Industry 4.0 Awareness Seminars Reports Template

MS Word File, Font Arial 12 , space 1.5

1.	Date of the Seminar	26th March 2019
2.	Organizers	CII
3.	Title of the seminar	DHI-CII Awareness Workshop on Industry 4.0 *The Indian Perspective*
4.	Programme	Annexure 1
5.	Report: suggested contents (1) Main takeaway / good suggestions (2) Clusters covered – **Automotive and General engineering** (3) Nos attended - **45** (4) Success stories that need to be compiled / shared	(1) Main takeaway / good suggestions: • Overview of Industry 4.0 concepts and benefits of adoption • Human-Robot collaboration for evolving factory of the future • Safety standards for applications of Industrial Robots • Understanding of a basic framework of readiness for Industry 4.0
6.	List of Speakers with contact details	Annexure 2
7.	Presentations	Annexure 3
8.	Resource persons for providing consultancy, skilling, guidance etc.	
9.	Photographs	Annexure 4
10.	Learnings from the seminar	- Industry has a basic understanding of the concepts of Industry 4.0 at a broader level (as understood from the participants who attended the workshops). They are keen on understanding in detail about the

		applications of how to benefit from implementing Industry 4.0 through specific case-studies by companies who have deployed Industry 4.0. - Working models and demonstrations of Industry 4.0 applications were very well received by the participants. It was also quite engaging and insightful. - Participants attending the workshops have shown great interest on interacting with DHI officials to understand about the various initiatives taken by Government in creating an enabling eco-system for Industry 4.0 adoption.

Annexure 1

Awareness Workshop on Industry 4.0
The Indian Perspective

Date: 26th March 2019
Time: 1330 – 1730 hrs
Venue: Hotel Park Plaza, Ludhiana, Punjab

PROGRAM SCHEDULE	
1300 – 1330 hrs	**Registration**
1330 – 1400 hrs	Opening Remarks & Setting the Context by **Mr Rahul Ahuja, Vice Chairman, CII Punjab State Council and Managing Director, Rajnish Industries Pvt Ltd**
1400 – 1430 hrs	Collaborative Automation - A key driver for 4.0 **Mr Naresh Kantoor, Member, CII Smart Manufacturing Council and Managing Director, Encon Systems**
1430 – 1515 hrs	Presentation by **Mr H S Saggu, Managing Director, SAM Automation Limited**
1515 – 1530 hrs	Q and A
1530 – 1545 hrs	Tea Break
1545 – 1630 hrs	Presentation by **Mr Gaurav Sarup, Director, Marshall Machines (P) Ltd**
1630 – 1715 hrs	Experience Sharing by **Mr S Rajasekaran, Group Managing Director, ACE Group of Companies**
1715 – 1730 hrs	Summing up **Mr Baldev Singh Amar, Chairman, CII Ludhiana Zonal Council and Managing Director, Amar Agricultural Implements Works**

Annexure 2

List of Speakers

S. No.	Name	Designation	Company	Contact No	Email
1	Mr S Rajasekaran	Managing Director	ACE Software Solutions	9841706116	rajasekaran@acesoft.in
2	Mr Baldev Singh Amar	Chairman, CII Ludhiana Zonal Council and Managing Director	Amar Agriculture Implement Works	9872018040	baldev@amaragri.com
3	Mr Naresh Kantoor	Managing Director	Encon Systems	9871693001	nkantoor@enconsystems.com
4	Mr Gaurav Sarup	Director	Marshall Machines Pvt Ltd		
5	Mr Rahul Ahuja	Vice Chairman, CII Punjab State Council and Managing Director	Rajnish Industries Pvt Ltd	9814027903	rajnish1@gmail.com
6	Mr H S Saggu	Managing Director	Sam automation technologies	9814108903	saggu@samautomation.org

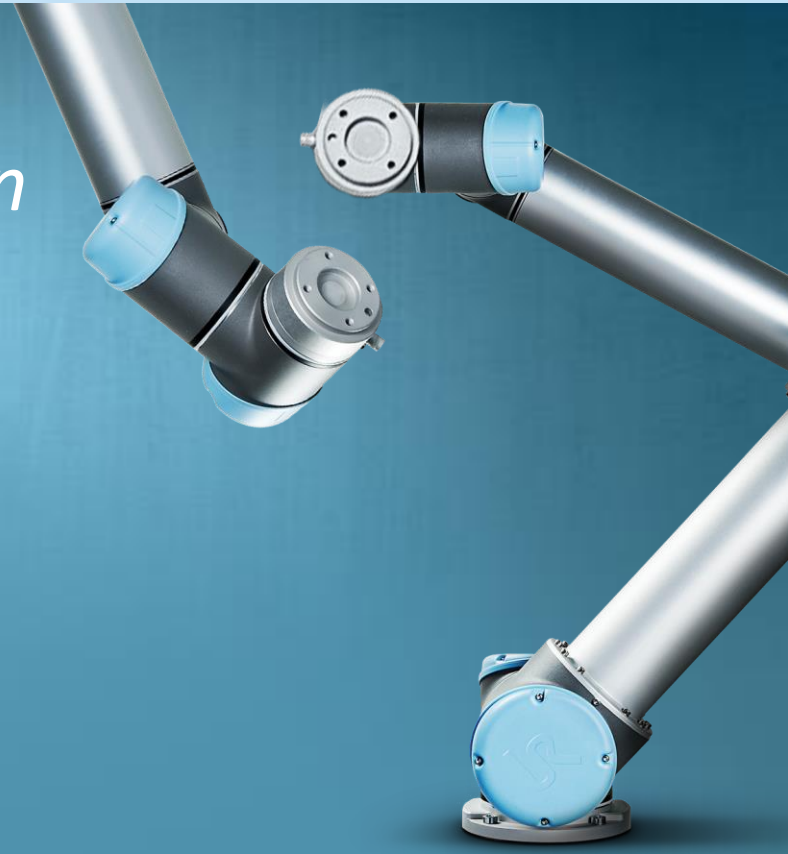
Annexure 3

Presentations

EnconSystems
Automation & Robotics

Human/robot collaboration

Evolving the Factory of the Future



Naresh Kantoor

Managing Director
ENCON SYSTEMS INTERNATIONAL
461, Pace City II, Sector 37,
Gurgaon – 122001, Haryana, India.
Tel. 91-124-4276461 to 4276463
Fax. 91-124-4276460
e-mail :- nkantoor@enconsystems.com
website :- http://www.enconsystems.com

Partnerships

Rockwell Automation
Recognized System Integrator

ABB Robotics
Partner

Authorized Distributor
IAI
Quality and Innovation

UNIVERSAL ROBOTS

COGNEX

WHAT DO WE DO ?

- Collaborative & SCARA Robots
- Value Automation Solutions
- Lean Manufacturing, Poke-Yoke etc.
- Transfer Systems
- Control Systems
- e-Manufacturing Solutions

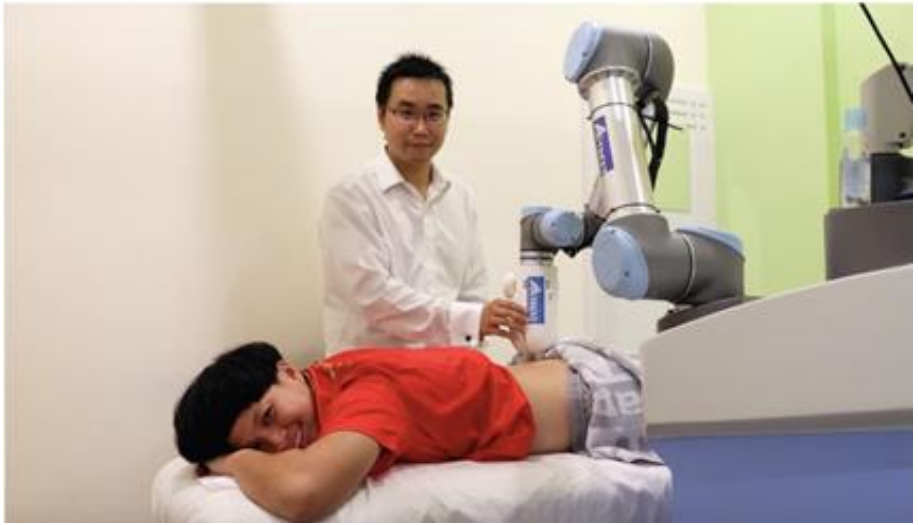
Industrial Robots operate in Safety Cages at High Speed

Since 1961

What is

Human – Robot Collaboration?

