RUCHA KALEIDOSCOPE

Rucha Engineers Pvt Ltd

October 2021 Issue # 27

RUCHA
ENGINEERING 2.0
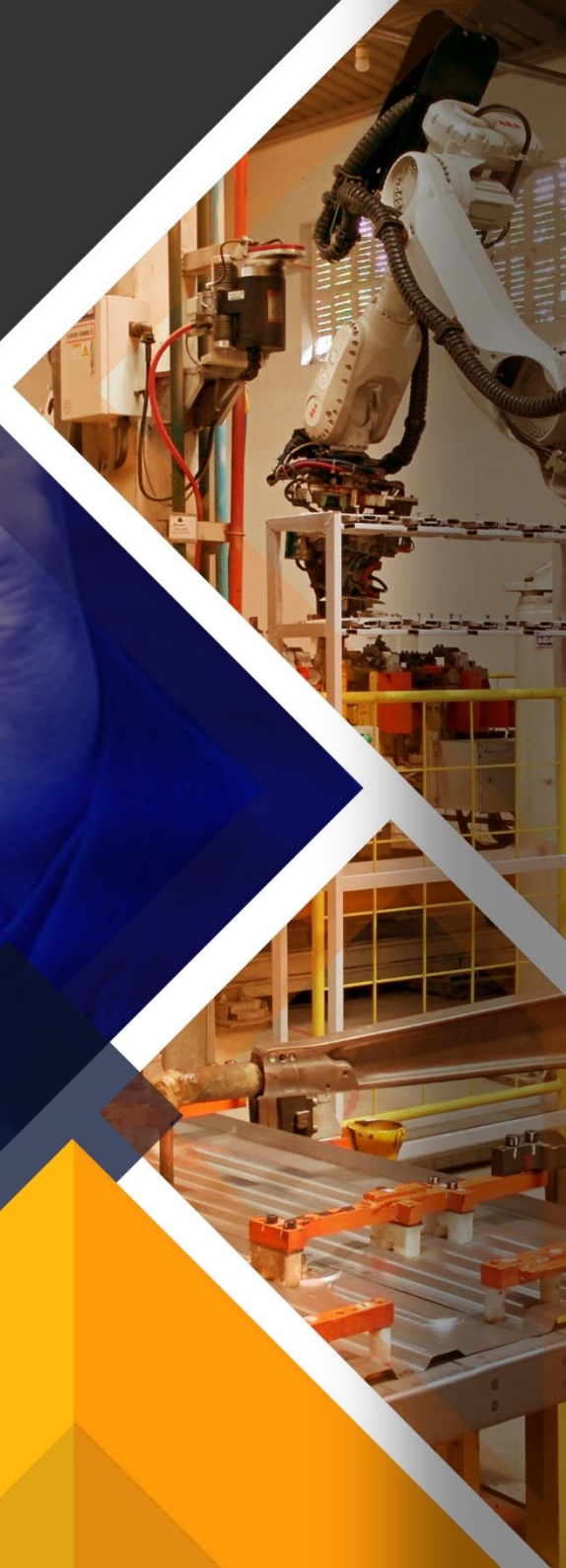
25 YEARS
AND STILL
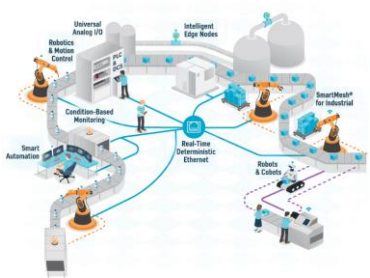GROWING

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EPILOGUE OF PRESIDENT AND COO

First of all, I would like to congratulate to each and every one, who are either direct or indirect part of Rucha family to celebrate 25 years ! Now only just 75 years have left to touch a landmark 100 years celebration and I don't have any doubt in achieving it !!

