Event Driven Microservices Using CQRS and Event Sourcing Pattern

Ashwinikumar Buche

FiiX Team

Microservices are independent, modular services that have their own layered architecture, as opposed to standard monoliths which are tightly coupled as a single application processing unit.

A shared database is not recommended in a microservices-based approach, because, if there is a change in one data model, then other services are also impacted.

To achieve atomicity in transactional data and ensure data consistencies across microservices, we integrate the microservices components with event-driven architecture (EDA). To meet the data consistency and performance optimization, especially in distributed systems, the CQRS and Event Sourcing patterns help to enhance microservices' overall structure and performance.

## CQRS with Event Sourcing - Key Concept

**1. Commands and Queries:** Commands should be actions with task-based operations like "add item into the shopping cart" or "checkout order". So, commands can be handled with message broker systems that provide to process commands in an async way. Queries never modify the database. Queries always return the JSON data with DTO objects. By this way, we can isolate the Commands and Queries.

**2. Events are fundamental to Event Sourcing:** An event represents a significant change in the system's state and acts as the source of truth for both read and write operations. Events are immutable and sequential, capturing the history of business entities. Since events store the full state evolution, they enable auditing, debugging, and temporal querying features.

**3. Event Store** is a specialized data storage system designed to persist events sequentially. Its primary role is to maintain the event history,

enabling rebuilding the state of business entities whenever needed. This persistence mechanism differs from traditional CRUD-based storage systems, where data is continuously updated, and previous states are lost.

**4. Aggregates** are business entities that encapsulate and protect their internal state. They serve as consistency boundaries, ensuring that operations on them maintain the system's business rules and invariants. Aggregates consist of one or more domain objects, with a single root object serving as the entry point for all external interactions.

**5. Projections** are read models built from the event store for query-specific purposes. They process the stream of events and transform the data into a structure that is optimized for reading, improving querying performance. Projections can be kept in sync with the event store through event handlers, which listen for specific events and update the related read models accordingly.

**6. Event Handlers** are functions or components that listen for and react to events. They are responsible for managing the side effects of state-changing operations. In CQRS and Event Sourcing, event handlers maintain consistency between the write operations (commands) and the read operations (projections).

## Combining CQRS with Event Sourcing in Domain-Driven Design (DDD)

Domain-Driven Design is an approach to software development that focuses on complex needs by connecting the implementation to an evolving model of the core business concepts. When CQRS and Event Sourcing are applied within DDD, they complement each other and allow for a highly scalable architecture by separating concerns and ensuring that all

changes are stored as domain events, which provide a complete history of interactions.

Implementing CQRS and Event Sourcing can lead to systems that handle high loads more efficiently by distributing responsibilities across different components and services. Modern cloud-based architectures often utilize these patterns to achieve microservices-based scalability.

### Benefits of Using CQRS and Event Sourcing Together:

- Scalability: Separate scaling of read and write workloads.
- Maintainability: Clear separation of concerns makes systems easier to maintain.
- Auditability: Every change is recorded, providing an audit trail.
- Flexibility: Systems can easily evolve over time without compromising past business rules or data.

Considering the above, CQRS, and Event sourcing are well suited for microservices application paradigms, complementary techniques or patterns when it comes to a modern, distributed architecture. At this point, one may be wondering if there are any tools which may help one to get started implementing all these patterns. Axon is just that tool.