"Our aim is not to replace the therapists who are skilled in sports massage and acupoint therapy, but to improve productivity by enabling one therapist to treat multiple patients with the help of our robots."



EnconSystems
Automation & Robotics

EOL PACKAGING AND PALLETIZING

History of Industrial Revolutions

End of 18th Century

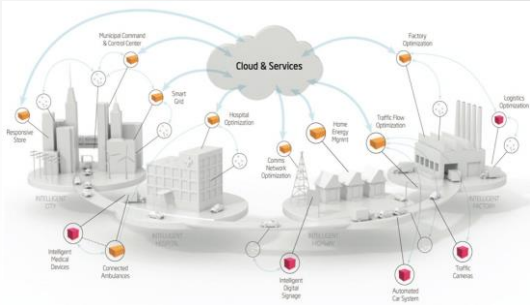
1st Industrial Revolution

End of 19th Century

2nd Industrial Revolution

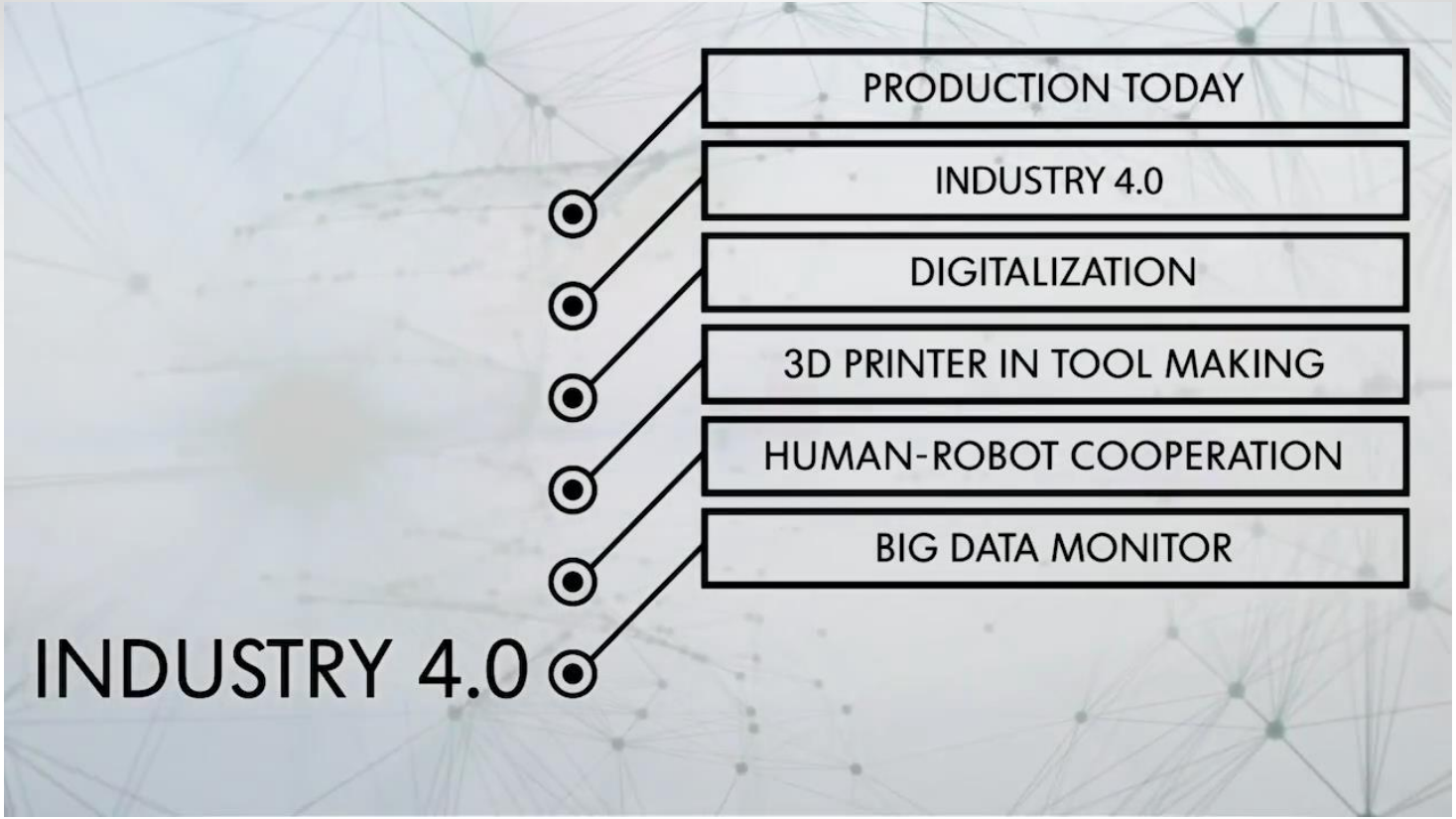
1970

3rd Industrial Revolution



Today

4th Industrial Revolution


PRODUCTION TODAY
INDUSTRY 4.0
DIGITALIZATION
3D PRINTER IN TOOL MAKING
HUMAN-ROBOT COOPERATION
BIG DATA MONITOR
INDUSTRY 4.0

Effects of the Industrial Revolution

Created a gap in Manufacturing:

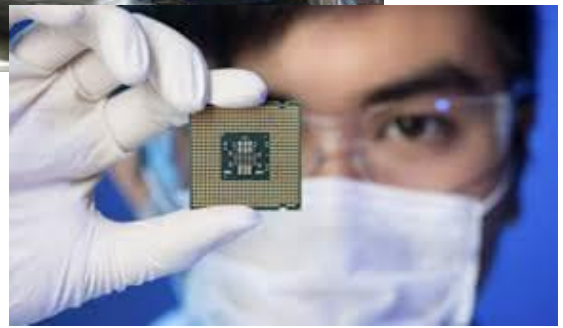
Human aspect is now missing

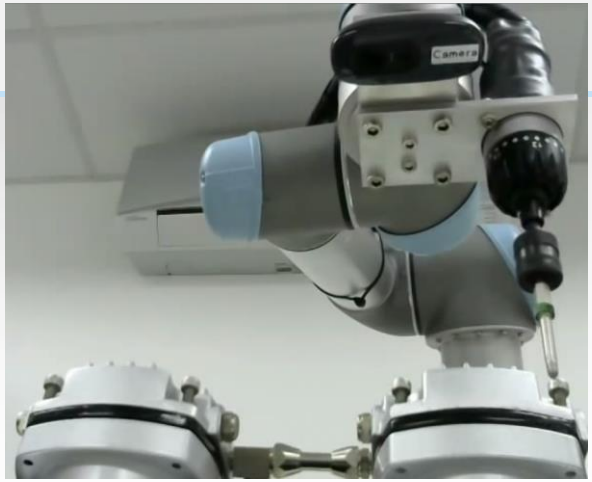
A recent study by MIT found that humans and robots working together in a team can be around 85 per cent more productive than teams made of either humans or robots alone. - Robot revolution: Humans and droids, working together | The Engineer, Nov. 2014