The process which had started from Shree Engineers, to Rucha Engineers to Rucha Yantra and Burlyfield, is an amazing journey. I would try to narrate this success as '**THE ACHIEVEMENTS OF AN ORGANIZATION, ARE THE RESULTS OF COMBINED AND COLLECTIVE EFFORTS OF EVERY INDIVIDUAL.'**

If we talk in terms of numbers, we have grown up from Rs. 2 Cr to Rs. 1000 Cr, from 1 Plant to 11 Plants, production in 1 state to 4 states, workforce from 5 persons to 2000 persons, from 1 customer to more than 20 customers.

The biggest and most valuable contribution is from MD Sir and that is his vision of '**Exceptional Visionary Thinking'.** He always thinks out of box and ahead of the time as well.

During these 25 years span of time, we faced several issues, however we succeeded in fighting with them successfully with the contribution of every stakeholder. Starting from a small Press Shop, now we have all the capabilities like Stamping, Welding, Surface Coating, Robotic Cell Building and its Integration, Hot Forming, Fine Blanking, Tool Designing and Manufacturing, SPMs Designing and Manufacturing, Material Handling Solutions etc.

EPILOGUE OF PRESIDENT AND COO

These capabilities under one umbrella is an cutting edge to choose Rucha as a 'Preferred Source' while believing on us as a **Business Partner.** All this is getting reflected from our customer arena including almost all Indian OEMs and big MNC giants as well.

Establishing our own R&D, was one of the great move. We could develop our own products and establish processes like Hot Forming, Fine Blanking without going into Joint Venture or without taking any foreign partner.

Consistent excellent performance is a key factor and we have never compromised with it. This has naturally reflected in getting appreciation in the form of numerous awards, trophies, certifications at national and international level.

Digitization has become a Buzz word now-a-days. Young brigade of almost 20 persons is working on various projects and trying to make our life simpler. Getting real time data, transparency in flow of information, development of software's have now become a routine for us and that too without any paper work.

I do not have any doubt about bright future of Rucha and I wish all the best from bottom of my heart !!!

- Mr. Shrikant Sohoni

HEARTIEST CONGRATULATIONS TO PLANT I AND V

This year, Quality Circle Forum of India (QCFI), Aurangabad chapter has organized Virtual Chapter Convention on Quality Concept (CCQC-2021). More than 61 teams were participated in this Conference and results declare on 22th Oct 2021. **Plant I won Gold Award in Kaizen category & Plant V winner the TPM Category.**

This team is qualified for 35th National Convention on Quality Concepts (NCQC 2021), being organized by QCFI in collaboration with PSG Institute of Technology from 27th to 30th December, 2021.

For this Success of team they were guided, encouraged & supported by Seniors of Plant I and V.

All the best to team for their next Journey!!!

PLANT I

PLANT V

SWARM ROBOTICS AND THE ROLE OF BLOCKCHAIN

Blockchain is a decentralized method of recording transactions and allowing communication between different entities on a network. Everyone on the network has access to the entire network and its history. The transactions or actions performed are impossible to tamper, alter

or falsify for anyone. Thus, the major advantages of a blockchain are transparency and security. We have taken a bird's eye view of blockchain in previous blogs; now, we shall look at a very specific field of application – Swarm Robotics.

We shall try to understand what Swarm Robotics entails, its applications, and how Blockchain is aiding its development.

What is Swarm Robotics?

The dictionary definition of swarm states that it is a large or dense group of flying insects; or a large number of similar objects moving together. Taking a cue from the definition, Swarm Robotics is the use of numerous, autonomous robots to accomplish a task. In a 'robot swarm,' the behaviors of a large number of relatively simple robots are coordinated in a decentralized manner. The field is dedicated to studying how to design groups of robots that operate without relying on any external infrastructure or any form of centralized control.

In swarm robotics, each robot follows some basic rules and draws inspiration from the environment. These basic rules when combined become collective behaviors that are the result of interaction between different robots and with their environment.