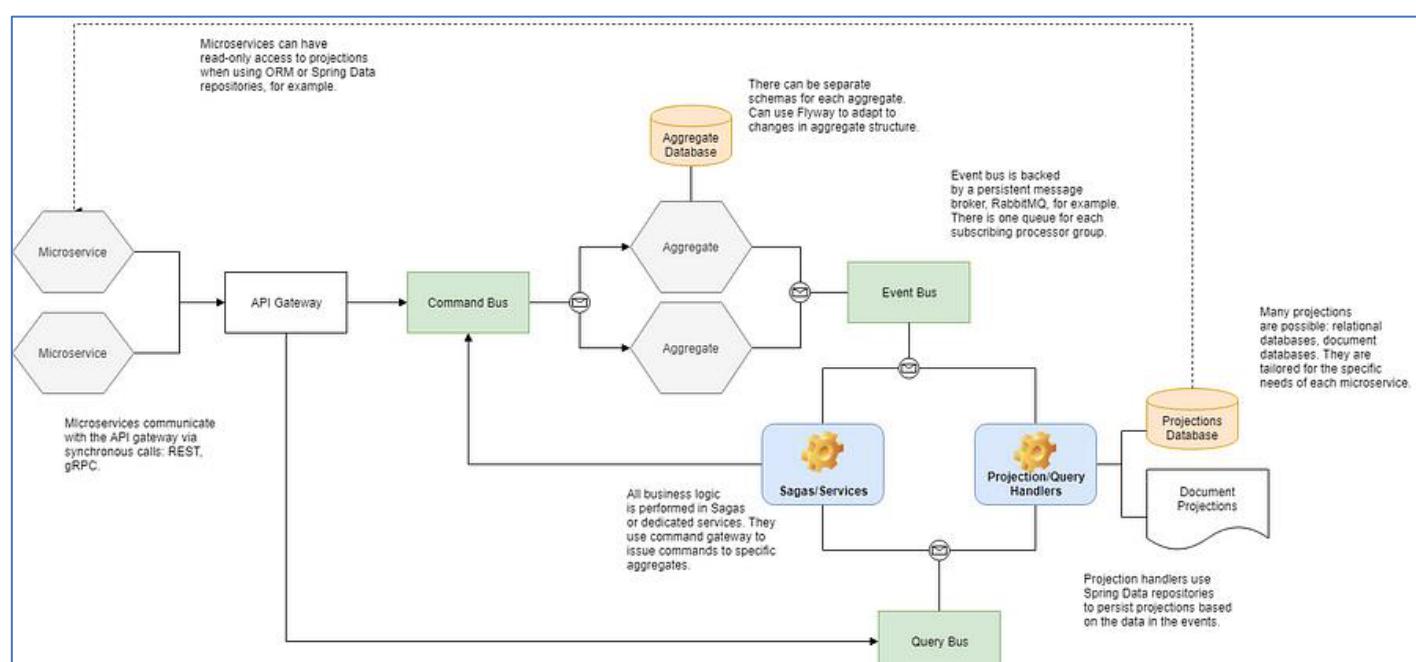
### Axon Framework

Axon is a combination of a Java framework and a server, which together help one realize all of the concepts mentioned here.

*Axon is an elegant solution leveraging Spring framework internally. It allows for creation of applications following the spirit and letter of Domain Driven Design very closely.*

By default, an Axon module will connect to the Axon server, which has three main components: command bus, for distributed command processing, query bus, for distributing queries and event store for storing and dispatching events. All event handlers/Aggregates (Sagas, projection handlers), as well as all query handlers are described via a small set of annotations. Unit testing of aggregates is also provided.

Here is a schema outlining a CQRS system which is built with the help of Axon. A similar kind of design has been used in Fiix Queen decoupling project.



# Rockwell Cricket League – 2024

Pritesh More

Sports

Four days of enthralling cricketing action came to a crescendo, leaving indelible imprints of sporting excellence and camaraderie that will endure for years to come. From breathtaking performances to nerve-wracking finishes, the Rockwell Cricket League 2024 was a spectacle of sheer brilliance, celebrating the essence of the gentleman's game.

## Defining Moments

The tournament witnessed unprecedented levels of intensity, with nail-biting encounters culminating in dramatic "Super Over" finishes during the finals. These heart-stopping moments elevated the spirit of competition and showcased the raw passion and skill encapsulated within the game of cricket. On and off the field, the league ignited a fervor that united players and fans alike in their love for the sport.

## Champions

Celebrating the culmination of months of intense competition and unwavering dedication, we extend our heartfelt congratulations to the formidable victors of our recent tournaments. In an electrifying showcase of skill, teamwork, and sheer determination, these exceptional teams have risen to claim their well-deserved titles. Without further ado, let's applaud our champions who have etched their names in the annals of sporting glory:

### Men's Championship:

In the Men's division, team **Black Panthers** secured a well-deserved 1st place, showcasing their prowess on the field and team **PowerPlex** secured an impressive second-place finish, narrowly missing out on the top spot claimed by the dominant **Black Panthers**.

Their strategic gameplay and exceptional teamwork led them to stand as the worthy runners-up in the intense competition.