People & Production

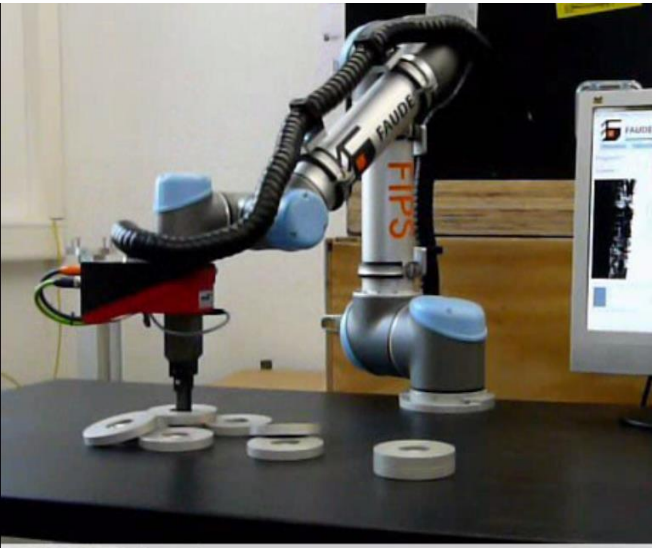
Change in Manufacturing Assembly Lines

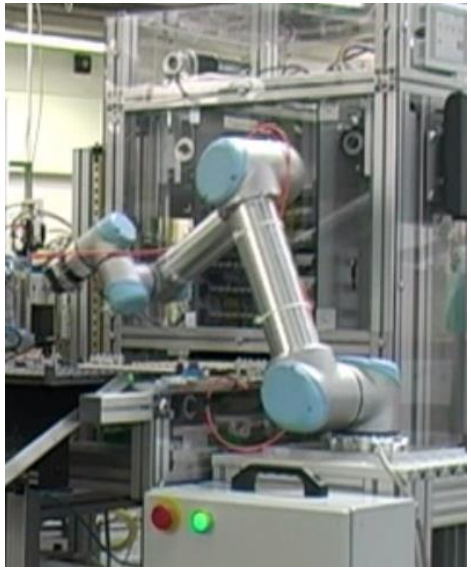
- Power back to the worker
- Transition from clear Blue-collar to a mix of Blue/White-collar production
- Humans back into production in collaboration with robots
- Humans do what humans do best, machines do what machines do best
- Better Productivity & Quality with Safety