SWARM ROBOTICS AND THE ROLE OF BLOCKCHAIN

The advantage of swarm robotics is its scalability and robustness to failure. Both these advantages are because there is a distributed yet simple nature of their coordination. Swarm Robotics also plays an important role in the development of collective artificial intelligence.

Role of Blockchain in Swarm Robotics

The cost of robotics is decreasing by the day, and hence the number of robot deployments is rising. The major applications of swarm robotics include precision farming, targeted material transportation, entertainment systems, etc. However, as the number of connected devices increases, so do the risks of them being attacked digitally. Even if one robot in a swarm gets affected, the entire system shall malfunction.

Large-scale robotic and Artificial Intelligence applications face challenges, also, because of the system and network heterogeneity and multi-vendor requirements. Thus, a pre-requisite for deploying swarm robotics for commercial applications is that it needs to be secured from cyber threats.

Blockchain demonstrates the possibility to create a network of secure robotic devices and allow seamless communication between them.

It is a public ledger whose information is protected by a consensus algorithm and based on a decentralized model.

SWARM ROBOTICS AND THE ROLE OF BLOCKCHAIN

Security in swarm robotics fundamentally requires data integrity, data confidentiality, data origin authentication, and entity authentication. Blockchain can address all of these requirements and provide a reliable network of communication for swarm agents. It overcomes vulnerabilities, potential threats, and attacks.

Blockchain uses encrypted security techniques such as digital signature cryptography and public-key cryptography which have dual benefits. They are a means to prove the identity of a specific agent in a network and to facilitate safe and secure transactions and communications.

Each swarm agent would be provided a set of 2 keys – public and private. Public key acts as a unique account number for the agent and a Private key is regarded as the agent's covert information just like passwords in a traditional system. Thus, ensuring accurate identification of each agent and their secure participation in the network.

The use of blockchain can enable swarm robots to operate in dynamic environments as well. Hence, boosting the flexibility of robots without increasing complexity in swarm robotics. Swarm Robotics is an exciting and developing field in robotics and its growth is being aided by blockchain. Soon, we shall witness rising applications of swarm robotics backed by blockchain.

RUCHA YANTRA

Rucha Yantra started with a prototype mobile robot for material handling and now we specialize in customized AGVs and AMRs for multiple applications across varied industries. we provide solutions that eliminate complexities in labor-intensive processes such as transportation of loads from point A to point B and storage of goods at shop-floor and warehouse. Our Auto Guided Vehicles (AGVs) and Mobile Robots are rugged and equipped with advanced Industry 4.0 capabilities such as remote performance monitoring, auto loading-unloading accessories & wireless charging to work in manufacturing and commercial setups' challenging conditions.

We also specialize in customized Special Purpose Machines (SPMs) and Robotic Integration & Automation services.

burly field
NURTURED BY NATURE ™

Burlyfield participated in the grand Consumer Shoppee exhibition in Aurangabad. The exhibition was inaugurated by noted industrialist and chairman of Laghu Udyog Bharti, Mr. Ravindra Vaidya. Burlyfield's Founder Dr. Jyoti Dashrathi seen presenting him a hamper of our products. Along side, Mrs. Meenal Mohadikar, chairman Amhi Udyogini. The booth at the exhibition was a great success with many excited visitors to the stall.
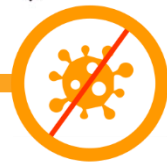
DUSSEHRA CELEBRATION

Dussehra is the festival of prosperity and gratefulness. Each year we celebrate Dussehra with our Rucha family by performing pooja of machinery and tools. This year also Dussehra was celebrated across all the plants of Rucha Engineers along with Rucha Yantra and Burlyfield. Here are some glimpses of Dussehra celebration in the Rucha Group.

SOME COMMONLY USED JAPANESE WORDS IN MANUFACTURING

Indian manufacturing, especially the Automobile sector is greatly influenced by the Japanese Manufacturing System. The Japanese manufacturers are known to launch new products in the market in a very short period of time, with very less expenditure as compared to their competitors. They do it year after year, growing more profitable at every step along the way. The secret lies in the Japanese culture and their philosophy. One way to understand the culture of any nation is through their language.