### Runner up - Men's team



Following closely behind them, **Team Mavericks** secured the third spot, showcasing their resilience and skill throughout the tournament. Rounding up the top four, team **RA COE Giants** displayed commendable performance, earning themselves the fourth-place position amidst fierce competition.

### Women's Championship:

Team THUNDERBOLTS emerged as champion in the Women's division! Taking the prestigious first place, showcasing their remarkable prowess and skill. Following closely behind in second place is -



team Pitch Smashers, demonstrating their tenacity and competitive spirit throughout the tournament. Team Savage Hitters secured the third-place position, whose impressive performance has earned them well-deserved recognition. Their achievements stand as a testament to the spirit of competition and the pursuit of excellence.



**Runner up - Women's team**



## Individual Achievers

The Rockwell Cricket League stands as a testament to the passion, skill, and camaraderie within the cricketing community. Amidst the spirited competition and fervent teamwork, individual brilliance often emerges as a beacon of excellence.

# Rockwell Cricket League

2024

## Individual Achievers - Men



Player of the Tournament

**Punit Apte**  
*PowerPlex*



Best Batter

**Punit Apte**  
*PowerPlex*



Best Bowler

**Gaurav Bindal**  
*Black Panthers*



Best Fielder

**Pritesh More**  
*Black Panthers*

## Individual Achievers - Women



Player of the Tournament

**Manaswini Shige**  
*THUNDERBOLTS*



Best Batter

**Manaswini Shige**  
*THUNDERBOLTS*



Best Bowler

**Laxmi Nayak**  
*Pitch Smashers*



Best Fielder

**Axasusan Mathew**  
*Savage Hitters*

## Conclusion

In conclusion, the Rockwell Cricket League stands as a testament to the passion, dedication, and camaraderie fostered within the cricketing community. Beyond the boundaries of the cricket pitch, the league has strengthened bonds, forged friendships, and united communities through the universal language of sport.

As we reflect on a successful season, we celebrate not only the victories and achievements but also the spirit of sportsmanship and fair play that defines the essence of the Rockwell Cricket League. With anticipation for future seasons running high, we look forward to continuing.

# Pathways to Success: Chronicles of Remarkable Careers - Vasudev Singh Negi

Sanjeev Dhurwney

## Know Your Colleague

Getting to know our coworkers in our workplace can benefit all of us - as it helps us become more productive by creating a harmonious work environment that caters to individual needs. If we know how our colleagues prefer to work, such as quietly or collaboratively, we are in a much better position to create these environments. Taking the time to understand the ideal working conditions for colleagues also boosts their motivation and nurtures trust. *Join us for a inspiring conversation with Vasudev Singh Negi.*

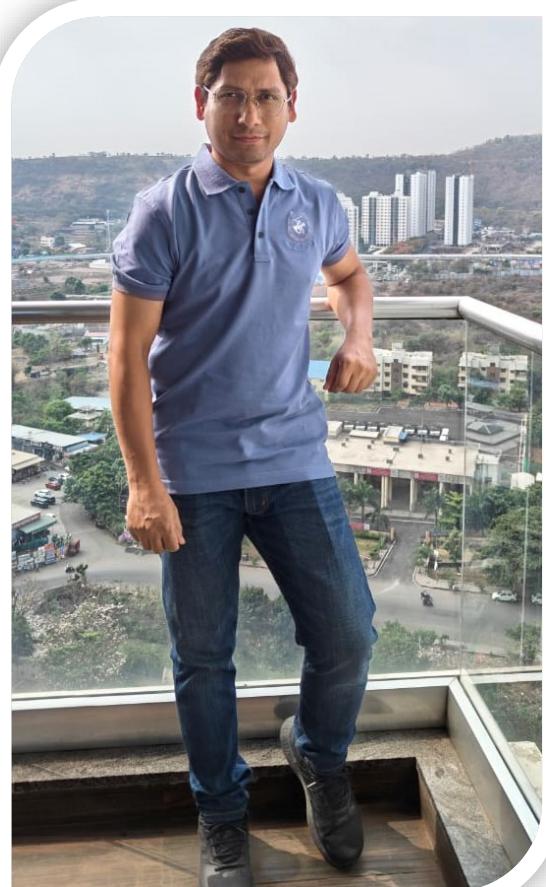
*Hello Vasudev, it's my pleasure, I am glad to interview you. Let's get started...*