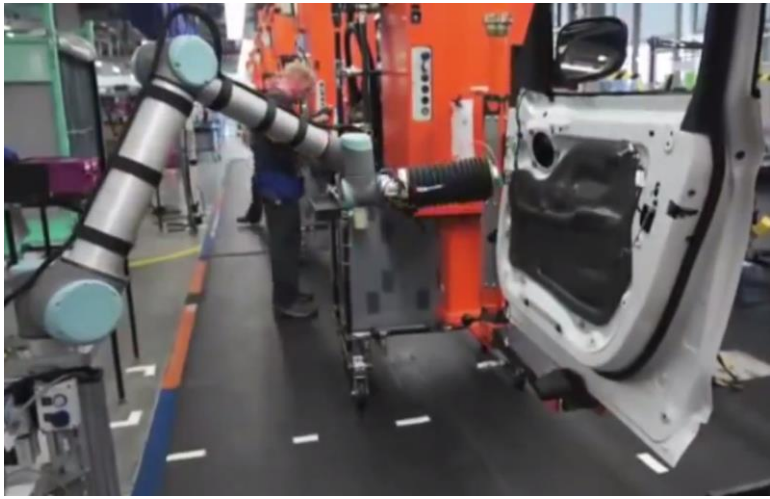



Camera

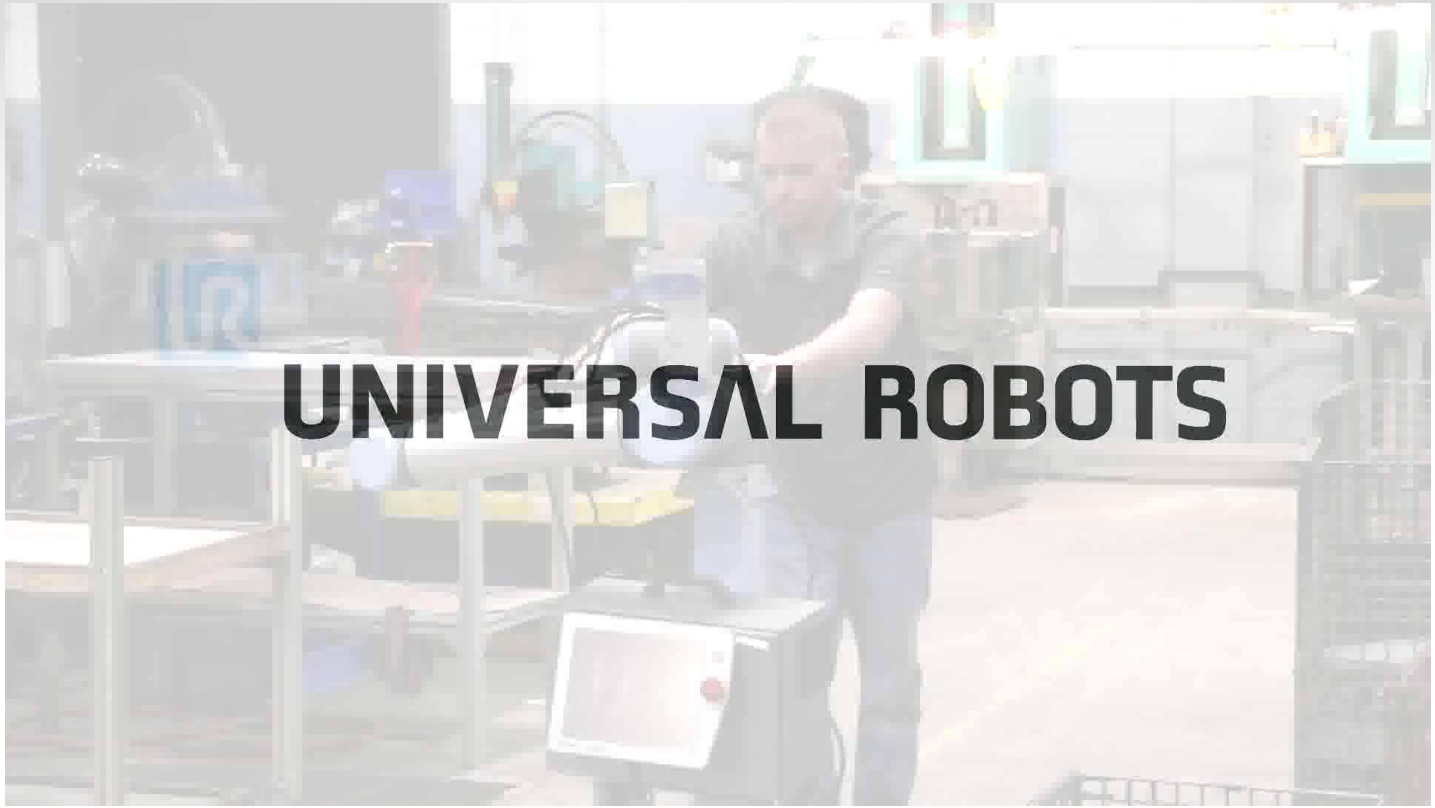

OKUMA
Machine tending application


FIPS





Scott Fetzer



Your Benefits

Single phase power supply like a hand tool
Max power consumption of 350 W

Simple set up & Maintenance Free

Easy to program and fast set up
in less than an hour

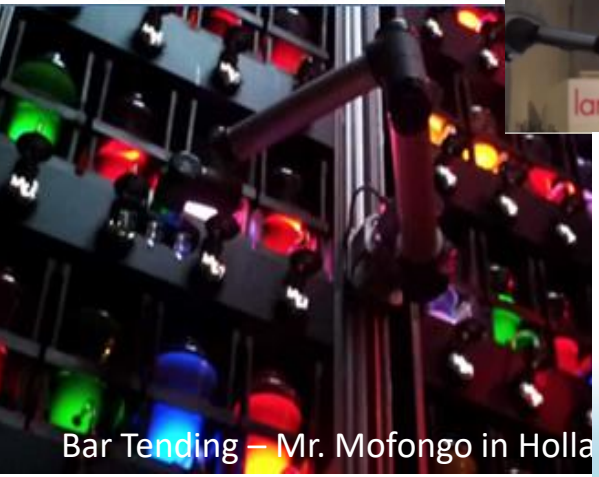
Wall, ceiling or floor mounting

Operates in confined spaces;
+/-360 degree rotation on all axes

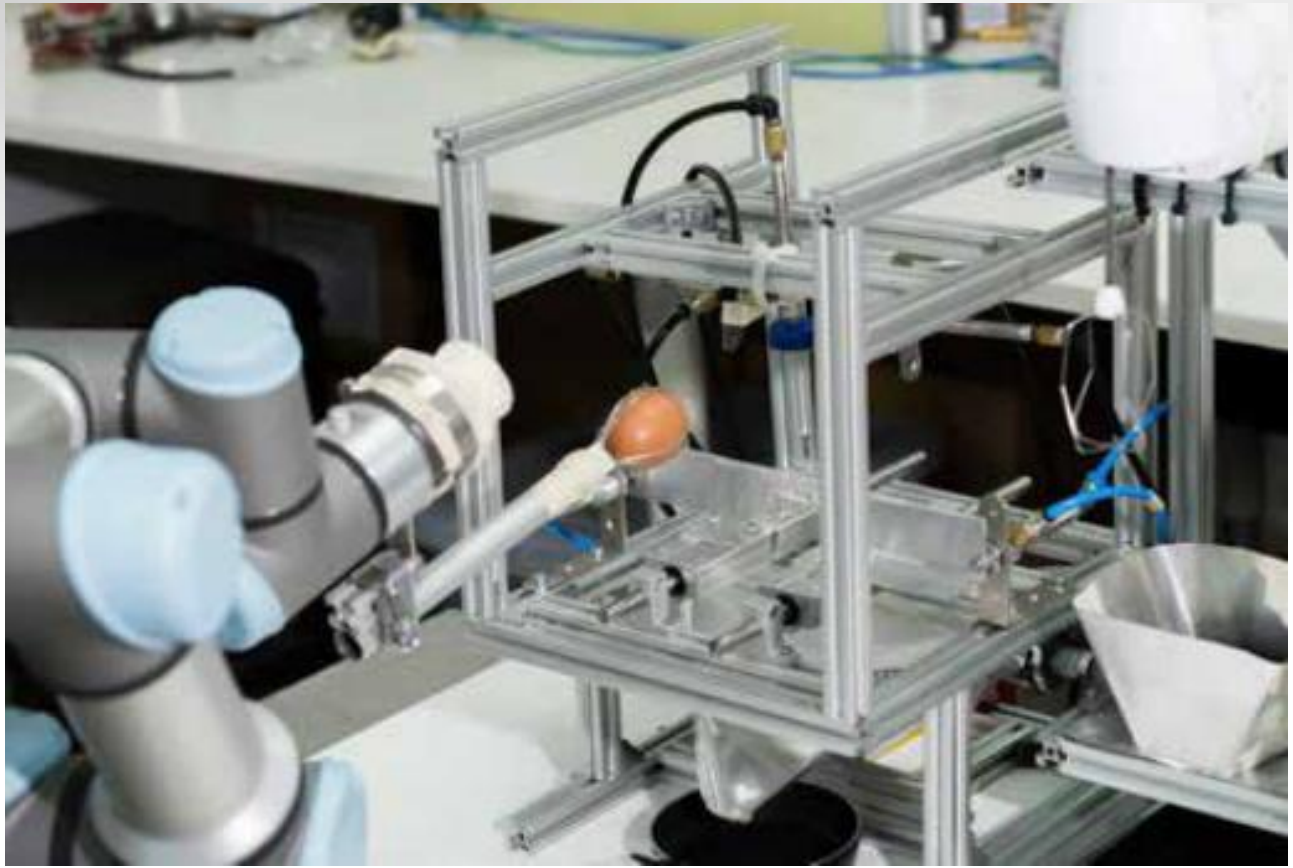
Flexible redeployment

UR5 used in neurosurgery

British celeb Chef Tim Anderson's actions being replicated by a cobot



Bar Tending – Mr. Mofongo in Holla



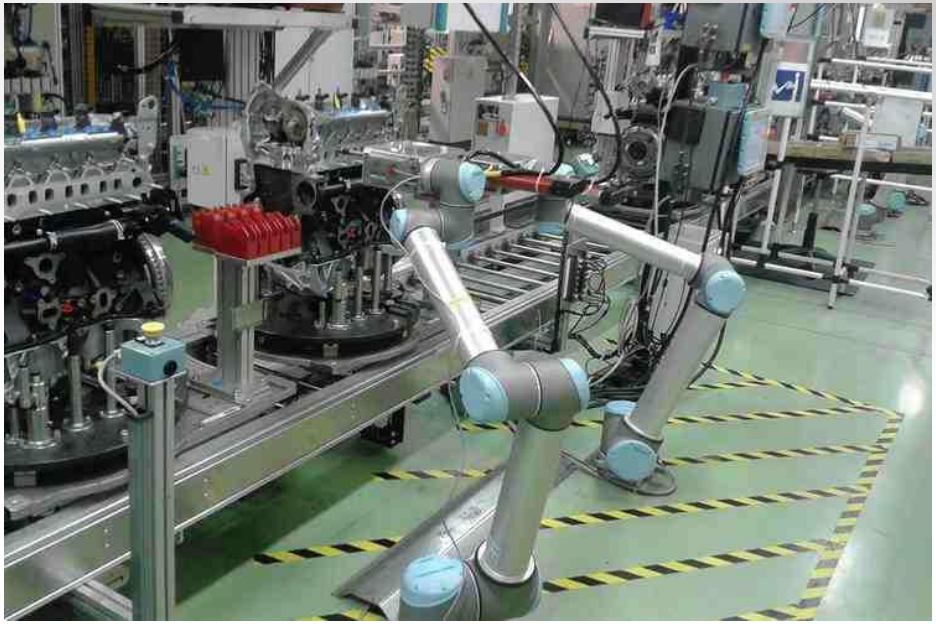
The one-armed robot can perform more than 20 tasks – including beating, frying and flipping eggs – and operate up to 10 different pieces of equipment simultaneously. It's the first robot in Singapore with this level of automation and robotics system integration.

It's designed specifically to reduce waiting times at breakfast buffets and restaurants, so it can work twice as fast as humans and make all kinds of eggs – from creamy scrambled eggs and fluffy omelettes to perfect sunny-side up eggs. We've even programmed it to make dosai!

