

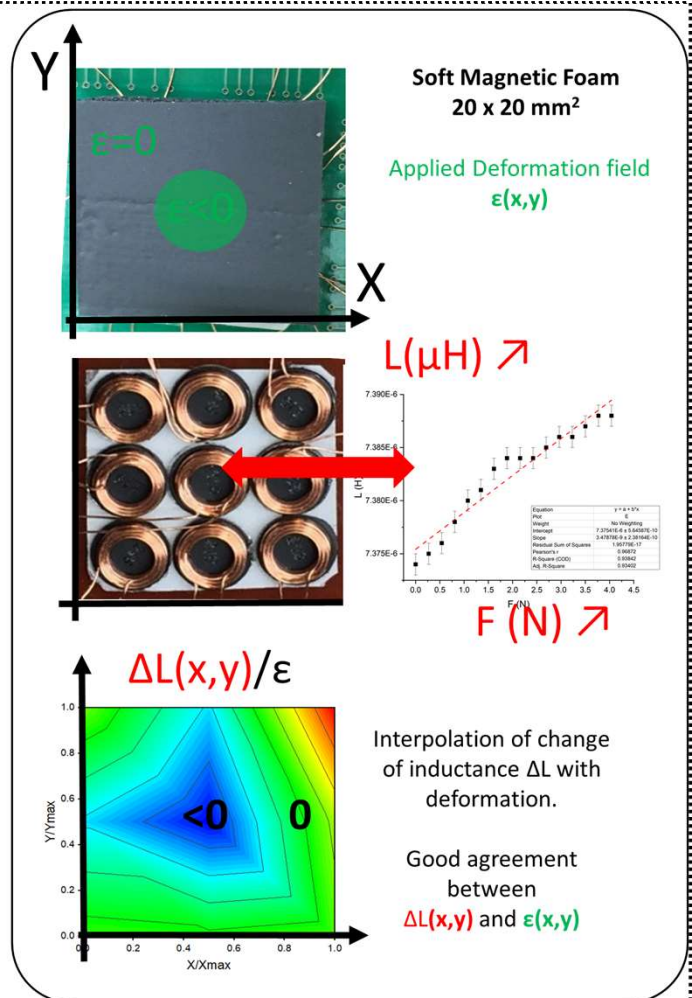
Low Cost, Scalable Force Sensor by Magnetic Composite Foam



PolyUrethane (**PU**) Foams are polymers with high porosity, therefore **strongly compressible**. The Foam is functionalized by inserting strong **magnetic particles**.

The combination of these two properties is perfectly suitable for a **pressure/deformation sensor**. The composite can be **easily deformed up to 80%**. The deformation is sensed by **coils sensible to the magnetic particle displacement**. An **array of coils** will detect the **position of an applied force** on the composite.

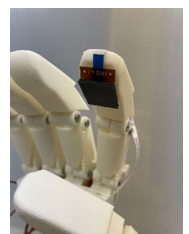
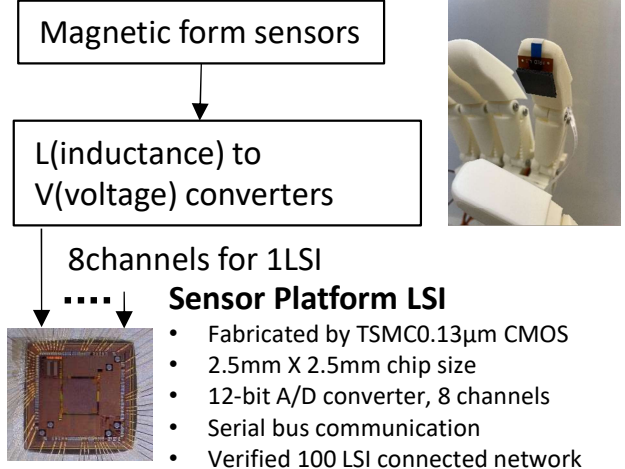
This is new and promising technology: the raw materials are **cheap**, the composite is **easy to process (molding or 3D printed)** and is a **lightweight material**.



Diguet, G.; Froemel, J.; Muroyama, M; Ohtaka, K., Tactile Sensing Using Magnetic Foam. *Polymers*, 2022, 14(4), 834

High Performance Multi Sensor System for Magn. Foam

Large number of pressure/force sensor installation will make new markets such as smart robots, smart furniture, and human motion monitoring. Combination of **original sensor platform LSI** and the magnetic form based pressure/force sensors can make **sensor network systems with large number of sensor installation, small number of wiring, event-driven based fast response and effective sensing data acquisition**.



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