*Can you take us through your RA Singapore journey?*

I began working at Rockwell Singapore in 2011. During that period, Rockwell was developing the L8x series of control Logix controllers. The architecture of these controllers differed significantly from the L7x series. Rockwell was in the initial phase of creating retargetable compiler architecture (RCA), and I joined the RCA team that was working on it. Rockwell was able to reuse this compiler framework for the CompactLogix 5480 and Logix Echo emulation software, which are X86-based target controllers, thanks to the retargetable compiler design. During my tenure in the RCA team, I worked on a variety of features, including instruction code generation, new instruction implementation, safety support implementation, instruction code optimization, adoption of new toolchains, and close collaboration with toolchain manufacturers on toolchain-related issues.

I also had the opportunity to work on the firmware development for high availability and safety controllers. I have had the opportunity to work on the Factory Talk Design Studio product's backend development in recent years. I was fortunate to

earn the Innovation Award twice at the annual APBC engineering awards function for newlib reentrancy support for user applications and optimizations made to FTDS project export capability. I should mention that I always felt at ease in Rockwell Singapore and that the culture there is great. I was fortunate to develop friendships both inside and outside of the workplace.



*Wow! Congratulations for the Innovation Award. Then how did you decide to relocate back to India?*

Even though I had always planned to return to India eventually, making the decision to do so was difficult. Being closer to my aging parents was the

main reason I returned to India. In addition, I wished to reside in the nation where I am a citizen. I was more than glad to accept the chance to form and lead a team in Pune when it presented itself. It was difficult to convince my family to move back as well. My two children were born in Singapore, where they also have most of their early memories. They were the ones that needed convincing the most.



**Yeah!** I agree, it should have been a tough phase to convince family. *What are your interests or hobbies outside office?*

I like to participate in a variety of sports. I used to play futsal on a regular basis while I lived in Singapore. These days, I prefer to play badminton on the weekends. I often take walks in the evenings. In addition, I enjoy watching football, and I support FC Barcelona. I want to get involved in philanthropy in the future.

**That's great!** How do you manage your time effectively to balance work and personal life?

I wish there was a switch to do this. I strive to be as productive as possible both at work and away from it. I believe that pending chores are the ones that linger in the mind, so I usually attempt to have no or few pending tasks. After office hours, I only attend meetings if my presence is required. Even while working from home, maintaining a consistent routine benefits me. Taking my children to the playground in the evenings, as well as going for evening walks, allow me to unwind and relax.



**Awesome!** In a nutshell, you are a computer wizard. I am glad that I got a chance to talk to you and learn about your inspiring journey. Thank you so much!

---

**Conclusion:** Believe in yourself! Be sincere, hardworking, and have a positive attitude. Keep learning new skills and knowledge on an ongoing basis. Maintain a healthy work-life balance. Be collaborative and seek a great mentor in your workplace.

---

We would love to hear your thoughts and learnings from this interview. Let us know via email:

**Sanjeev Dhurwe:**  
[SDhurwe@ra.rockwell.com](mailto:SDhurwe@ra.rockwell.com)  
**Vasudev Singh Negi:**  
[vnegi@ra.rockwell.com](mailto:vnegi@ra.rockwell.com)

# Building a SaaS Product

Sachin Jain

**Spark to SaaS**

SaaS product goes through multiple teams till it is launched as described below:

## Business Development

They do the market research and come up with Idea. They do various analyses including is the idea once implemented can be sold to multiple customers, which is saleable from Business to Business or Direct to Customer, what is expected revenue and growth, etc. Once the idea is finalized then the product goes into the hands of the Product Management team.

## Product Management team

This team decides the vision of the product, the goal to achieve the vision and finally the action plan to achieve the goal.

Depending on how the development of the product is going, this step might get repeated as some technical or other issues might require changes in the goals or vision.

## Finance Team

The team works with the Architecture and Product Management team to calculate the resources used in the cloud environment.

During the calculation low/medium/large utilization by the users. Once the resources are known using the pricing calculator provided by cloud providers average price is calculated for monthly and yearly usage. Based on the calculation and average use by tenant, pricing for tenant is calculated. Support and other costs are also included in the pricing once final pricing is determined.

## Engineering Team

This team consists of the Product Owners, Architects, and Development team. This team goes through each

high-level requirements and details of the low-level implementation. This team creates requirements, develops code, deploys, and tests the product till it is released. This team also consists of documentation team members who provide user documentation for the products and how to use them.