EnconSystems
Automation & Robotics

Aircrew Labor In-Cockpit Automation System or ALIAS

acts as the co-pilot in charge of flying the aircraft



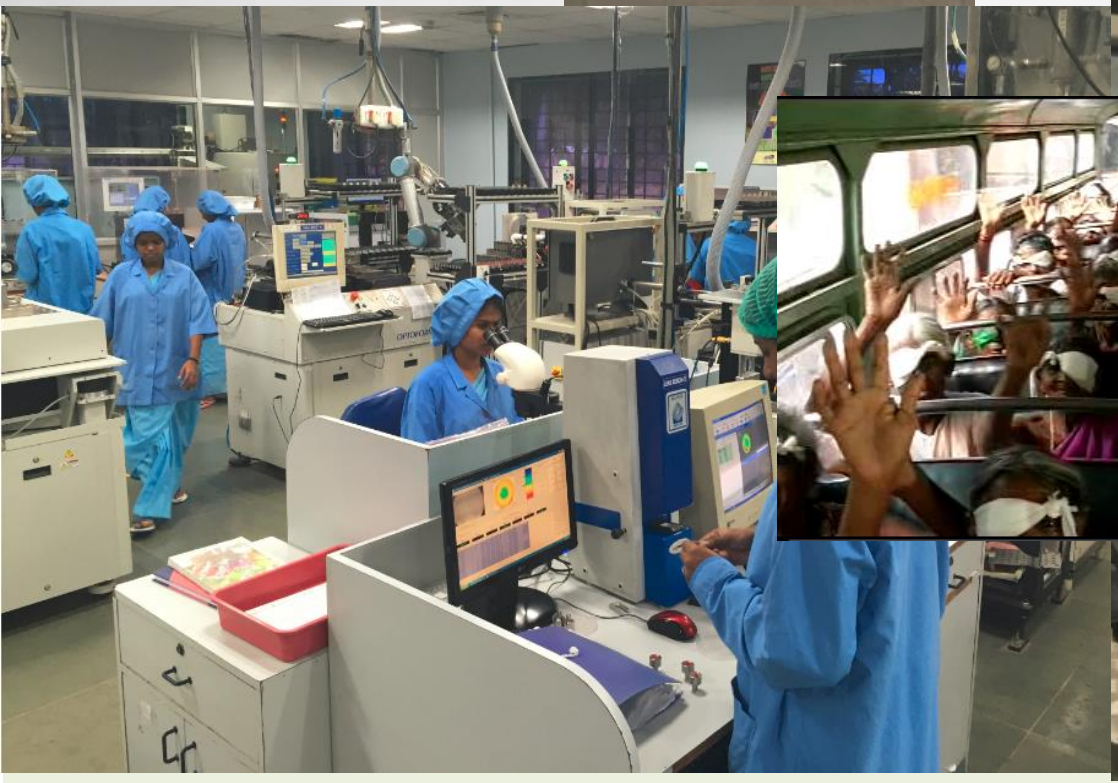
At a Renault car plant, cobots drive screws into engines—a sign of their progress in handling small parts

- Freestyle chess tournament in 2005
- Man and machine could enter together as partners, rather than adversaries
- Even a supercomputer was beaten by a grandmaster with a relatively weak laptop.
- The surprise came at the end. Who won? Not a grandmaster with a supercomputer, but actually two American amateurs using three relatively weak laptops.
- Their ability to coach and manipulate their computers to deeply explore specific positions effectively counteracted the superior chess knowledge of the grandmasters and the superior computational power of other adversaries.
- This is an astonishing result: average men, average machines beating the best man, the best machine.

UNIVERSAL ROBOTS

aurolab
Excellence . . . in sight

MISSION: Eliminating needless blindness by making high quality ophthalmic products affordable and accessible to vision impaired world wide



Gandhian Engineering – Dr. Mashelkar
"Getting More From Less For More"

Factors	Beginning	Today
Supply	India only	Over 135 countries worldwide
Man power	10	700 +
IOL Production	150 lenses/day	8000-9000 lenses /day
Divisions	1	5
Channel	Direct	30 Domestic Dealers 50 International Dealers
Range of Products	Narrow	Wide

EnconSystems
Automation & Robotics

Safety Standards for Applications of Industrial Robots
Related Standards & Directives

IEC 61508 is the international standard for electrical, electronic and programmable electronic safety related systems. It sets out the requirements for ensuring that systems are designed, implemented, operated and maintained to provide the required safety integrity level (SIL). Four SILs are defined according to the risks involved in the system application, with SIL4 being used to protect against the highest risks. The

Performance Level (PL)	Average Probability of Dangerous Failures per Hour
a	$\geq 10^{-5}$ to $< 10^{-4}$
b	$\geq 3 \cdot 10\text{-}6$ to $< 10\text{-}5$
c	$\geq 10^{-6}$ to $< 3 \cdot 10^{-6}$
d	$\geq 10^{-7}$ to $< 10^{-6}$
e	$\geq 10^{-8}$ to $< 10^{-7}$

Table 1 - ISO 13849 performance levels

Table 1: Standard Levels

LEVEL A: IEC 61508 – Functional Safety; ISO 12100 – Risk Assessment

LEVEL B: EN ISO 13849 – 1 :2008 or IEC 62061 :2005

LEVEL C: ISO 11161 – Integrated Manufacturing Systems; ISO 10218-2 – Robot System/Cell; ISO 10218-1 – Industrial Robots; * ISO/TS 15066 – Collaborative Operation

Four modes prescribed by the safety regulations for human-robot collaboration

- *Stopped state monitoring* – the robot stops when a human enters a scanned area but continues to monitor until the human leaves, at which time it resumes working
- *Speed and separation monitoring* – slows down when a human comes near and may stop if the human gets too close
- *Hand guiding* – the user is in direct contact with the robot while he is guiding & training it
- *Power and force limiting* – restricting the force available in the system through electrical means or mechanical compliance

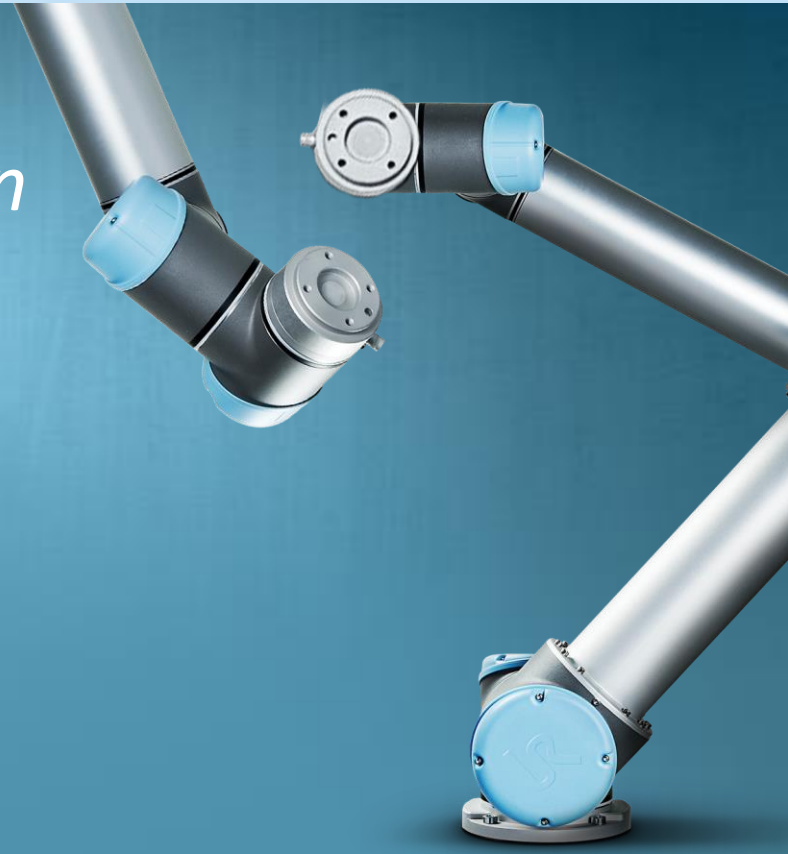
ISO 10218-1: Written for large "cast iron" robots. Can be used for collaborative robots, but in many cases seems like overkill

