tecnalia Inspiring Business

INDUSTRY & TRANSPORT DIVISION

APUESTAS DE TECNALIA en PRINTED ELECTRONICS

Cluster Functional Printing

Febrero 2021

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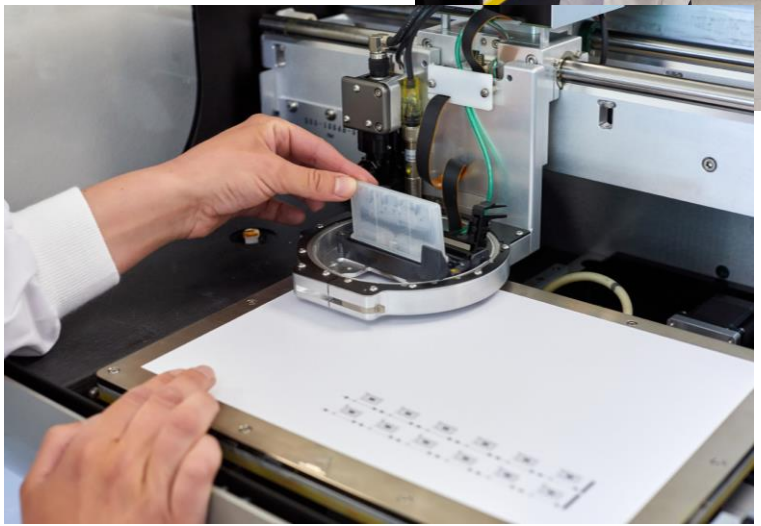
INDICE

- Nuestra **propuesta de valor**
- **Retos** que abordamos

TECNALIA Y LA IMPRESIÓN FUNCIONAL

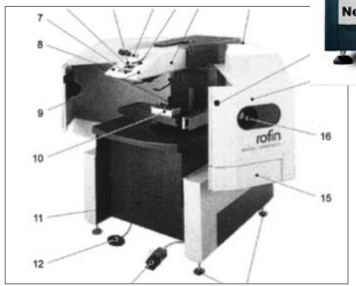
PROPUESTA DE VALOR

Desde la idea hasta el prototipo de producto. Pasando por el diseño, selección y formulación de materiales (sustrato y aportes), desarrollo de proceso de impresión y caracterización / validación funcional.



TECNICAS de IMPRESION

- Screen-printing: AUREL Automation model 900
- Ink-jet printing: Dimatix DMP2831
- Dispensing: Solenoid valve and rotary valve Nordson Ultimus
- Aerosol-jet: Neotech JP15X
- Nanojet: Neotech JP15X
- Piezojet: Neotech JP15X
- Lithographic techniques (EVG620): photolithography; microcontact printing, UV-NIL and Thermal-NIL
- Curing: Laser (Rofin 100W), UV, Forming, UV-LED (Phoseon)



