OPERARIO SENSORIZADO Y ROBÓTICA COLABORATIVA

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SECCIÓN I. OPERARIO SENSORIZADO

NOTICIAS

01/04/2020

Hyundai Motor Group's latest exoskeleton wearable robot with Red Dot Design Award for innovative product

Hyundai Motor Group's latest exoskeleton wearable robot, Vest Exoskeleton (VEX), has won the Product Design category (Innovative Product field) at the Red Dot Design Awards, the prestigious international design competition, now in its 60th year. VEX was developed in line with Hyundai Motor Group's commitment to the health and safety of its industrial workers. It is designed to prevent injuries while advancing the field of robotics, earning praise from the Red Dot Design Awards' panel of judges. VEX is designed primarily for production-line workers who need to work with their hands above their heads, usually on the underside of vehicles on the assembly line.
https://us.motorsactu.com/hyundai-motor-groups-latest-exoskeleton-wearable-robot-wins-red-dot-design-award-for-innovative-product/

07/04/2020

Muscle Suit Every by Innophys Awarded ISO 13482 Certification

The Japanese exoskeleton developer Innophys announced last quarter that the Muscle Suit Every has become the first exoskeleton assist suit to become ISO 13482 certified. ISO 13482 focuses on new standards for robots and robotic devices leaning towards safety requirements for personal care robots. Muscle Suit Every is a wearable work assistant robot (assist suit) that assists its wearer in making a move with the action of artificial muscles that is operated by pneumatic pressure.
https://exoskeletonreport.com/2020/04/muscle-suit-every-by-innophys-awarded-iso-13482-certification/

09/06/2020

Exoskeleton enables lifting with less effort for manufacturing workers

In the last few years, exoskeletons and other assist devices have gained traction. Lightweight materials, improved power technologies, and modern control systems have done a lot to improve the initial concepts. One of the participants in this field, Levitate Technologies Inc., San Diego, took a different approach, making a simple, self-contained, lightweight unit. Its name, Airframe, hints at its weight, which is just 5 lbs. An assisting unit, it supports the arms for workers who do extensive amounts of work at the shoulder level or overhead.

https://www.thefabricator.com/tubepipejournal/article/shopmanagement/exoskeleton-enables-lifting-with-less-effort-for-manufacturing-workers

PUBLICACIONES CIENTÍFICAS

Abril/2020

Healthy Operator 4.0: A Human Cyber-Physical System Architecture for Smart Workplaces

Shengjing Sun, Xiaochen Zheng, Bing Gong, Jorge García Paredes, Joaquín Ordieres-Meré

Recent advances in technology have empowered the widespread application of cyber–physical systems in manufacturing and fostered the Industry 4.0 paradigm. In the factories of the future, it is possible that all items, including operators, will be equipped with integrated communication and data processing capabilities. Operators can become part of the smart manufacturing systems, and this fosters a paradigm shift from independent automated and human activities to human–cyber–physical systems (HCPSs). In this context, a Healthy Operator 4.0 (HO4.0) concept was proposed, based on a systemic view of the Industrial Internet of Things (IIoT) and wearable technology. For the implementation of this relatively new concept, we constructed a unified architecture to support the integration of different enabling technologies.
https://www.mdpi.com/1424-8220/20/7/2011

Mayo/2020

Collection and Analysis of Human Upper Limbs Motion Features for Collaborative Robotic Applications

Elisa Digo, Mattia Antonelli, Valerio Cornagliotto, Stefano Pastorelli, Laura Gastaldi

The purposes of this study were to fuse the spatial and inertial data of human upper limbs for typical industrial pick and place movements and to analyze the collected features from the future perspective of collaborative robotic applications and human motion prediction algorithms. Inertial Measurement Units and a stereophotogrammetric system were adopted to track the upper body motion of 10 healthy young subjects performing pick and place operations at three different heights. From the obtained database, 10 features were selected and used to distinguish among pick and place gestures at different heights. Classification performances were evaluated by estimating confusion matrices and F1-scores.
https://www.mdpi.com/2218-6581/9/2/33

Junio/2020

Human-Oriented Assembly Line Balancing and Sequencing Model in the Industry 4.0 Era

Daria Battini, Serena Finco, Fabio Sgarbossa

Ergonomics plays a crucial role in the design process of manual assembly systems, since a poorly ergonomic workplace leads to injuries, accidents, and musculoskeletal disorders. Using Industry 4.0 solutions, smart technologies, and cloud platforms, the well-being of workers can be improved more easily than in the past. In this context, smartwatches can be used to monitor workers' health and to collect data about the physical efforts of each worker during

the working day, in relation to energy expenditure or heart rate monitoring. In this chapter, we give a general overview of smart tools for measuring and quantifying the ergonomics level. Based on the data from smartwatches, we propose a multi-objective assembly line balancing model and an ergo-sequencing model and demonstrate the benefits of using smart solutions and Industry 4.0 tools.
https://link.springer.com/chapter/10.1007/978-3-030-43177-8_8