*There are a few myths about the SaaS product design:*

1. SaaS products need to be micro service based.

SaaS products can be monolithic, or microservices based. Many SaaS products started with monolithic architecture for faster implementation and once successful get converted to micro services based.

2. SaaS products are always multi-tenant.

SaaS products can be multi-tenant or there can be separate deployment for each tenant where they will have separate infrastructure for each tenant and will not overlap, they can migrate each tenant on separate version also of the same product and it will give more specific configuration for each tenant.

3. SaaS products work on only 1 cloud provider.

During the design phase if there is requirement that given product needs to work on multiple cloud providers then design team needs to make sure that they use services provided 1 cloud provider has corresponding services in another cloud provider or else design their own service which can be deployed across multiple cloud providers.

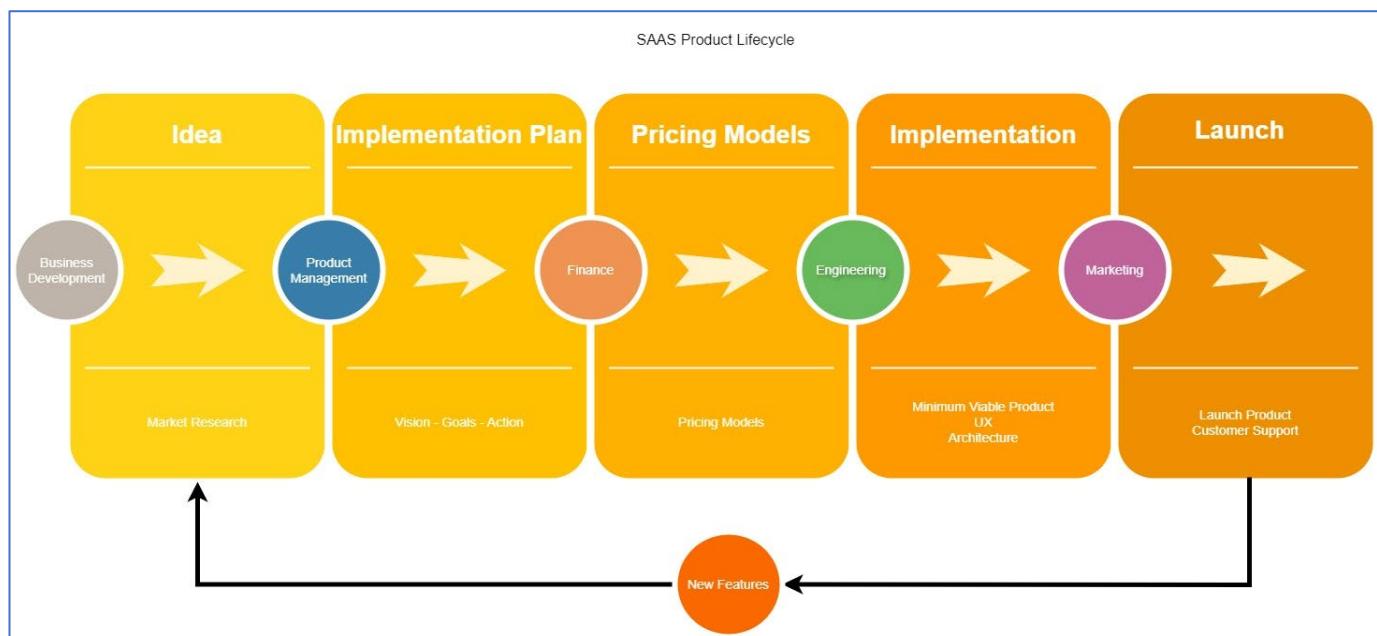


## Marketing Team

This team creates usability, features, and advertising videos of the products. They provide support to the sales team and help them demonstrate the product with customer data or with some specific use cases. This team also identifies features which customers or probable customers need to have sales growth of the product. This team identifies new features requirement and provide this as input to business development team.