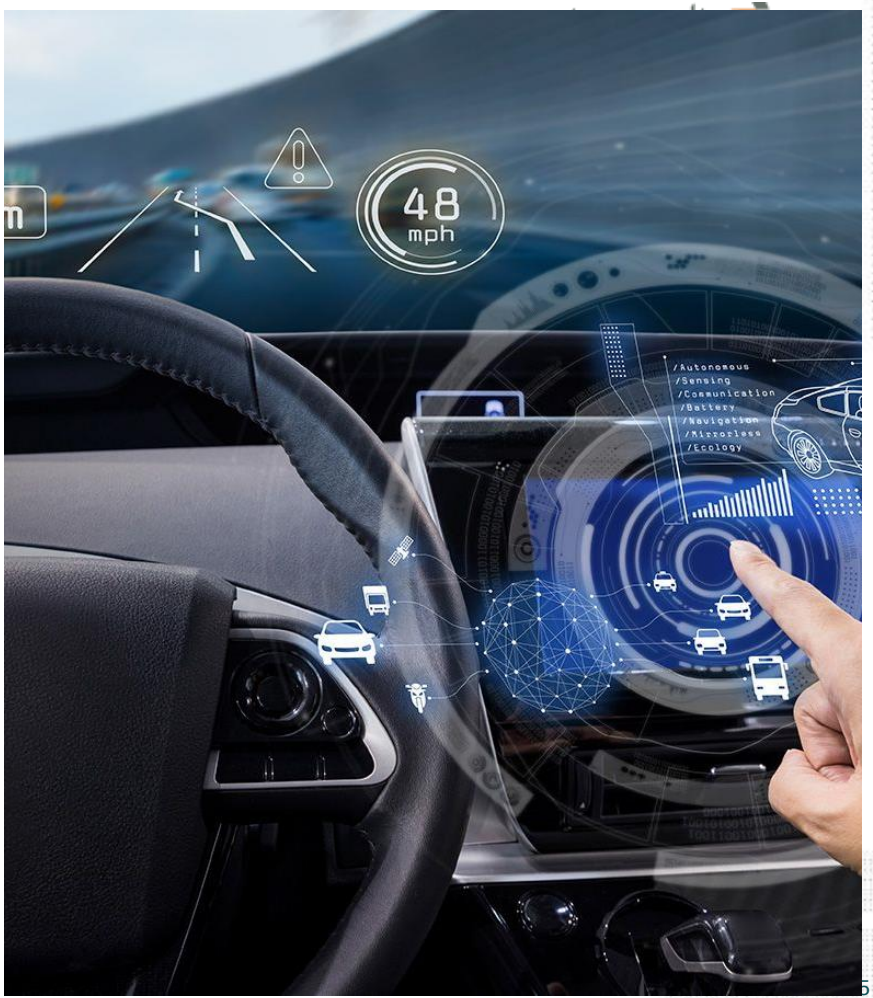
RETOS QUE ABORDAMOS

- IMPRESIÓN DIRECTA SOBRE PIEZA 3D

- EMBEBER EN COMPOSITES

- IMPRIMIR SOBRE SUSTRATOS NO CONVENCIONALES

- IMPRIMIR FUNCIONES



INK-3D

Direct 3D Printing based techno
conductive/dielectric inks on **3D**
manufacturing processes such a