Hot off the press – TS 15066 released on Feb. 15, 2016

EnconSystems
Automation & Robotics

Human/robot collaboration

Evolving the Factory of the Future



Thank You

Contact details -

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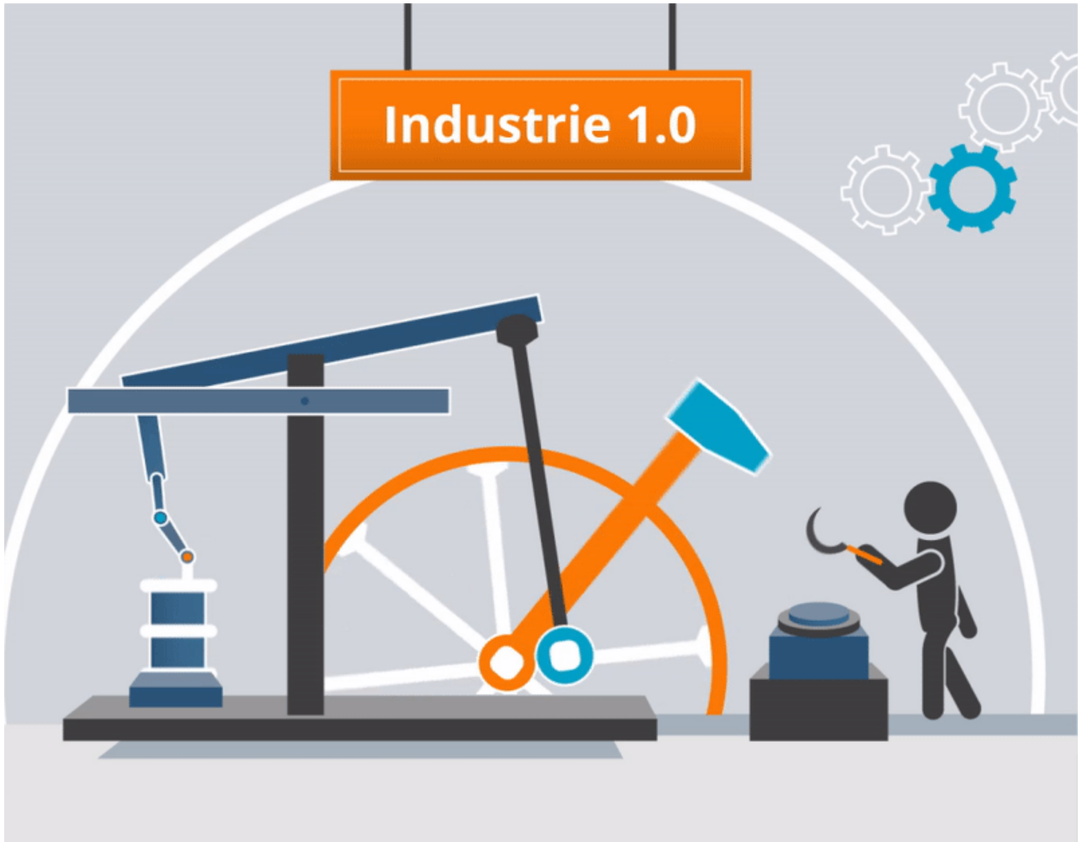
e-mail :- nkantoor@enconsystems.com
website :- http://www.enconsystems.com

What is 4.0

1st INDUSTRIAL REVOLUTION

Introduced in 1800s

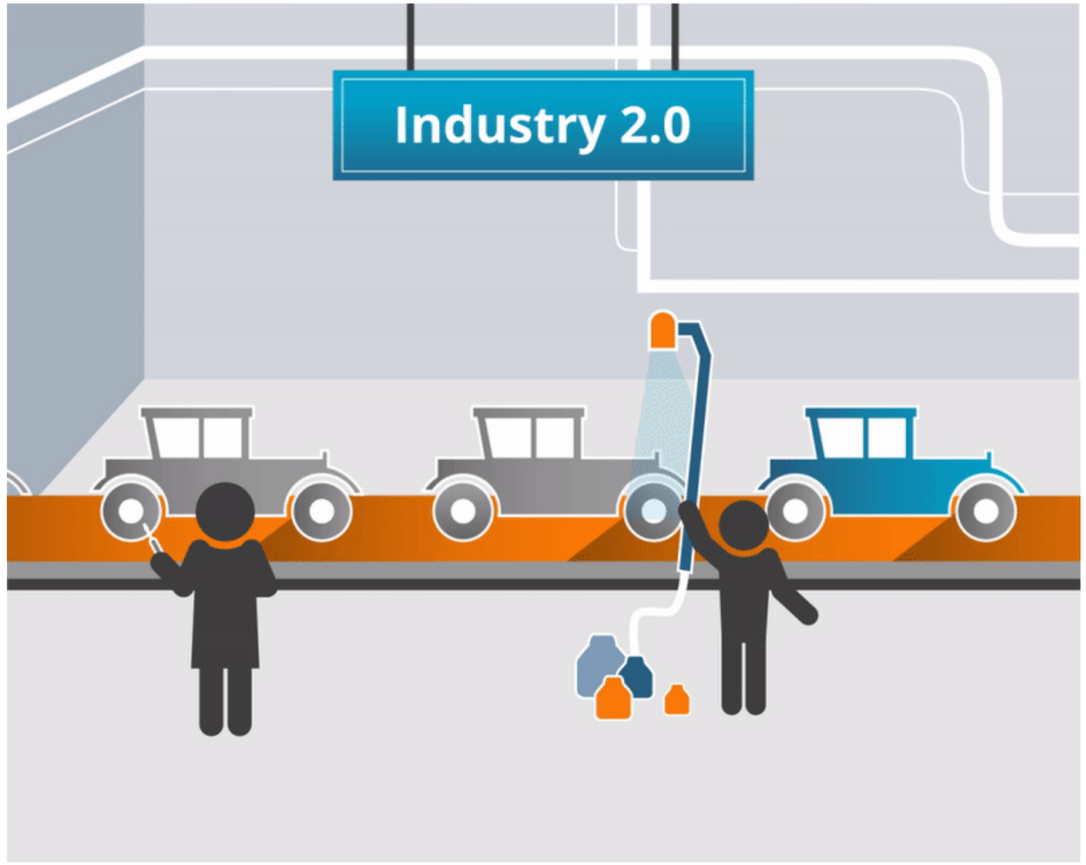
Mechanization , Water power and Steam Power were used as aid to workers



