AÇÕES DE DIVULGAÇÃO

Ação de divulgação	Publicação no site e redes sociais
Local e Data	Online
Formas de divulgação	- Publicação da ficha de projeto no site das entidades
Evidências	
Formas de divulgação	- Disseminação do projeto nas redes sociais com apresentação dos objetivos do projeto e desenvolvimentos efetuados

Cofinanciado por:

Evidências *(alguns exemplos)*

CeNTI - Centre for Nanotechnology and Smart Materials
31 de Agosto de 2021 ·

Augmanity: vêm aí soluções inovadoras para a Saúde em ambiente industrial
No âmbito do PPS1 - Ergonomia e Robótica, pretende-se desenvolver dispositivos tecnológicos que serão utilizados para a monitorização de dados ergonómicos em tempo-real e para a atuação na redução de problemas de saúde associados a tarefas repetitivas e a problemas vasculares comuns em trabalhadores.
Será, ainda, criado um conceito de robótica colaborativa, que permitirá alcançar uma interação homem-máquina avançada para partilha de tarefas e criação de novas habilidades colaborativas.
Interessante, não lhe parece?
Saiba mais sobre o Projeto em lkme.pt/hXpTJ

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Augmanity: innovative solutions for Health in an industrial environment
Within the scope of PPS1 - Ergonomics and Robotics, it is intended to develop technological devices to be used for monitoring ergonomics data in real-time and for reducing health problems associated with repetitive tasks and vascular problems common in workers.
A collaborative robotic cell concept will also be created, aiming to reach an advanced human-machine interaction for task sharing and the creation of new collaborative skills.
Interesting, don't you think?
Know more about the Project at lkme.pt/oHvm7

4

Gosto Comentar

CeNTI - Centre for Nanotechnology and Smart Materials
26 de Abril ·

Augmanity (Augmented_Humanity) visa melhorar a ergonomia do trabalhador em contexto industrial!
O CeNTI, a Universidade de Aveiro e as empresas Bosch Portugal, Lavoro Europe e Atena - Automação Industrial juntaram-se, no âmbito do PPS1-E (Ergonomia) do Projeto, para criar soluções avançadas, conectadas em tempo-real, para monitorização de parâmetros ergonómicos do trabalhador.
Uma das inovações em desenvolvimento é um calçado de segurança que incorpora tecnologias de sensorização, que permitirão recolher informação relativa aos membros inferiores dos trabalhadores. Além disso, terá, também, um sistema de estimulação ativa que poderá ajudar na mitigação de problemas vasculares decorrentes das tarefas repetitivas, características de algumas funções.
Saiba mais aqui: www.lkme.pt/sVpld
O Projeto é cofinanciado pelo Compete 2020 e LISBOA 2020 do PORTUGAL 2020, através do FEDER.

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Augmanity (Augmented_Humanity) aims to improve worker ergonomy in industrial context!
CeNTI, the University of Aveiro and the companies Bosch Portugal, Lavoro and Atena joined forces within the scope of Project's PPS1-E (Ergonomics) to create advanced solutions, connected in real-time, to monitoring workers' ergonomic parameters.
One of the innovations under development is a safety shoe incorporating sensing technologies that will allow the information detection related with workers' lower limbs. In addition, an active stimulation system is also being considering to help mitigate vascular problems resulting from repetitive tasks, characteristic of some functions.
Know more here: www.lkme.pt/ABKJC
The Project is co-financed by PORTUGAL 2020, under the COMPETE 2020 and LISBOA 2020 through the ERDF.

CeNTI - Centre for Nanotechnology and Smart Materials
10 de Agosto de 2022 ·

AUGMANITY: tecnologias mais eficientes e menos impactantes para os trabalhadores!
O Projeto Mobilizador, denominado Augmented Humanity, visa antecipar o futuro, desenvolvendo novas soluções intuitivas, imersivas e de suporte em ambientes de produção industrial, focadas na Indústria 4.0.
O objetivo é alavancar o crescimento operacional e de negócio, com uma abordagem centrada nas pessoas e na sua saúde.
O consórcio, liderado pela Bosch Portugal (divisão de Termotecnologia), é formado por 15 empresas e 8 entidades de I&D, uma das quais o CeNTI, e divide-se em 6 PPS (Produtos, Processos e Serviços).
Saiba mais sobre o AUGMANITY em www.lkme.pt/sVpld

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AUGMANITY: more efficient and less impactful technologies for workers!
The Project, called Augmented Humanity, aims to anticipate the future, developing new intuitive, immersive and supportive solutions in industrial production environments, focused on Industry 4.0.
The objective is to leverage operational and business growth with an approach centred on people and their health.
The consortium, led by Bosch Portugal (Thermotechnology division), comprises 15 companies and 8 R&D entities, one of which is CeNTI and is divided into 6 PPS (Products, Processes and Services).
Learn more about AUGMANITY at www.lkme.pt/ABKJC