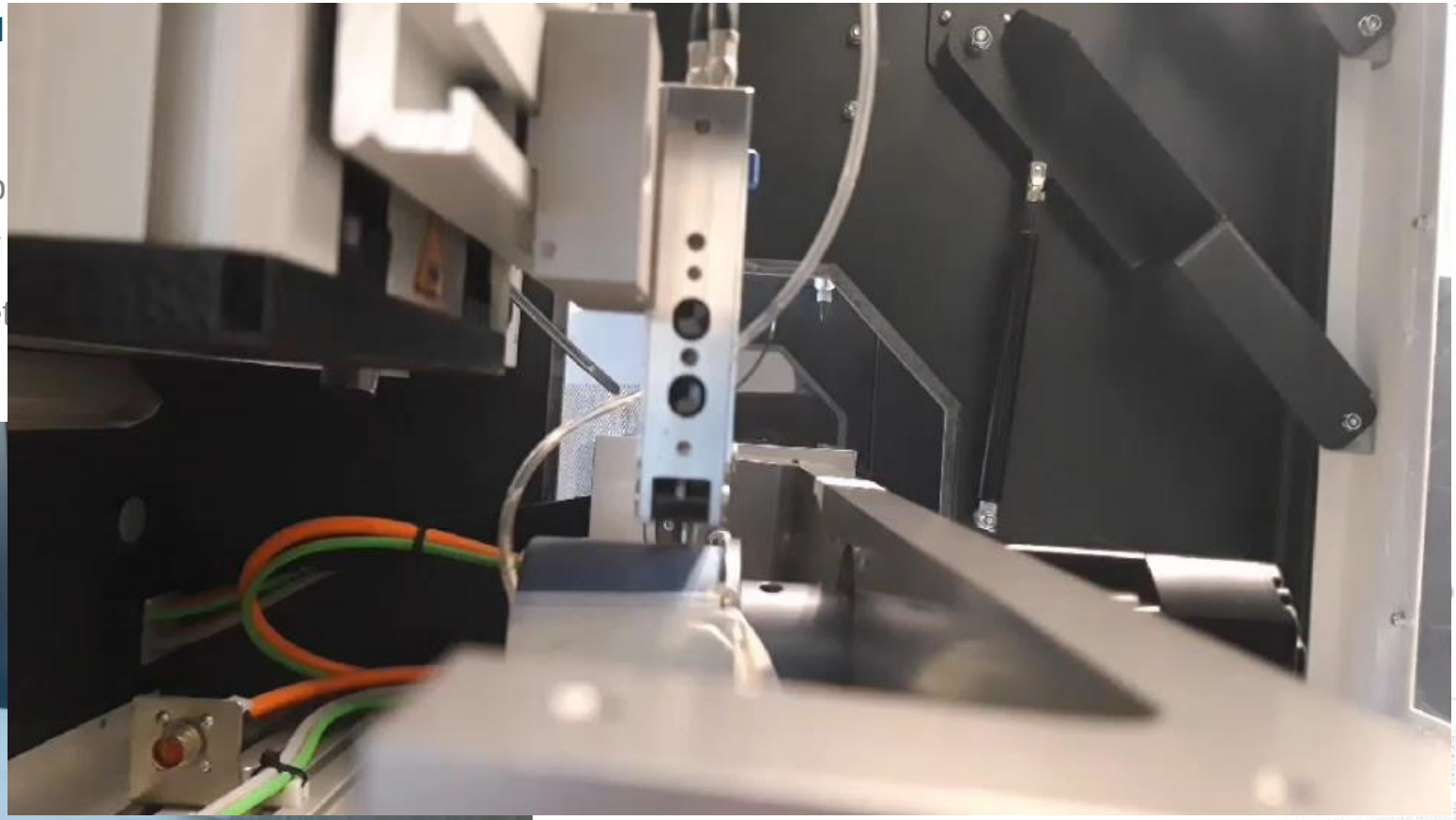
Application number

File No. to be used for priority declarations

Date of receipt

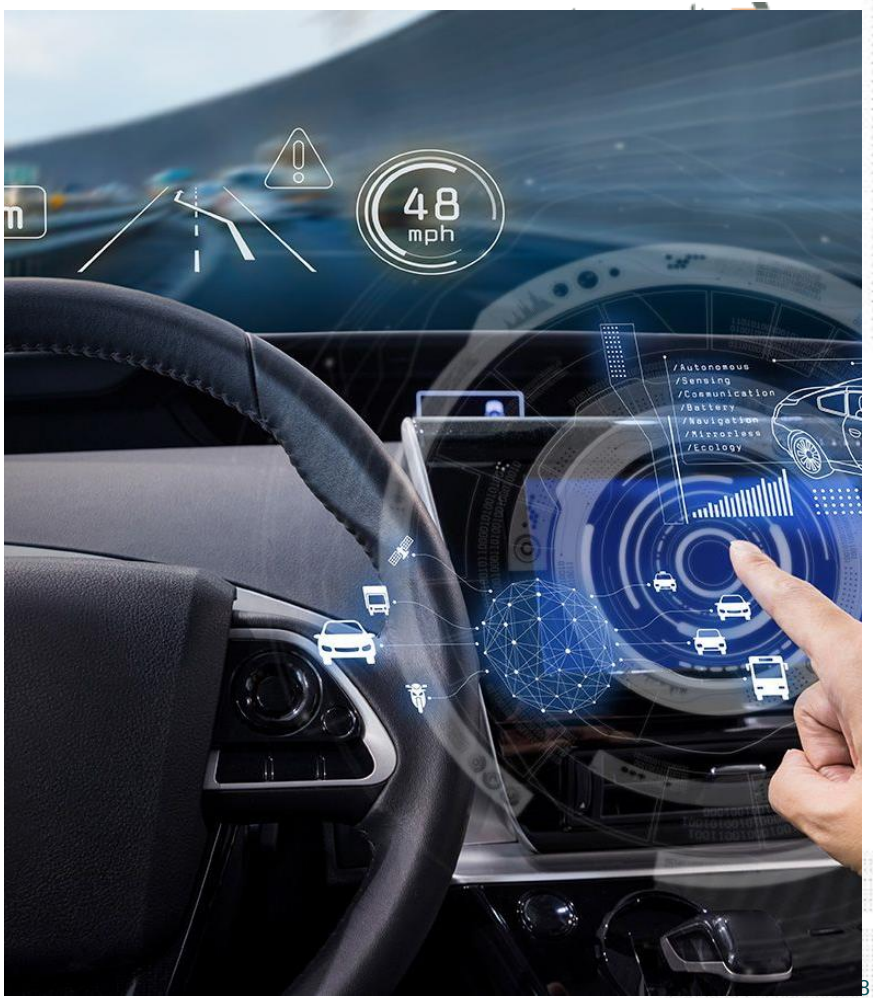
IMPRIMIR DI

- Microdisp
- PiezoJet/
- Aerosolje



RETOS QUE ABORDAMOS

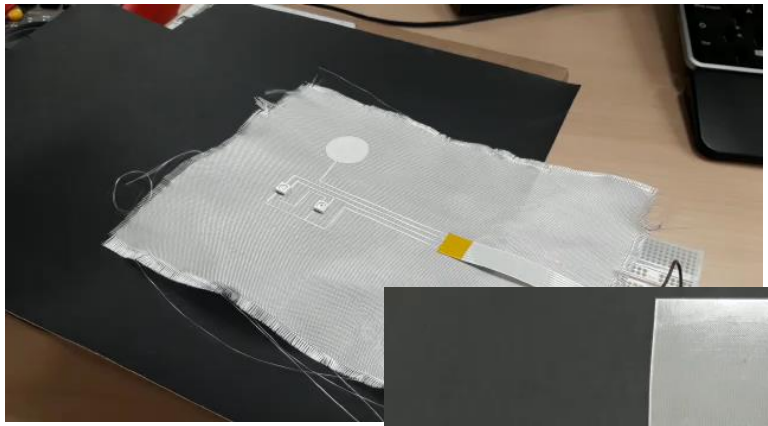
- IMPRESIÓN 3D
- EMBEBER EN COMPOSITES