**Customer Success**  
is where 90% of the  
**Revenue** is.

~ Jason Lemkin



## Commas Matter

Ram Kumar Kamisetty

**We're going to learn  
to cut and paste kids!**

**LET'S EAT GRANDMA.  
LET'S EAT, GRANDMA.**

**COMMAS SAVE LIVES**

**I LIKE COOKING  
MY FAMILY  
AND MY PETS.**

**USE COMMAS.  
DON'T BE A PSYCHO.**

# Career Conversations with Narasimha A Murthy, Principal Engineer

Sudha Krishnamurthy

**People Matters**

In our most recent edition of the Career Conversations series, over 100 S&C India employees gathered including about 35 in-person, and online to gain insights from Narasimha A Murthy, one of our pioneering Principal Engineers in RA India. The session provided a fantastic platform for our S&C India Team to delve into the intricacies of professional development through Narasimha's own career experiences.

During the talk, Narasimha emphasized the importance of clarity in one's career goals, objectives, and accomplishments, framing these within the context of the three critical W's:

- **What** do you want to achieve?
- **Why** is it important for you to achieve it?
- **What** and **how** did you manage to achieve these goals?

He shared his personal career milestones and discussed strategies for maintaining motivation amidst challenges. Highlighting the concept of "Career as a Journey of Life," Narasimha encouraged everyone to embrace their unique paths and add color and vibrancy to their professional journeys. His experiences with unconventional career choices have not only

enriched his own career but also opened new doors for his team.

A lively interchange followed, with attendees delving into topics from AI and security to the enduring value of continuous learning. Narasimha's emphasis on staying focused and calm underscored that opportunities arise from dedication, a concept that mirrors our ethos at RA India. It was not only his strategic insights that captivated the audience but also his humility and courtesy. These personal virtues, coupled with an unwavering optimism, were recognized as hallmarks of a fruitful career.

This was the fourth installment of our quarterly Career Conversations series. Each session is a treasure trove of knowledge, offering our team members invaluable insights and guidance from seasoned professionals like Narasimha. With gratitude to Narasimha for sharing his journey, we're inspired to support ourselves and each other as we strive for excellence & expanding human possibility in our individual and collective career paths. Stay tuned for more inspiring sessions in this series, as we continue to explore new perspectives and strategies for professional advancement.



# Navigating the IT-OT Maze: Interoperability and Cybersecurity Challenges

Santanu Joshi

**Cyberspace**

As technology continues to advance, the integration of information technology (IT) and operational technology (OT) has become increasingly important for organizations across industries. However, with this integration comes new challenges, particularly in terms of ensuring interoperability and maintaining cybersecurity.

In this article, we will explore these challenges and discuss potential solutions. We will delve into what IT-OT integration and interoperability mean, why they're important, and the obstacles that must be overcome to achieve them. We'll also examine the concept of cybersecurity and the growing threat of cyber-attacks in integrated IT-OT environments. So, sit back, relax, and get ready to dive into the world of cyberpunk-inspired IT-OT integration and cybersecurity.



IT-OT integration refers to the convergence of information technology (IT) and operational technology (OT) systems in an organization. This integration allows for seamless communication and collaboration between previously siloed systems, resulting in increased efficiency, reduced downtime, and improved decision-making capabilities.

For example, a manufacturing plant may have separate IT systems for inventory management and OT systems for controlling machinery on the production line. Integrating these systems would allow for real-time monitoring of inventory levels and automatic adjustments to production schedules based on demand, leading to more efficient use of resources and increased profits.

IT-OT integration is important because it enables organizations to take advantage of the benefits of digital transformation, such as automation, data analytics, and machine learning. However, it also presents challenges, including technical compatibility issues, organizational resistance to change, and security risks.

Interoperability is the ability of different systems to communicate with each other and exchange information seamlessly. In the context of IT-OT integration, interoperability refers to the ability of IT and OT systems to work together and share data effectively. This is important because IT and OT systems often operate independently and use different protocols and standards, which can lead to inefficiencies and errors.

One of the biggest challenges of achieving interoperability in IT-OT environments is the differences in protocols, standards, and data formats used by different systems. Each system has its own way of communicating and processing data, which can make it difficult to share information between systems. This can lead to

data inconsistencies and errors, which can have serious consequences for businesses.

In addition to technical challenges, there are also organizational and cultural challenges to achieving interoperability. Different departments within an organization may have their own IT systems and processes, which can make it difficult to integrate these systems with each other. There may also be resistance to change from employees who are used to working with certain systems and processes.



