



## FLEEPtech Showcases Dose-counting Smart Label for Metered Dose Inhalers at OE-A Competition 2021

*The prototype is one of the few worldwide demonstrations of standalone flexible smart systems integrating all-printed components and OTFT-based integrated circuits.*

**MILAN, ITALY – Mon, 22 March 2021 – FLEEP Technologies S.r.l.** released, in the context of the OE-A Competition 2021, the prototype of a dose-counting smart label for metered-dose inhalers. The smart label is an integrated, stand-alone electronic system fully printed on plastic substrate, realized with a form factor suitable to be applied on commercially available drug-containing canisters for metered-dose inhalers. The system integrates printed OTFTs specifically tailored for analog and digital electronics application, as well as a printed touch sensor, a printed battery, and an electrophoretic display.

The target of the application is the market of packaging of pharmaceutical and biomedical products and focuses on metered-dose inhalers. The label implements a dose-counting functionality, providing the user with the information about the remaining amount of drug available in the product, which is often missing in current designs for commercial products of this kind and is fundamental for patients requiring the use of portable drug dispensers. This improvement to conventional designs prevents undesirable and unexpected depletion of the drug container, facilitates the scheduling for acquiring new canisters and eases the correct and timely administration of pharmacological treatments within self-medication scenarios.

*“We are thrilled to showcase this prototype, that demonstrates how the technology we are developing is suited for the realization of complex printed systems on foil, merging different devices and processes and removing any electrical component assembly step.”* says Giorgio Dell’Erba, the CEO and Founder of FLEEP Technologies S.r.l. *“The integration of multiple devices on the same substrate is at the core of the successful growth of the printed and flexible electronics industry and FLEEPtech is committed to the development in this specific technological direction”*



The 200- $\mu\text{m}$ -thick label is controlled and operated by a circuit design based on FLEEPtech's proprietary *PrintIC platform*, which the company is expanding and consolidating. The core of PrintIC is based on complementary organic circuitry, operating at voltages down to 5 V and entirely realized with functional plastic materials, which allow the realization of electronics for signal detection and processing, driving of flexible displays and OLEDs and logic computation through well-established printing techniques. The label is powered by an ultrathin printed battery specifically developed for the prototype, while the overall system power consumption is below  $3\mu\text{W}$ , consolidating its compatibilities with printed and flexible batteries. Moreover, the system can be easily bent and wrapped around the inhaler's canister and the addition of a graphic overlay can hide the presence of the electronics to the end-user.

*"Our Dose-counting smart label demonstrates that the PrintIC technology enables the addition of useful functionalities to everyday objects, manufactured with the sole adoption of organic plastic materials and printing techniques: this is the key for future cheap, more sustainable pervasive electronics."* says Andrea Perinot, CTO of FLEEP Technologies S.r.l..

In this specific use case, the PrintIC technology allows companies producing and/or commercializing drug dispensers to integrate additional functionality (i.e., dose counting) in their products, at the same time avoiding any major modification to the manufacturing process and to attain such additional functionality at low costs over production volumes in the order of tens of millions of pieces per year. Also, the current demonstrator shows that PrintIC technology can be used to retrofit existing medical device designs with minimal changes to the supply and manufacturing chain.

#### **About FLEEP Technologies S.r.l.**

FLEEPtech is a leading company in the printed and flexible electronics field, developing a hardware platform (*PrintIC*) for the manufacturing of printed integrated systems with printed intelligence based on a fully printed complementary OTFT core. The company, a spin-off of Istituto Italiano di Tecnologia, is backed by angel and venture investors as Italian Angels for Growth, Club degli Investitori di Torino, Pariter Partners, Eureka! Ventures S.G.R. and the Cogliati family.

#### **ON BEHALF OF THE BOARD OF DIRECTORS**

*"Giorgio Dell'Erba"*, CEO

**For further information on FLEEP Technologies S.r.l., please visit the Company's website at [www.fleeptech.com](http://www.fleeptech.com) or contact us by mail at [info@fleeptech.com](mailto:info@fleeptech.com) or by phone at +39 388 653 4226**

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