- IMPRIMIR SOBRE DIVERSOS SUSTRATOS
- IMPRIMIR FUNCIONES



EMBEBER EN COMPOSITES

Imprimimos sobre:

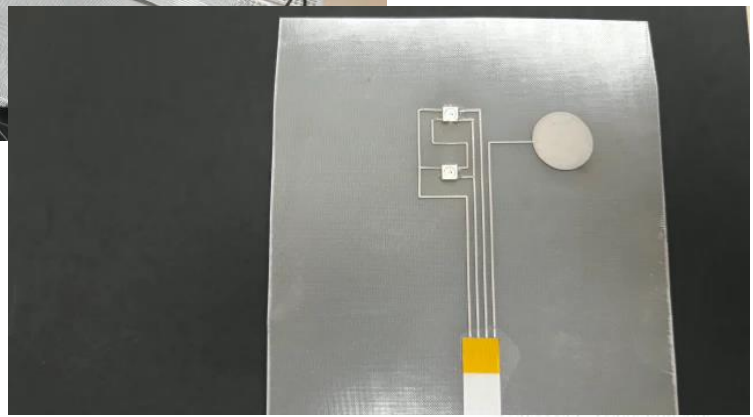
- Tejidos secos no-conductores



Y luego

- Polimerización in situ con tejido impreso

- Proceso de infusión, RTM, etc.. Con distintas resinas: epoxi, fenólica, etc..



