



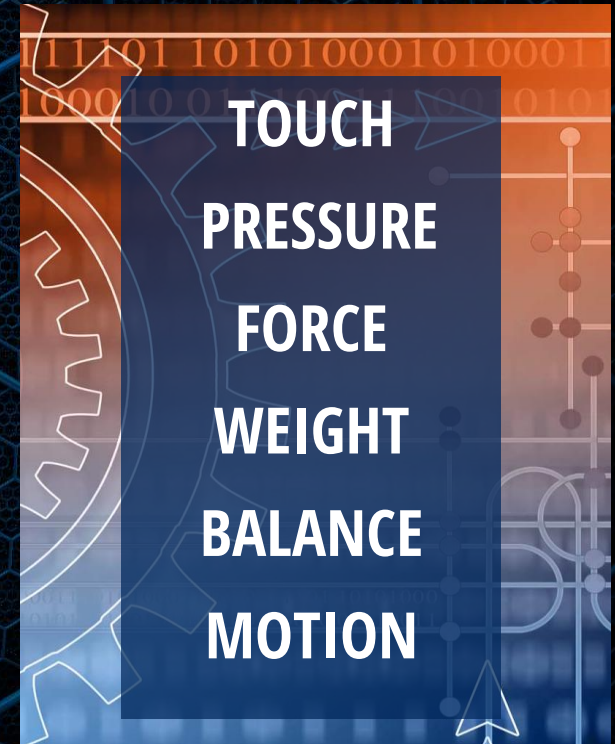
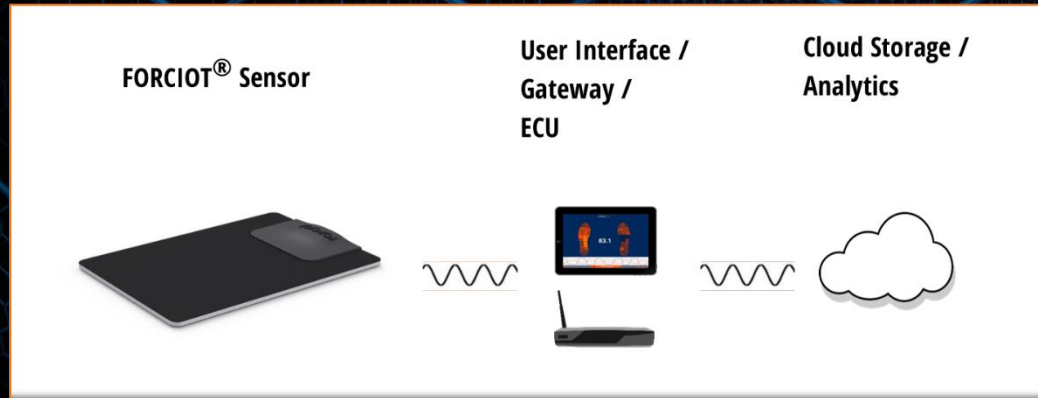
FORCIOT[®]

Stretchable sensor – Developments in Elastronics project

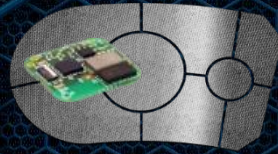
Petri Järvinen, CTO, Forciot Oy
Elastronics Webinar
6.10.2020

FORCIOT designs connected sensor systems for Automotive, Logistics and Wearables.

FORCIOT utilizes printed structures on stretchable materials and advanced algorithms for maximum accuracy.



ELECTRONICS



MATERIALS & STRUCTURES



SOFTWARE & ALGORITHMS

$$f(x) = a_0 + \sum_{n=1}^{\infty} \left(a_n + b_n \sin \frac{n\pi x}{L} \right)$$

FORCIOT®



INTEGRATION
SERVICE

Premium Look & Feel
Comfort / Unnoticeable
Integrateability
Easy-to-use

Environmental Sustainability
Energy Efficiency

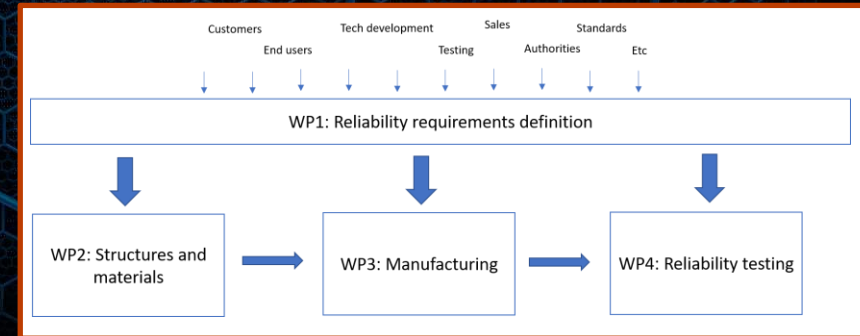
Data Richness
Data Accuracy and Sensitivity
Always on-line

Reliability
Cost Efficiency
Mass Production Capability



Forciot objectives and focus in Elastronics project were

- ✓ to improve the reliability and stretchability of sensor's printed structures
- ✓ to develop methods and build capabilities for verification of stretchable sensors
- ✓ to develop manufacturability and verify roll-to-roll manufacturing capabilities for stretchable sensors
- ✓ to further develop IPR portfolio
- ✓ to enlargen partner network

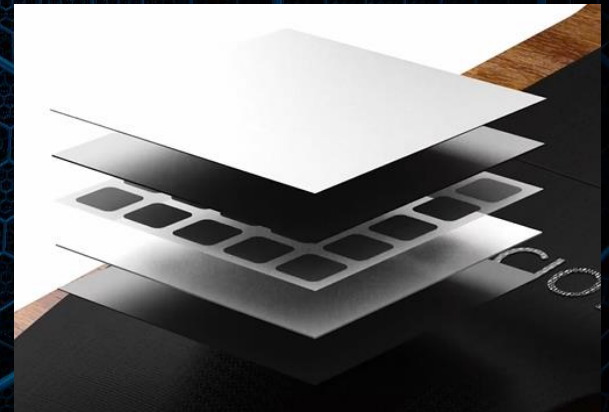


- ✓ Developed a new structure for stretch-to-rigid interface
- ✓ Verified several ink-substrate combinations, specific for different application usage – link to TAU/VTT work.
- ✓ Filed three patent applications for design and assembly



- ✓ Developed prototype/pre-production manufacturing capabilities with new assembly methods and equipments.
- ✓ Verified R2R manufacturing process with our manufacturing partners in both printing and converting.

- ✓ Developed methods and tools for print quality assurance and laboratory level inspection/analysis.
- ✓ Developed generic R&D sensor to act as an test vehicle in technology reference testing and manufacturing development
- ✓ Developed and deployed several new test equipments in Forciot R&D lab - for mechanical, environmental and performance verifications
- ✓ Verified reliability improvements in mechanical and environmental/aging testing of complete sensors



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THANK YOU!