2nd INDUSTRIAL REVOLUTION

Introduced in beginning 20th century

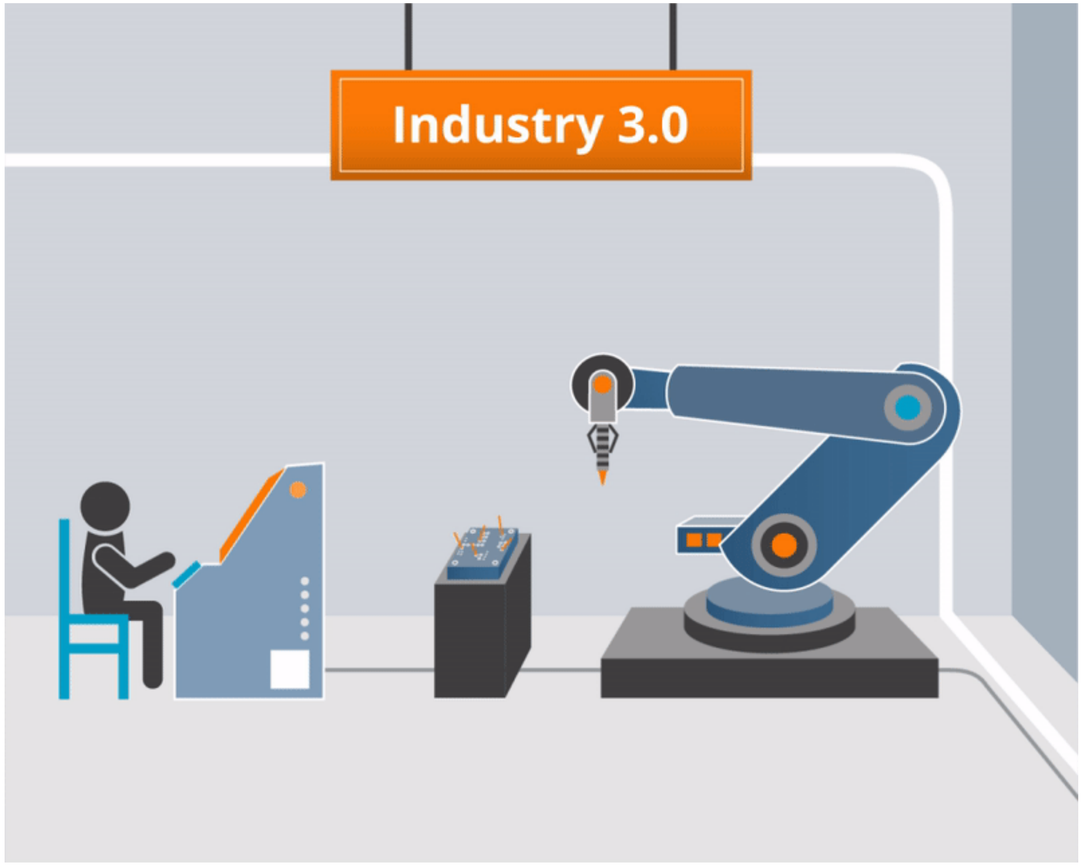
- Primary source of power - Electricity
- Machines were designed with own power source.
- Development of management programs.
- Mass production and assembly lines.



3rd INDUSTRIAL REVOLUTION

Introduced in last few decades 20th century

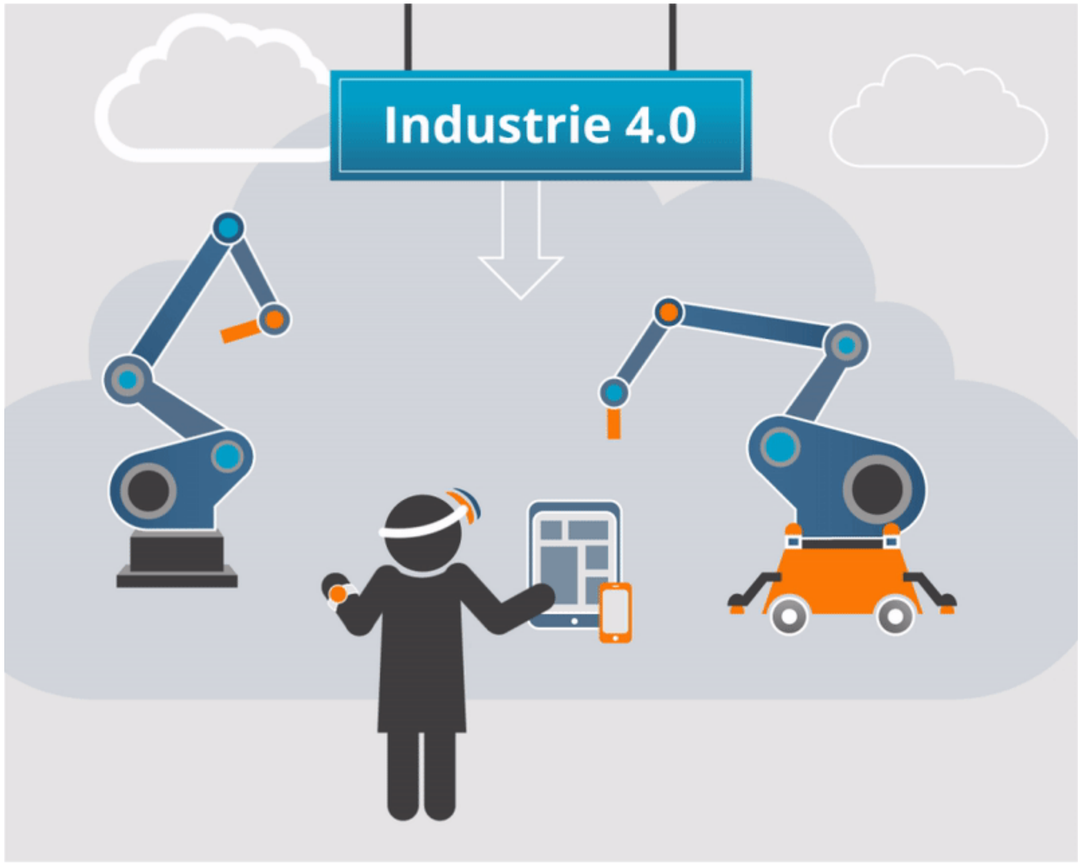
- Invention and manufacture of electronic devices.
- CNC and Robotics- integrated circuit chips , to automate individual machines.
- Software system development to capitalise electronic hardware.
- ERP (Enterprise resource planning) systems were introduced.



4th INDUSTRIAL REVOLUTION

Introduced 21st century

- Also known as digital revolution.
- IOT (Internet Of Things) - Enable system to share information.
- Using this information to guide intelligent actions.
- Additive Manufacturing - 3D printers.
- Collaborative Robotics



Early 80s

- **Eutectic Welding Technology**
  - **Low heat input welding alloys.**

Late 80s

- **Non conventional machining technology.**
    - **Electric discharge machining (EDM)**
    - **Wire Cut EDM.**

IN 90s

- **CNC Machining Technology.**
    - **DRO**
    - **CNC Retrofit**
    - **CNC Machines**
    - **Multitasking**

21st Century

- **Automation Technology**
  - **Robotics**
  - **Cobots**
  - **Gantry**
  - **AGV**
- **IIOT and Industry 4.0 solutions.**

Annexure 4

Photo gallery


CII
CII


CII
Park Plaza
LUDHIANA

Media Coverage

...the guest speaker Dr. G.S. Randhawa, Former Head ... titude, leadership quality and creativity pave way for success in life. ... Gaind asked the ... nies to maintain all chowks ... rules.

Benefits of robotic technology

CII organises an awareness session on industry 4.0 for Ludhiana Industry

- THE INDUSTRY WILL BE GETTING LESS ERROR RATE, MAKING CUSTOMER DELIGHT

DP CORRESPONDENT
Ludhiana

An awareness session on Industry 4.0 was organised by CII Ludhiana Zone in collaboration with the Department of Heavy Industries, Government of India at Hotel Park Plaza, Ludhiana. Vital information has been shared regarding present industry and upcoming future technology, which is to be adopted by the industry by fore sighting the benefits of robotic technology.

S Rajasekaran, Managing Director – ACE Software Solutions Pvt Ltd. shared his experience regarding robotic technology that in every field, like teaching or doing surgery in Hospitals, robots are being used and which are more reliable & competitive. Upgrading our industry, may get more benefits during shortage of manpower or during hazardous work profiles.

Naresh Kantoor, Managing Director – Encon Systems International made aware the industrialists about the benefits of automation during critical situations, which are not in hands o management.

Just by getting automation, the manufacturing units can get the 100 per cent accuracy in their products with less manpower. The industry will be getting less error rate, making customer delight.

Experts at an awareness session on industry 4.0 for Ludhiana Industrialists. DP

HIGHLIGHT

- Naresh Kantoor, Managing Director – Encon Systems International made aware the industrialists about the benefits of automation during critical situations, which are not in hands o management

...है। इसके अलावा युवा वकीलों को शुरुआती 2 सालों तक पांच अप्रैल को ...