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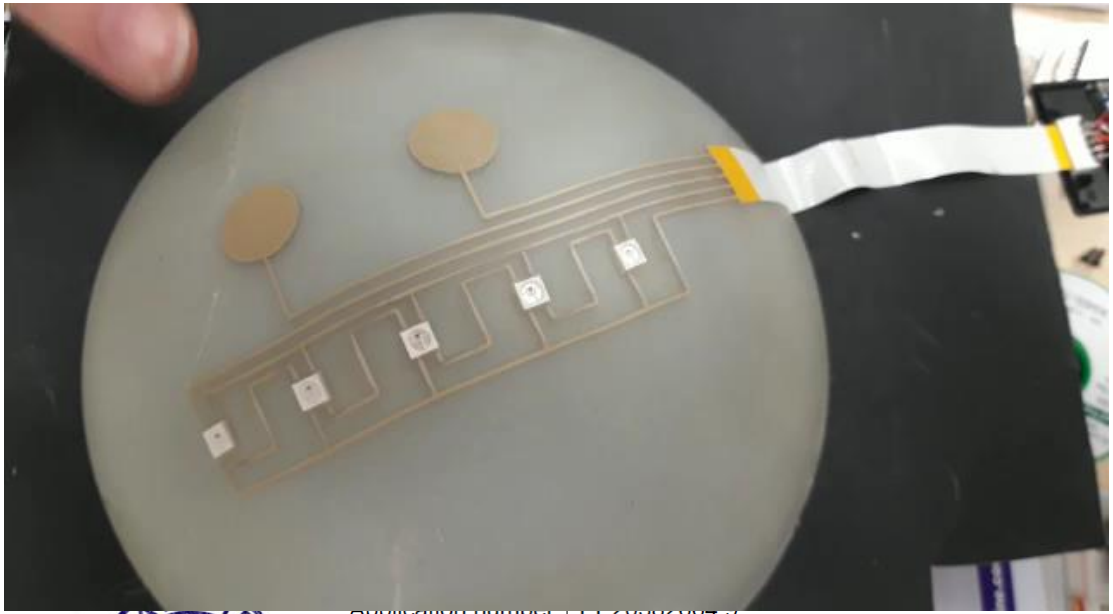
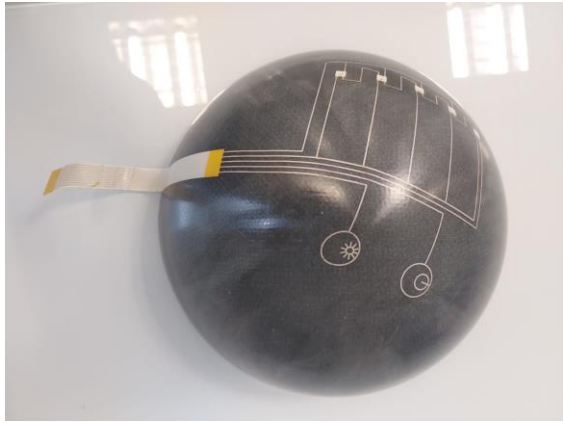
SCOMP





PATENTED

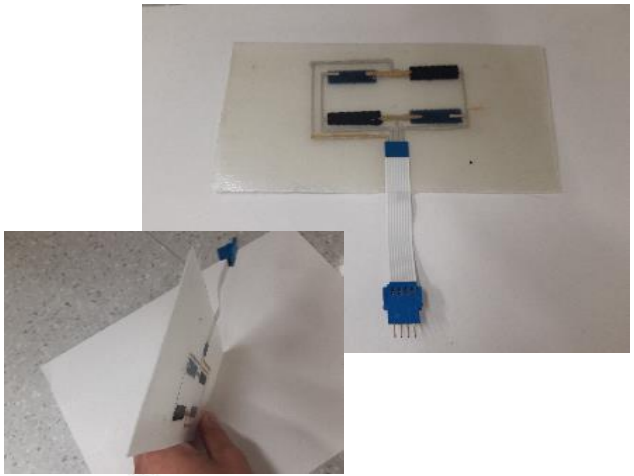
Application number	EP20382664.9
File No. to be used for priority declarations	EP20382664
Date of receipt	24 July 2020

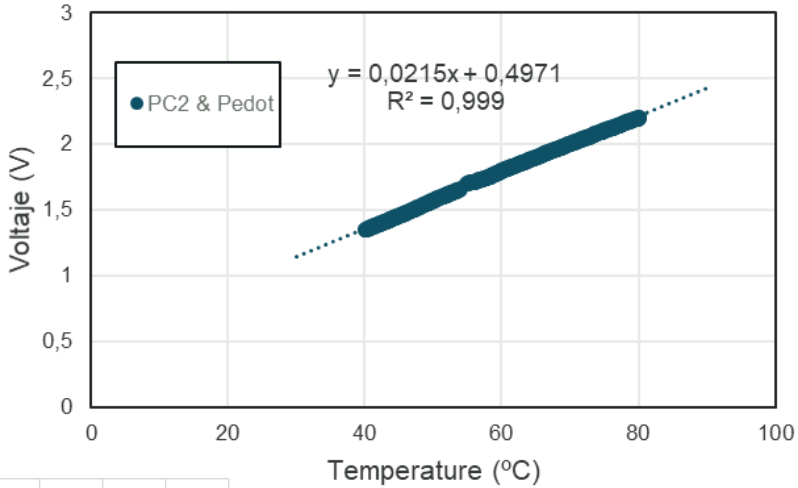
Method for manufacturing polymer composites with embedded funtionalities