SECCIÓN II. ROBÓTICA COLABORATIVA

NOTICIAS

06/04/2020

El robot colaborativo Motoman HC10DT IP67 gana el Red Dot Award

Red Dot Award es un reconocimiento que el jurado solo otorga a productos que cuentan con un diseño excepcional. El HC10DT IP67 es resistente al polvo y al agua. Gracias a la clasificación de protección IP67, el robot de 6 ejes se puede utilizar incluso en entornos exigentes donde está expuesto a suciedad o líquidos, por ejemplo. Al igual que el modelo base HC10DT, la nueva variante IP67 también combina lo mejor del mundo de la robótica colaborativa: une la estabilidad y las altas velocidades de movimiento de un robot industrial con la limitación segura de las fuerzas de contacto entre el operador y el robot.
https://www.infoplc.net/noticias/item/107693-cobot-motoman-hc10dt-ip67-gana-red-dot-award

11/04/2020

KASSOW presenta dos nuevos Cobots de 7 ejes

Kassow Robots ha agregado dos modelos más a su cartera de cobots. Con su brazo robótico de 1,80 metros, que le otorga un alcance inigualable en el mercado de cobot, el KR 1805 abre aplicaciones completamente nuevas para los clientes de la industria. Gracias en parte a su séptimo eje, que le permite llegar a las esquinas, un único cobot ahora puede ocuparse de todas las tareas de apilamiento y etiquetado para Euro-pallets, por ejemplo. El KR 1410 impresiona con un alcance de 1,40 metros y una carga útil de 10 kilogramos, una combinación fuerte en el mercado de la robótica ligera.
https://www.infoplc.net/noticias/item/107605-kassow-presenta-dos-nuevos-cobots-7-ejes

14/04/2020

Universal Robots lanza UR+ Applications kits para robots

Universal Robots lanza 20 kits, certificados por su plataforma UR+, de software y hardware reduciendo el riesgo y la complejidad del proyecto. Se trata del mayor ecosistema industrial abierto de productos certificados para integrarse a la perfección con los cobots de la firma danesa. Ello permite reducir las decisiones y tiempos de ingeniería habituales. Los kits "Plug and Produce" reducen el riesgo y la complejidad del proyecto, estando listos para una implementación rápida para tareas de acabado, inspección, ensamblaje, machine tending, eliminación de material o manejo de materiales.

https://www.infoplc.net/noticias/item/107728-universal-robots-lanza-ur-application-kits-para-cobots

26/05/2020

Nuevo ASSISTA, la sencillez de la robótica colaborativa

El nuevo robot colaborativo de Mitsubishi Electric, el MELFA ASSISTA, ha sido desarrollado para trabajar con humanos sin necesidad de sistemas de seguridad adicionales, además de permitir el distanciamiento entre trabajadores necesario en el contexto actual. El cobot ofrece máxima seguridad y durabilidad, así como facilidad de uso y programación, siempre manteniendo una muy alta repetitividad posicional. El cobot satisface las necesidades tanto de las aplicaciones industriales estándar como de las aplicaciones sensibles al entorno de producción.

https://www.infoplc.net/noticias/item/107909-mitsubishi-assista-sencillez-robotica-colaborativa

01/06/2020

UR Cobot Installs Clips in Automotive Part

Manually installing plastic clips in automotive interior trim components is a tedious and physically demanding task. That makes it an ideal application for a collaborative robot. Visumatic Industrial Products recently worked with an automotive supplier to develop a semiautomatic robotic workcell to do just that. The goal was to develop a standard workcell that was flexible enough to be deployed at any of the supplier's assembly plants worldwide. The workcell combines a UR-10 collaborative robot from Universal Robots with a VIM-700 clip feeding and inserting system from Visumatic.

https://www.assemblymag.com/gdpr-policy?url=https%3A%2F%2Fwww.assemblymag.com%2Farticles%2F95721-ur-cobot-installs-clips-in-automotive-part

PUBLICACIONES CIENTÍFICAS

Abril/2020

Human-robot collaborative work cell implementation through lean thinking

Dorota Stadnicka, Dario Antonelli

Collaborative robotics is a recent field of study for industrial automation. Although fenceless robot systems are available, the actual implementation of collaborative schemes for the conduction of assembly jobs should be supported through dedicated procedures and guidelines. These procedures have yet to be found and defined in detail. In this work, the authors claim that it may be possible to approach the problem of collaborative cell design with the methods devised for lean thinking. In the paper, the most common lean strategies are listed and analysed from the viewpoint of setting up a collaborative work cell.
https://www.tandfonline.com/doi/abs/10.1080/0951192X.2019.1599437

Abril/2020

Design of Human-Centered Collaborative Assembly Workstations for the Improvement of Operators' Physical Ergonomics and Production Efficiency: A Case Study