3 5 partilhas

Gosto Comentar

Ação de divulgação	COMPAMED / MEDICA
Local e Data	Dusseldorf, Alemanha, de 14 a 17 de novembro de 2022
Formas de divulgação	- Disseminação do projeto em stand do CeNTI e demonstração de protótipos de calçado desenvolvidos
Evidências	CeNTI - Centre for Nanotechnology and Smart Materials 15 de Novembro de 2022 · A inovação do CeNTI para a área da saúde está em Dusseldorf, na Alemanha, até quinta-feira! Visite-nos na COMPAMED, plataforma líder mundial em tecnologia médica de última geração, e na MEDICA-TradeFair, a maior feira do setor. Nos dois eventos, que são um "caldeirão de soluções de alta tecnologia", o Centro está a disseminar os Projetos Wear2Heal, SmartHealth4All, AUGMANITY, STVgoDigital (PPS4), ASINA e SMASUS. É uma excelente oportunidade para partilhar e promover os mais recentes materiais, componentes e serviços voltados para o futuro, envolvendo soluções de alta tecnologia em microtecnologia e nanotecnologia para atendimento clínico e ambulatório. Saiba mais em www.lkme.pt/o30ky e www.lkme.pt/Z2Rie Descubra tudo sobre os Projetos disruptivos do CeNTI em www.lkme.pt/ciRxn -- CeNTI's innovation for the health area is in Dusseldorf, Germany, until Thursday! Visit us at COMPAMED, the world's leading platform for state-of-the-art medical technology, and MEDICA, the largest trade fair in the sector. In the two events, which are a "melting pot for high-tech solutions", the Centre is disseminating the Wear2Heal, SmartHealth4All, AUGMANITY, STVgoDigital (PPS4), ASINA and SMASUS Projects. It's an excellent opportunity for sharing the latest materials, forward-looking components and services involving high-tech solutions in microtechnology and nanotechnology for outpatient and clinical care. Find out more at www.lkme.pt/tdrv8 and www.lkme.pt/Z2Rie Discover everything about CeNTI's disruptive Projects at www.lkme.pt/asqmR 33 1 comentário 4 partilhas Gosto Comentar Mais relevantes COMPAMED Trade-Fair Great, that you are part of #COMPAMED2022! 45 sem

Ação de divulgação	ISPO Munich 2022
Local e Data	Munique, Alemanha, de 28 a 30 de novembro de 2022
Formas de divulgação	- Disseminação do projeto em stand do CeNTI e demonstração de protótipos de calçado desenvolvidos
Evidências	

Cofinanciado por:

CeNTI - Centre for Nanotechnology and Smart Materials
29 de Novembro de 2022 ·

Inovações do CeNTI presentes na ISPO em Munique, na Alemanha
Até amanhã, 30 de novembro, o Centro vai promover alguns dos seus Projetos como Wear2Heal, STVgoDIGITAL, AUGMANITY, SmartHealth4All, HiPerTwinS, Green4Industry, TexBoost, entre outros.
A ISPO é a maior feira mundial de negócios no setor do desporto e reúne especialistas e interessados para discutir as mais recentes inovações e produtos que irão moldar o futuro da indústria.
Visite-nos no stand FROM PORTUGAL (C2.327) e fique a conhecer melhor o trabalho do CeNTI!
Saiba mais sobre este evento em www.ispo.com/en/munich
Descubra tudo sobre os Projetos em destaque aqui: www.centi.pt

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CeNTI's innovation is present at ISPO in Munich, Germany
Until tomorrow, November 30th, the Centre will promote some of its Projects, such as Wear2Heal, STVgoDIGITAL, AUGMANITY, SmartHealth4All, HiPerTwinS, Green4Industry, TexBoost demonstrators, among others.
ISPO is the world's largest trade fair in the sports sector and brings together experts and stakeholders to discuss the latest innovations and products that will shape the industry's future.
Visit us at stand FROM PORTUGAL (C2.327) and get to know the CeNTI's work!
Learn more about this event at www.ispo.com/en/munich
Discover all the highlighted Projects here: www.centi.pt/en

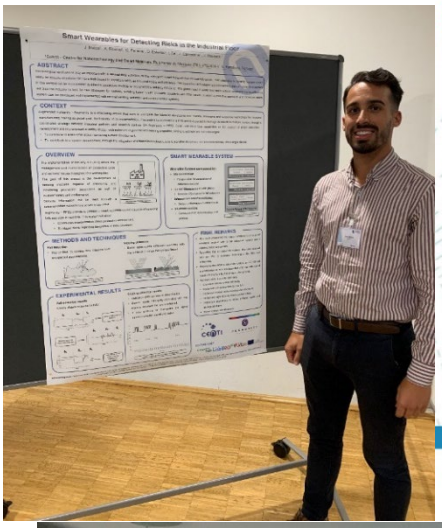
24 7 partilhas

Gosto Comentar

Cofinanciado por:
COMPETE 2020 Lisb@20^20 PORTUGAL 2020 UNIÃO EUROPEIA Fundo Europeu de Desenvolvimento Regional