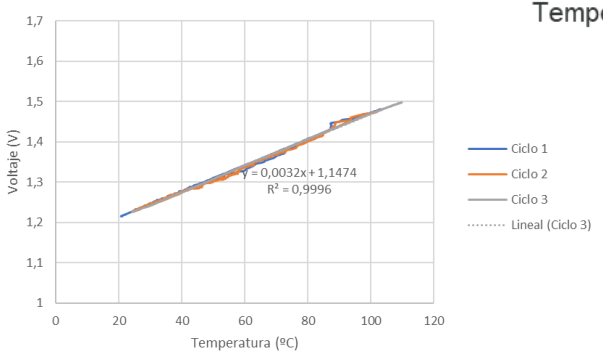
Composite part with leds, touch buttons and electric circuits

Temperature sensors in Wheatstone bridge configuration

Inks used: Ag paste, Carbon paste, PEDOT

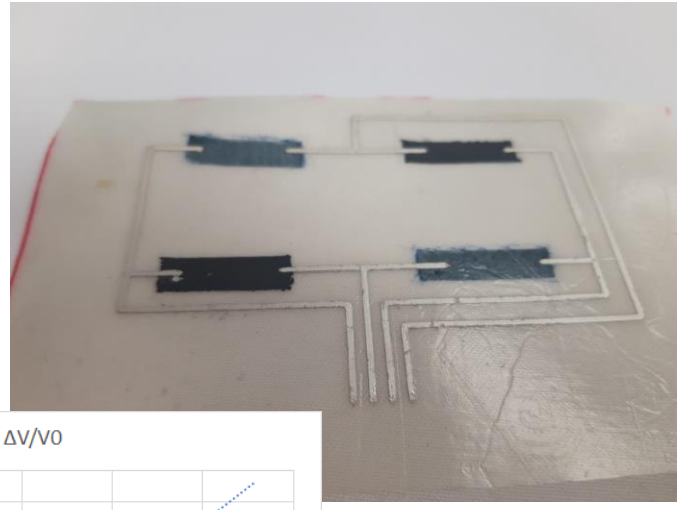






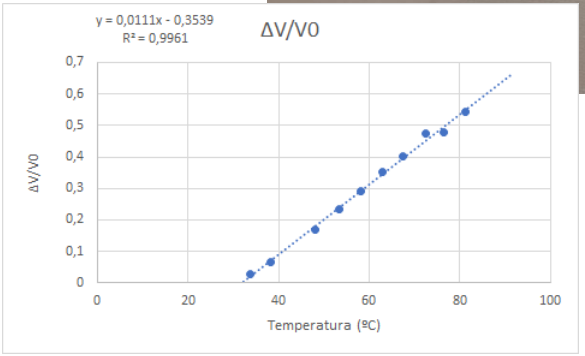
Pressure/Strain sensors in Wheatstone bridge configuration

Inks used: Ag, Carbon based, PEDOT



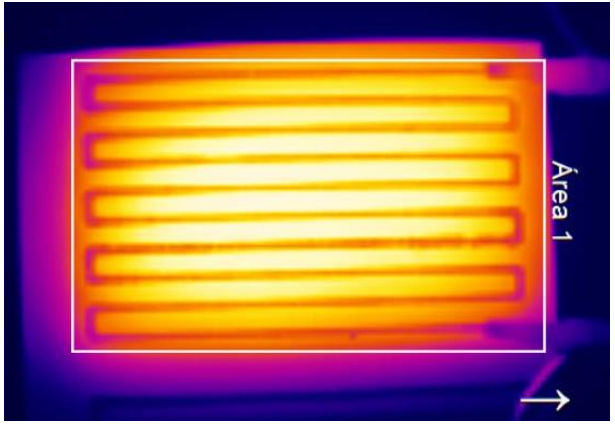
Tested for Structural Health Monitoring (SHM) in composites as no delamination is introduced