**CYBERSECURITY IS A SHARED RESPONSIBILITY, AND IT BOILS DOWN TO THIS: IN CYBERSECURITY, THE MORE SYSTEMS WE SECURE, THE MORE SECURE WE ALL ARE.**

- Jeh Johnson



Cybersecurity refers to the practice of protecting computer systems, networks, and data from theft, damage, or unauthorized access. In an integrated IT-OT environment, where information technology (IT) and operational technology (OT) systems are connected, cybersecurity becomes even more critical as a breach in one system can have serious consequences for the other. For example, a cyber-attack on a power plant's control system could cause widespread blackouts and disrupt critical infrastructure.

Effective cybersecurity measures involve a combination of technology, policies, and procedures designed to safeguard against cyber threats. This includes implementing firewalls, encryption, and multi-factor authentication, as well as training employees to recognize and respond to potential security risks. With the

increasing frequency and sophistication of cyber-attacks, it is essential that organizations prioritize cybersecurity in their IT-OT integration efforts.

As organizations increasingly integrate their IT and OT systems, they face a growing threat from cyber-attacks. The interconnectedness of these systems creates new vulnerabilities that can be exploited by hackers, potentially causing significant damage to critical infrastructure and operations. To address this challenge, organizations must implement robust cybersecurity measures that protect against a wide range of threats, from phishing attacks to ransomware.

One key challenge in achieving cybersecurity in IT-OT environments is the need for secure communication protocols. To ensure that data is transmitted securely between IT and OT systems, organizations must use protocols that are designed specifically for this purpose. This can be difficult, as there are many different protocols available, each with its own strengths and weaknesses. Additionally, organizations must ensure that these protocols are properly configured and maintained, which requires significant expertise and resources.

In conclusion, we have investigated the importance of interoperability and cybersecurity in integrated IT-OT environments. These challenges are crucial for the success of integrated IT-OT systems. As industries become more interconnected and reliant on technology, the risks associated with cyber-attacks and system failures increase. It is up to us to take action and implement solutions that ensure the security and reliability of our systems. Let us work together to create a safer and more resilient future.



# Unlocking Your Potential with Pragya Tripathi: Navigating Career Opportunities with Role Models

Monalisa Mitra

## Women's Day Celebrations

GRACE has organized an women connect event "**Unlocking Your Potential: Navigating Career Opportunities with Role Models**" in honor of International Women's Day.

In a stirring address that resonated with audiences, Pragya Tripathi, Senior Engineering Manager IT who is a prominent advocate for social change, delivered a poignant message on navigating Career Opportunities with Role Models, Unlocking Your Potential and inspiring positive transformation. The purpose of **GRACE** (Gathering Resilient Women, Achieving Connectivity and Empowerment) is to focus on Involvement, Visibility via Networking opportunity, Diversity, Inclusivity and Awareness which has been launched as part of DEI initiative.

Pragya Tripathi captivated attendees with her impassioned plea for recognizing and celebrating the influence of role models in shaping individual trajectories and collective aspirations. Against the backdrop of International Women's Day, her words carried added resonance, underscoring the imperative of amplifying diverse voices and narratives in the pursuit of equality and justice.

Throughout her discussion, Pragya underscored the importance of authenticity and relatability in role models, emphasizing the need for individuals to see themselves reflected in the stories and achievements of those they admire. By sharing personal anecdotes and anecdotes from her own journey, she sought to demystify the notion of success and inspire others to embrace their unique strengths and aspirations.

*The event provided a platform for attendees to share their stories, aspirations, and visions for a more inclusive, equitable world and their challenges and insecurities.*