Andon - a system of flashing lights used to indicate production status in work centers.

Green – no problems

Yellow – situation requires attention

Red – production stopped; attention urgently needed

Poka-yoke – a manufacturing technique of preventing mistakes by designing the manufacturing process, equipment, and tools so that an operation literally cannot be performed incorrectly.

Gemba - is a Japanese term meaning "the real place" that is the shop floor, workplace, or work site.
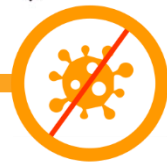
Hansei - The continuous improvement practice of looking back and thinking about how a process or personal shortcoming can be improved; the Japanese term for "self-reflection".

Heijunka – a production scheduling / load leveling tool, essentially to distribute Kanban cards in an efficient manner.

Jidoka – a form of automation in which machinery automatically inspects each item after producing it, ceasing production and notifying humans if a defect is detected.

SOME COMMONLY USED JAPANESE WORDS IN MANUFACTURING

Jishu Hozen - Jishu means autonomous or self controlled and Hozen means maintenance or sustenance.

Jishu Kanri – self-management, or voluntary participation.

Jutsu – the art of something (i.e., 'leanjutsu: the art of lean production').

Kaikaku – A rapid and radical change process, sometimes used as a precursor to Kaizen activities.

Kaizen – the philosophy of continual improvement. It also means "improvement" or "change for the better".

Kanban – A card or sheet used to authorize production or movement of an item.

Karoshi – death from overwork.

Keiretsu - originally means line or row, is a type of a business group comprised of a set of companies with interlocking business relationships and shareholdings.

Mizusumashi - The classic 'water spider', who performs a wide range of tasks which allow workers to perform 'value-added' tasks.

Mokeru – the Japanese term for the industrial engineering, more properly translated as "profit-making industrial engineering".

Muda (waste) – activities and results to be eliminated.

SOME COMMONLY USED JAPANESE WORDS IN MANUFACTURING

Mura – inconsistency.

Muri – unreasonableness.

Nagara – smooth production flow, ideally one piece at a time, characterized by synchronization of production processes and maximum utilization of available time, including overlapping of operations where practical.

Ninjutsu – the art of invisibility

Nenko Joretsu - is the of promoting an employee based on their proximity to retirement.

Poka-Yoke – a defect warning system.

5S – refers to the principles of maintaining an effective, efficient workplace.

Seiri – eliminating everything not required for the work being performed

Seiton – efficient placement and arrangement of equipment and material

Seiso – tidiness and cleanliness

Seiketsu – ongoing, standardized, continually improving *seiri, seiton, seiso*

Shitsuke – discipline with leadership

Shushin Koyo - lifetime employment

MOTIVATIONAL STORY : SELF – WORTH

One day , a popular speaker was speaking in a seminar . A crowd of 200 gathered to listen to his speech . He took out a ₹2000 note from his pocket and asked, "who would like to have this?" 200 hands were raised. Then, he dropped the note on ground and crushed it with his shoes. He picked the note and showed the same to the crowd, it was all crumbled and dirty. He asked again, "Do you still want it?" All the hands again raised up.

The speaker said, I have just showed you a very important lesson. No matter what I did to this note, you still wanted it, because it still worth the same 2000 bucks. Same way, our life is full of ups and downs, happiness and sadness, hard times and good times.

 So, we shouldn't let any bad experiences affect us negatively. We shouldn't allow any harsh situation to dull our self worth. Know your self worth, never let anyone bring you down. Because amazing things happen when you realize your self worth .

RUCHA
ENGINEERING 2.0

RESPECT	**U**RGE	**C**ONFIDENCE	**H**ONESTY	**A**MBITION
Honor for Dignity & Sanctity	To strive for Innovation and Excellence	To welcome and Embrace Change	Stand for Truth and Transparency	Strong Drive for Growth

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Building Bright Future with Green Commitment