Luca Gualtieri, Ilaria Palomba, Fabio Antonio Merati, Erwin Rauch, Renato Vidoni

Collaborative robots are innovative cyber-physical systems, which allow safe and efficient physical interactions with operators by combining typical machine strengths with inimitable human skills. One of the main uses of collaborative robots will be the support of humans in the most physically stressful activities through a reduction of work-related biomechanical overload, especially in manual assembly activities. The improvement of operators' occupational work conditions and the development of human-centered and ergonomic production systems is one of the key points of the ongoing fourth industrial revolution. In this paper, the transformation of a manual workstation for wire harness assembly into a collaborative and human-centered one is presented. The purpose of the work is to present a case study research for the design of a collaborative workstation to improve the operators' physical ergonomics while keeping or increasing the level of productivity. Results demonstrate that the achieved solution provides valuable benefits for the operators' working conditions as well as for the production performance of the companies.
https://www.mdpi.com/2071-1050/12/9/3606

Abril/2020

Collaborative Robots and Industrial Revolution 4.0 (IR 4.0)

F. Sherwani, Muhammad Asad, B.S.K.K. Ibrahim

Collaborative robots have lately been extremely relevant to the domain of production and manufacturing industry after the arrival of Fourth Industrial Revolution or Industry 4.0 (IR 4.0). Collaborative robots have evolved as one of the key drivers in Industry 4.0 and they have advanced substantially within the last couple of decades. In comparison to the industrial robots, collaborative robots offer increased productivity, flexibility, versatility and safety. Collaborative robots are designed to execute tasks alongside the human workforce while sharing the same working space as colleagues, offering greater mobility and flexibility.

Collaborative robots allow for a physical interaction with humans in a shared workspace to execute production, manufacturing and assembly tasks. These machines are designed to be reprogrammed easily, even by personnel without any programming background. Human-Robot Interaction (HRI) between humans and collaborative robots provides promising methods to achieve increased productivity with reduced production costs by combining the decision-making ability of humans along with the repeatability and strength of robots.
https://ieeexplore.ieee.org/document/9080724

SECCIÓN III. EVENTOS INDUSTRIA 4.0

5G AND INDUSTRY 4.0
16 abril 2020, Webinar

Is your communications infrastructure ready for Industry 4.0? Watch the 5G and Industry 4.0 webinar with Hexagon and Ericsson to learn more about simplifying the capture and transfer of the data that drives smarter manufacturing. Sachin Mathur, Head of Partnership Programs, Smart Factory, Hexagon's Manufacturing Intelligence division is joined by Erik Josefsson, Vice President, Head of Advanced Industries, Ericsson and Sasidhar Yalavarthi, Project Manager, Smart Factory, Ericsson. Together they discuss how 5G wireless networks facilitate greater automation and data-driven decision-making.

Link

WEARECOBOTS
16-18 junio 2020, Expo virtual

Join the World's Largest Virtual Collaborative Robot Expo. This is your unique opportunity to engage in depth conversations with experts in automation and collaborative robots all from the comfort of your home - free of charge! Here's what you can expect: more than 30 virtual exhibition booths featuring Universal Robots and 20 UR+ Partners, engage in 1-1 conversations with automation experts, see live demonstrations of innovative automation

applications such as packaging & palletizing, sanding & polishing, machine tending, and screwdriving, listen in on more than 50 live keynotes on topics such as automation trends and insights from leading experts.

https://www.ubivent.com/register/universal-robots-en

IIOT WORLD DAYS

30 junio-1 julio 2020, Evento virtual

One of a kind online conference dedicated to you that will bring together subject matters experts from all over the world to share insights on their digital transformation journey, focusing on trends, challenges, concerns, best practices, the development of compelling business models for transitioning to IoT technologies and real case studies. Top 8 Topics: Industrial IoT, ICS Cybersecurity, 3D Printing, Digital twins, Artificial Intelligence/Machine Learning, Augmented Reality/Virtual Reality, Analytics, Autonomous Robots. Top 5 Industries: Manufacturing, Smart Energy & Utilities, Smart Cities, Mobility, Smart Buildings

https://iiotday.com/

HANNNOVER MESSE DIGITAL DAYS

14-15 julio 2020, Evento virtual

HANNOVER MESSE Digital Days start on 14 July with exciting keynotes from business, science and politics as well as panel discussions, live chats, networking, and innovation presentations. Everything revolves around the questions of how industrial transformation can succeed and which steps industry must take to recover quickly from the consequences of the shutdown. The conference program focuses on topics such as Industrie 4.0, artificial intelligence, smart energy, and Logistics 4.0. Exhibitor products and solutions form the second layer of content. Networking also plays a prominent role: All participants can search for suitable business and cooperation partners and contact each other directly using the chat function.

https://www.hannovermesse.digital/en/