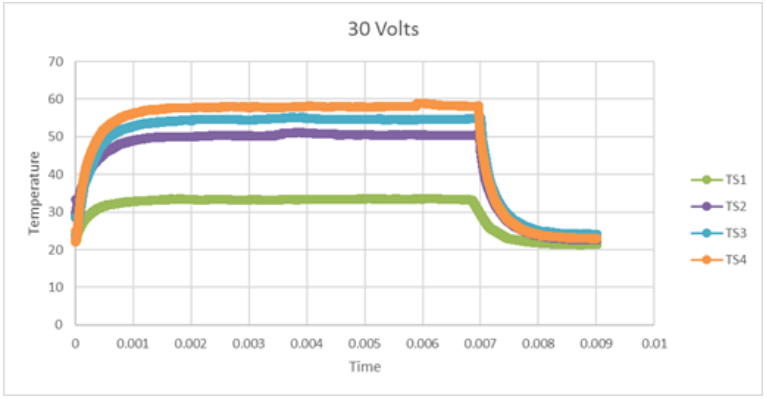
- GF up to 30



Heating elements

Inks used: Ag paste, Carbon paste





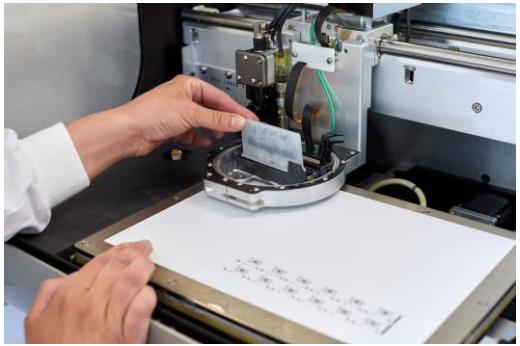
SELF-LIMITING THERMAL BEHAVIOUR OF CARBON PASTES.
Temperature **increases until a stabilized temperature** determined by the voltage applied and the resistance of the lines.

ANTENAS FLEXIBLES

- Sustratos: TYVEK; papel; PET, nomex

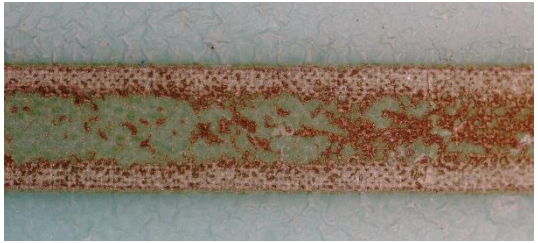
- Técnicas de deposición empleadas: Ink-jet o micro-dispensación.

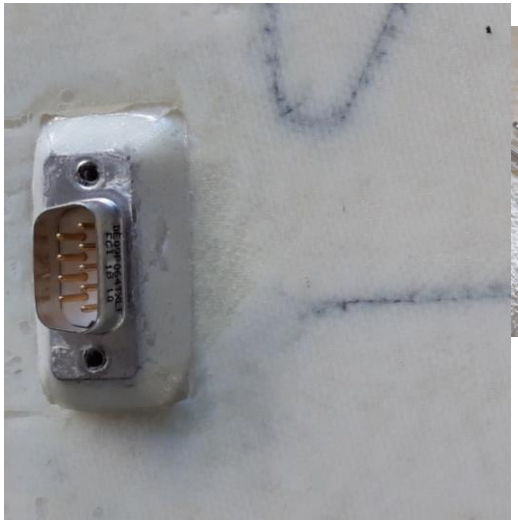
- Tintas de Ag, grafeno



OTROS RETOS PARA OBTENER PROTOTIPOS

- Benchmarking **encapsulantes** para aislamiento dieléctrico, frente a diversas condiciones ambientales (ensayos en cámara climática, choques, etc..)
- Benchmarking **conectorización (**ensayos de robustez)
- Benchmarking de **tecnologías de unión conductoras (**ensayos de unión)
- Benchmarking **sistemas de alimentación flexibles o miniaturizados**





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GRACIAS
THANK YOU
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