सीआईआई ने इंडस्ट्रियल ग्रोथ सिस्टम पर कराया सेमिनार

बिजनेस रिपोर्टर | लुधियाना

कंफरडेशन ऑफ इंडियन इंडस्ट्री (सीआईआई) की ओर से लेटेस्ट इंडस्ट्रीयल ग्रोथ सिस्टम पर एक सेमीनार होटल पार्क प्लाजा में आयोजित किया गया। इस दौरान इंडस्ट्री में इस्तेमाल होने वाली नई 4.0 तकनीक चर्चा की गई। यह आयोजन डिपार्टमेंट आफ हेवी इंडस्ट्री भारत सरकार के सहयोग से करवाया गया। इस दौरान इंडस्ट्री के मौजूदा स्ट्रक्चर एवं भविष्य में आने वाली टेक्नोलॉजी पर फोकस किया गया। इसमें इंडस्ट्री द्वारा तेजी से अपनाए जा रहे रोबोटिक टेक्नॉलॉजी को लेकर भी चर्चा की गई। सेमीनार के दौरान एसीई सॉफ्टवेयर सॉल्यूशंस प्राइवेट लिमिटेड के एमडी एस राजाशेकरण ने अपने विचार प्रकट किए। उन्होंने रोबोटिक टेक्नॉलॉजी से तेजी से इंडस्ट्रीयल ग्रोथ में आ रहे बदलावों के बारे में विस्तार से बताया। उन्होंने कहा कि स्किल्ड लोगों की कमी को यह रोबोटिक मशीनें राहत दे रहीं है। एनकॉन सिस्टम इंटरनेशनल के एमडी नरेश कनतूर ने क्रिटिकल दौर में आटोमेशन की महत्ता के बारे में विस्तार से बताया। इससे 100 प्रतिशत एक्यूरेसी दी जा सकती है। सेमीनार के दौरान एचएस सग्गू, राहुल आहुजा, बलदेव सिंह सहित 40 से अधिक उद्यमी शामिल हुए।

का कौडा, राणा महिंद्रा, लवदीप मल्होत्रा, ... किया और धुमाल ने ...
वा अशोक बांसल, वसम बांसल, लवली टीटू, दर्शन ग्रोवर आदि मौजूद थे।

रोबोटिक टैक्नोलॉजी, ऑटोमेशन आधुनिक समय की मांग

• सी.आई.आई. लुधियाना जोनल ने सैमीनार में उद्यमियों को करवाया अवगत

सैशन में उपस्थित उद्यमी।

लुधियाना, 27 मार्च (नीरज): लुधियाना इंडस्ट्री के लिए उद्योग 4.0 समय की मांग है। सी.आई.आई. लुधियाना उद्योग के लिए उद्योग 4.0 पर जागरूकता सैशन का आयोजित किया। सी.आई.आई. लुधियाना जोन द्वारा उद्योग 4.0 पर हैवी इंडस्ट्री विभाग, भारत सरकार के साथ होटल पार्क प्लाजा में आयोजित सैमीनार में वर्तमान उद्योग और आने वाली भविष्य की प्रौद्योगिकी के बारे में महत्वपूर्ण जानकारी साझा की गई। रोबोटिक टैक्नोलॉजी के फायदों को देखते हुए उद्योग 4.0 को उद्योग द्वारा अपनाया जाना चाहिए। इस मौके पर एस. राजसेखरन प्रबंध निदेशक, ए.सी.ई. सॉफ्टवेयर सॉल्यूशंस प्राइवेट लिमिटेड ने रोबोट तकनीक के बारे में बताया कि अस्पतालों में सर्जरी करने के लिए भी रोबोट का उपयोग काफी विश्वसनीय है। इस टैक्नोलॉजी से भारतीय उद्योग को अपग्रेड करने के लिए मैनपावर की कमी और रिस्की काम के दौरान अधिक लाभ लिया जा सकता है। नरेश कांतूर, प्रबंध निदेशक, एनकॉन सिस्टम्स इंटरनैशनल ने ऑटोमेशन के लाभों के बारे में उद्योगपतियों को अवगत कराया। ऑटोमेशन के द्वारा मैन्यूफैक्चरिंग यूनिट्स-कम-मैनपावर वाले उत्पादों में 100 प्रतिशत स्टीकता प्राप्त कर सकती है। एच.एस. सग्गू, प्रबंध निदेशक एस.ए.एम. ऑटोमेशन टैक्नोलॉजीज प्राइवेट लिमिटेड, राहुल आहूजा, उपाध्यक्ष- सी.आई.आई. पंजाब स्टेट काउंसिल एंड मैनेजिंग डायरैक्टर रजनीश इंडस्ट्रीज प्राइवेट लिमिटेड तथा बलदेव सिंह, अध्यक्ष- सी.आई.आई. लुधियाना जोनल काउंसिल ने भी उपस्थिति को संबोधित किया। सैमीनार में उद्योग को रोबोट तकनीक और ऑटोमेशन के उपयोग के बारे में जागरूक किया गया। सैशन में लगभग 40 सदस्य कंपनियों ने हिस्सा लिया।

क्या है उद्योग 4.0 मैन्यू : यूनिट्स में वर्तमान में प्रचलित ऑटोमेशन (स्वचालन) और डाटा एक्सचेंज को उद्योग 4.0 का नाम दिया गया है। इसमें साइबर-फिजिकल सिस्टम, इंटरनैट ऑफ थिंग्स, क्लाऊड कम्प्यूटिंग और कॉग्निटिव कम्प्यूटिंग शामिल हैं। उद्योग 4.0 को चौथी औद्योगिक क्रांति का आधार माना जाता है।

दौरान चेयरमैन प्रो. मरवाहा ने 50

लुधियाना में सैमीनार दौरान सी.आई.आई. के पदाधिकारी व सदस्य और बड़े उद्योग विभाग के अधिकारी नजर आते हुए। (छाया : नील कमल)

'इंडस्ट्री 4.0' समय की जरूरत संबंधी जागरूकता सैमीनार करवाया

उद्यमियों को रौबोटिक्स टैक्नालॉजी व आटोमेशन बारे बहुमूल्य जानकारी प्रदान की

लुधियाना, 27 मार्च (जुगिंद्र अरोड़ा): कनफैडरेशन आफ इंडियन इंडस्ट्रीज (सी.आई.आई.) की ओर से बड़े उद्योग विभाग भारत सरकार के सहयोग से 'इंडस्ट्री 4.0' समय की जरूरत बारे विशेष जागरूकता सैमीनार करवाया गया जिसमें भविष्य की टैक्नालॉजी व रोबोटिक्स टैक्नालॉजी बारे बहुमूल्य जानकारी प्रदान की गई। एस साफ्टवेयर साल्यूशन प्राइवेट लिमिटेड के प्रबंधक निर्देशक एस राजासेकरण ने रौबोटिक टैक्नालॉजी बारे जानकारी दी गई। उन्होंने बताया कि इस टैक्नालॉजी से अस्पतालों में सर्जरी करने व अन्य स्थानों पर कई काम लिये जा सकते हैं। उन्होंने कहा कि श्रमिकों की कमी को पूरा करने के लिए भी यह तकनीक कारगर सिद्ध हो सकती है। एनकॉन सिस्टम इंटरनैशनल के प्रबंधक निर्देशक नरेश कंतूर ने कहा कि आटोमेशन बारे जानकारी देते हुए कहा कि इस से कम श्रमिकों के बावजूद उद्योगिक उत्पादन में 100 प्रतिशत लाभ लिया जा सकता है। इस अवसर पर सैम आटोमेशन टैक्नालॉजी के एम.डी. एच.एस. सग्गू, राहुल आहूजा उप चेयरमैन सी.आई.आई. पंजाब, बलदेव सिंह अमर चेयरमैन सी.आई.आई.