Ação de divulgação	innoLAE 2023 – Innovations in Large Area Electronics Conference
Local e Data	Cambridge, Reino Unido, de 21 a 24 de fevereiro de 2023
Formas de divulgação	- *A*presentação oral do PPS1 “Printed insole for risk posture detection in industrial environment”
Evidências	

Cofinanciado por:

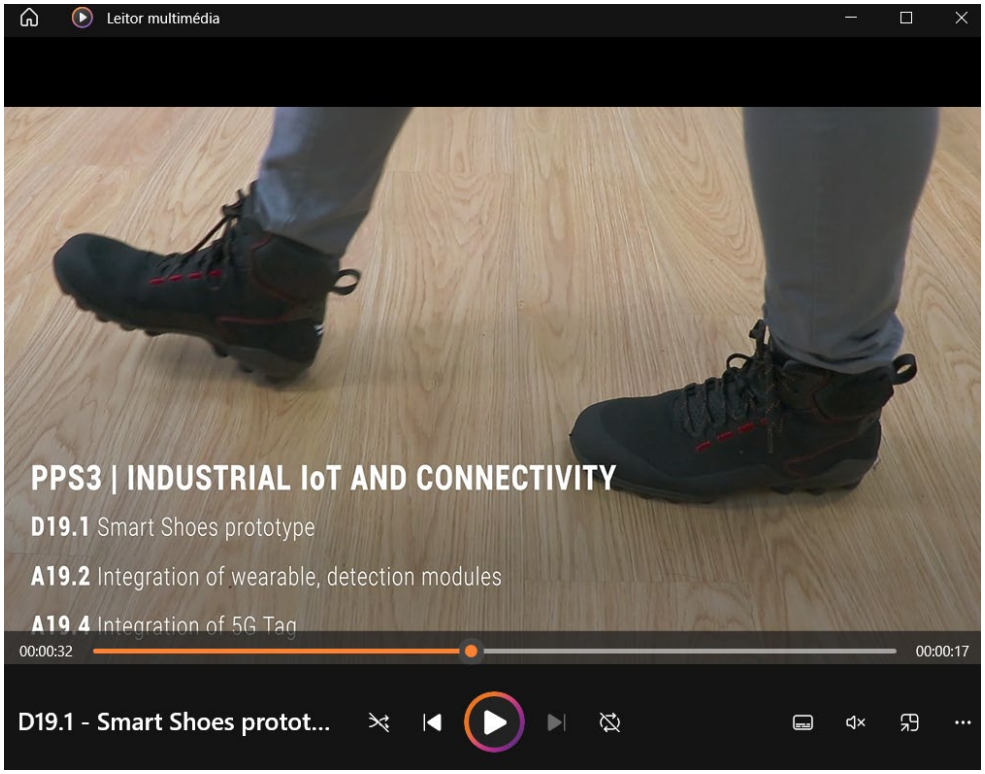
Ação de divulgação	EPoSS Annual Forum 2021: Towards new Horizons
Local e Data	Freiburgo, Alemanha, de 4 a 7 de outubro de 2021
Formas de divulgação	- *Apresentação em poster em formato “pitch”*
Evidências	

MATERIAL GRÁFICO

Roll-up / Flyer / Poster Científico:

Roll-up / Flyer / Poster Científico:

- *Video no âmbito do D19.1 (PPS3)*



Cofinanciado por:

- *Poster EpoSS*

Smart Wearables for Detecting Risks in the Industrial Floor

J. Matos[1], A. Ribeiro[1], C. Ferreira[1], D. Esteves[1], I. Sá[1], J. Camarinha[1], J. Machado[1]

[1]**CeNTI – Centre for Nanotechnology and Smart Materials**, Rua Fernando Mesquita 2785, 4760-034 V. N. Famalicão, Portugal

ABSTRACT

Technological applications play an important role in several daily activities, so the interest for smart materials has increasingly grown. Their integration as sensing markers and/or alerts for specific situations can have high impact in important fields as industrial safety and efficiency. The innovative technologies and mechanisms that are under development in this context will be incorporated in different processes towards to implement the Industry 4.0 (I4.0). This global need of safety and health without compromising the efficiency led also the industry to look for new strategies for workers, avoiding future health problems, accidents and other issues. In short, a proactive approach and increased safety system can be developed and implemented with several sensing, actuation and communication systems.