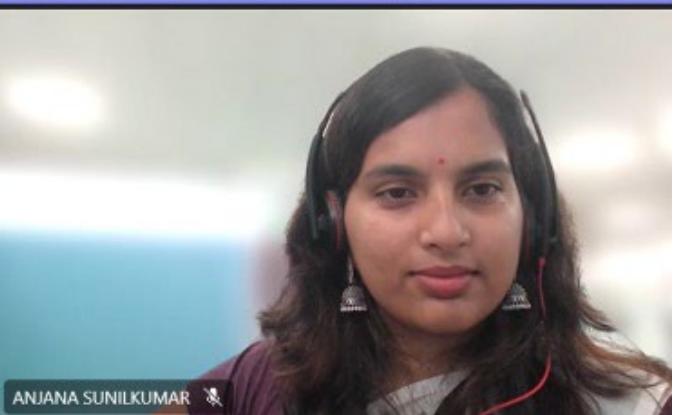
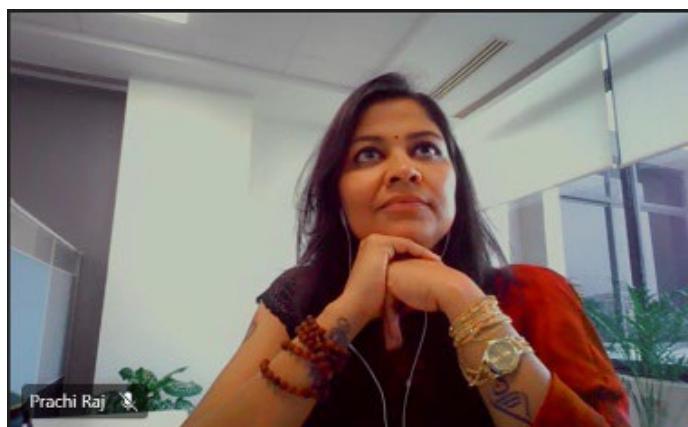
In the engaging discussion, all the attendees exchanged perspectives on pressing issues such as women's representation in leadership, work life balance and financial decision, and strategies for advancing gender equality in various spheres of society. Thought-provoking insights and personal anecdotes illuminated the importance of ongoing efforts to break down barriers and empower women worldwide.



The next segment of the event is the **Domino effect game**, where participants distributed appreciation card to create the cascading influence of gratitude and appreciation, inspiring onlookers the power of collective action. Following the exhilarating game, attendees gathered around a beautifully adorned cake, adorned with symbols of female resilience and strength. With a collective cheer, participants joined in the cake cutting ceremony.

However, the highlight of the event was the enchanting saree photo session, where attendees adorned in vibrant sarees, showcased the timeless elegance and diversity of Indian culture. SWC, Pune ki **Rockwell ki Naari in Saree** posed with grace and confidence, capturing the essence of empowerment and self-expression.

As attendees departed, adorned with smiles and newfound connections, the echoes of the day's festivities lingered, serving as a poignant reminder of the transformative power of unity, celebration, and empowerment on International Women's Day and beyond.



# Vietnam Memories: A Journey Through My Lense

Satarupa Mukherjee

**Personal Space**



Satarupa Mukherjee

A Tam Coc boat tour Ninh Binh offers a delightful journey through picturesque landscapes, where you will glide along the Ngo Dong River and explore enchanting caves. This immersive experience is a must-have for those seeking the tranquil beauty of nature in Ninh Binh, Vietnam.

Golden Bridge is "Cau Vang" in Vietnamese. The yellow-hued bridge is supported by two gigantic hands just like the hands of God. This symbolizes a mystery of nature as God is carrying the gift from the ground.



Satarupa Mukherjee



Located between the streets of Phùng Hưng and Lý Nam Đế, in Hanoi's Old Quarter, is the famous Train Street or the Đường Phùng Hưng railway street. This is a must-see attraction in Hanoi, it's strangely very beautiful on a night all lit up by the bars and cafes on either side of the tracks.



Get Clicked with a Friendly Python:  
At Dragon Island on the Mekong River, you can get this scary/unique experience. Just need to be bold enough for few minutes 😊

**THE  
GUEST  
EDITOR**



Murali Manohar

**We wish to hear back!**

Do you wish to share your stories and content or have feedback, suggestions, or comments regarding the newsletter? Please feel free to contact the Newsletter Team.

**Thanks to:**

- Nandini Raisinghani
- Sudha Krishnamurthy
- Bhartesh Doshi
- Sarat Shankar
- Tanul Karkare
- Ninad Kulkarni
- Piyush Sayani
- Vibhas Mokashi
- Paresh Teredesai
- Subodh Budhkar
- and all SPOCs.

**THE  
EDITORIAL  
TEAM**



Sanjeev Dhurwey



Ram Kumar Kamisetty



Satarupa Mukherjee



Sampath Kumar Pothuru



Vishnu Das



# Thank You





**Rockwell  
Automation**

expanding **human possibility**®

Bits & Bytes is published by Rockwell Automation India (Pune). It is for RA internal use only.