CONTEXT

Augmented Humanity - Augmanity is a structuring project that aims to anticipate the future by developing user friendly, immersive and supportive technology for industrial manufacturing, having as global goal, the Industry (I4.0) implementation. The project is structured in 6 PPS and is expected to leverage its results in multiple sectors, through a coordinated strategy between industrial partners and research centres. On Augmanity – PPS3, CeNTI will focus their capabilities on the creation of smart wearables - development and improvement of safety shoes - with enhanced ergonomic and sensing properties, aiming to address two main challenges:

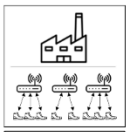
- To contribute to a real-time active monitoring system development;
- To contribute to a system development, through the integration of different technologies, able to signalise dangerous real time occurrences, into a single device.

OVERVIEW

The implementation of Industry 4.0 (I4.0) allows the management and monitorization of productive cycle and workers' issues throughout the working day.

The goal of this project is the development of sensing modules capable of measuring and monitoring production parameters as well as workers' safety and performance.

Sensory information will be sent through a communication network to a server in the cloud.



Industrial environment overview

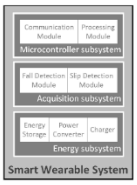
Augmanity – PPS3 intends to present a smart wearable system capable of detecting falls and slips in real time. This system will allow:

- Continuous monitorization about productive environment;
- To trigger alerts regarding dangerous or risky situations.

SMART WEARABLE SYSTEM

Wearable System composed by:

- **Microcontroller:**
  - Responsible for acquisition of detection modules.
- **Inertial Measurement Unit (IMU):**
  - Sensory information for fall detection.
- **Infrared LED and Photodiodes:**
  - Sensory information to detect fluids.
- **Bluetooth module:**
  - Communication between shoe and gateway.

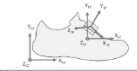


Device structure under development

METHODS AND TECHNIQUES

Fall detection

- IMU on foot: to validate axis rotations from unexpected accelerations.



Representation of the orientation of the IMU

Slipping detection

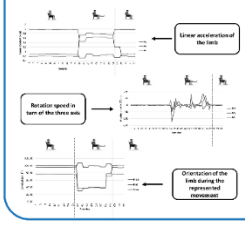
- Beam lights reacts differently according with the material on which the light is reflected.

Representation of specular and diffuse reflection

EXPERIMENTAL RESULTS

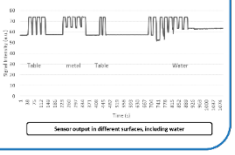
Fall detection results

Charts of data received by IMU.



Slipping detection results

- Validation of IR sensors to detect liquids;
- Sensor reacts differently according with the material on which the light is reflected;
- It was possible to distinguish the signal between wooden, metal and water.



Sensor output in different surfaces, including water

FINAL REMARKS

- This work presented the basic functionality of a smart wearable system with a fall detection system and a slipping detection system;
- Regarding the fall detection system, the data obtained with an IMU to evaluate movements like falls was presented;
- Regarding the slipping detection system, an IR LED and a photodetector was encapsulated and the detection of liquids on the floor by the sensors, was proved;
- As future work, it can be identified:
  - Literature review related with falls;
  - Implement driver interface for the IMU;
  - Implement system to track person's movement;
  - Implement algorithms to detect person's falls;
  - Implement algorithms to detect different liquids and distinguish them;
  - Power system development.

CO-FUNDED BY

Acknowledgment: The present study is being developed in the scope of *Augmented Humanity* Project [POCI-01-0247-FEDER-046303 and Lisboa-01-0247-FEDER-046303], cofinanced by Portugal 2020, under Operational Programme for Competitiveness and Internationalization (COMPETE2020) and Lisbon Regional Operational Program (LISBOA2020) through the European Regional Development Fund (ERDF).

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- *Flyer*

Cofinanciado por:
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- *Capa do caderno*

ESPECIFICAÇÕES TÉCNICAS PROTÓTIPO / DEMONSTRADOR

PROTÓTIPO

No âmbito do Augmanity, foram desenvolvidos demonstradores, de maneira a serem modulares, ou seja, podem ser usados juntos ou em separado, sem depender um do outro, mas mantêm as mesmas linhas e identidade. Foram pensados para poder disseminar o projeto Augmanity de forma eficaz e intuitiva.

PPS1-E

Demonstrador com tecnologia de sistema de estimulação ativo (vibração e massagem da planta do pé) e feedback luminoso da deteção de zonas de pressão. Bota real + bota 3D aberta para "sentir" o efeito e pressionar diferentes zonas da palmilha (zonas de pressão)

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PPS3

Demonstrador com feedback luminoso de "quedas" e "deteção de líquidos" (PPS3).
Permite demonstrar as tecnologias do PPS3 de forma simples e intuitiva

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