

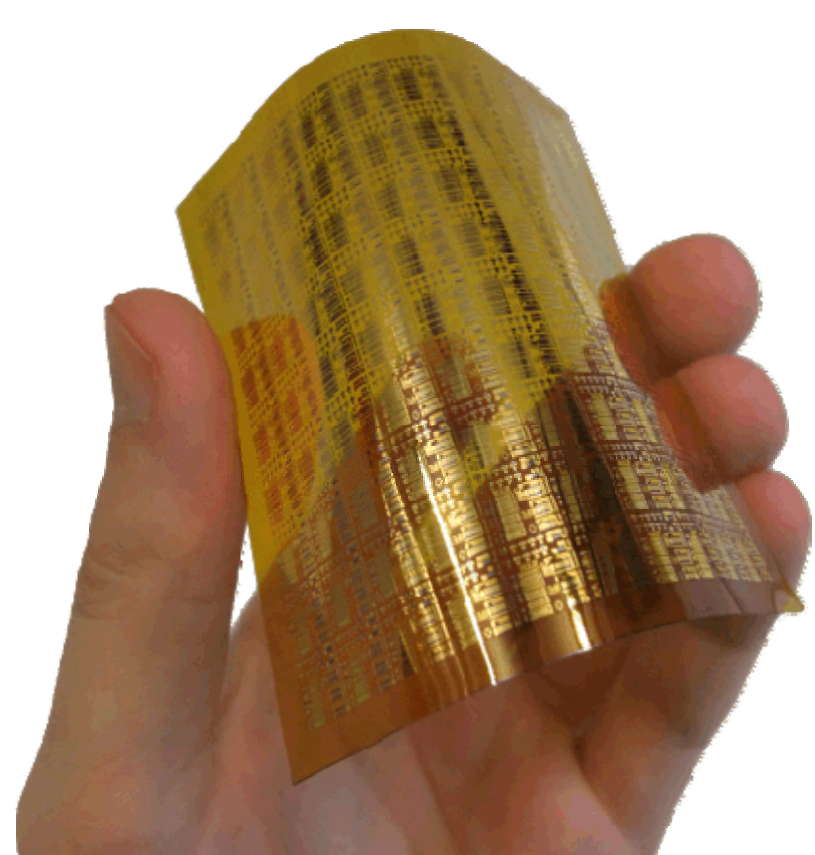
Integrating Electronics into Woven Textiles

C. Zysset, N. Münzenrieder, T. Kinkeldej, L. Büthe, G. Salvatore, G. Tröster

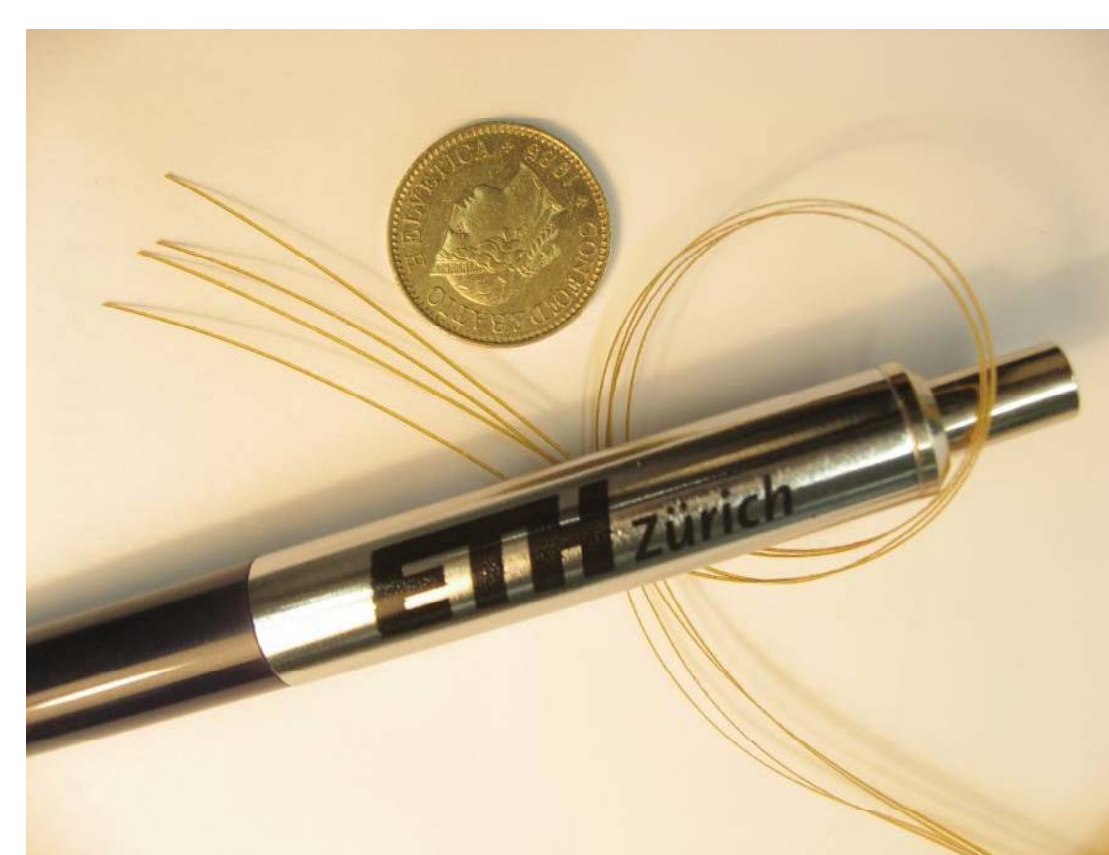
Wearable Computing Lab, Institute for Electronics, Swiss Federal Institute of Technology Zürich



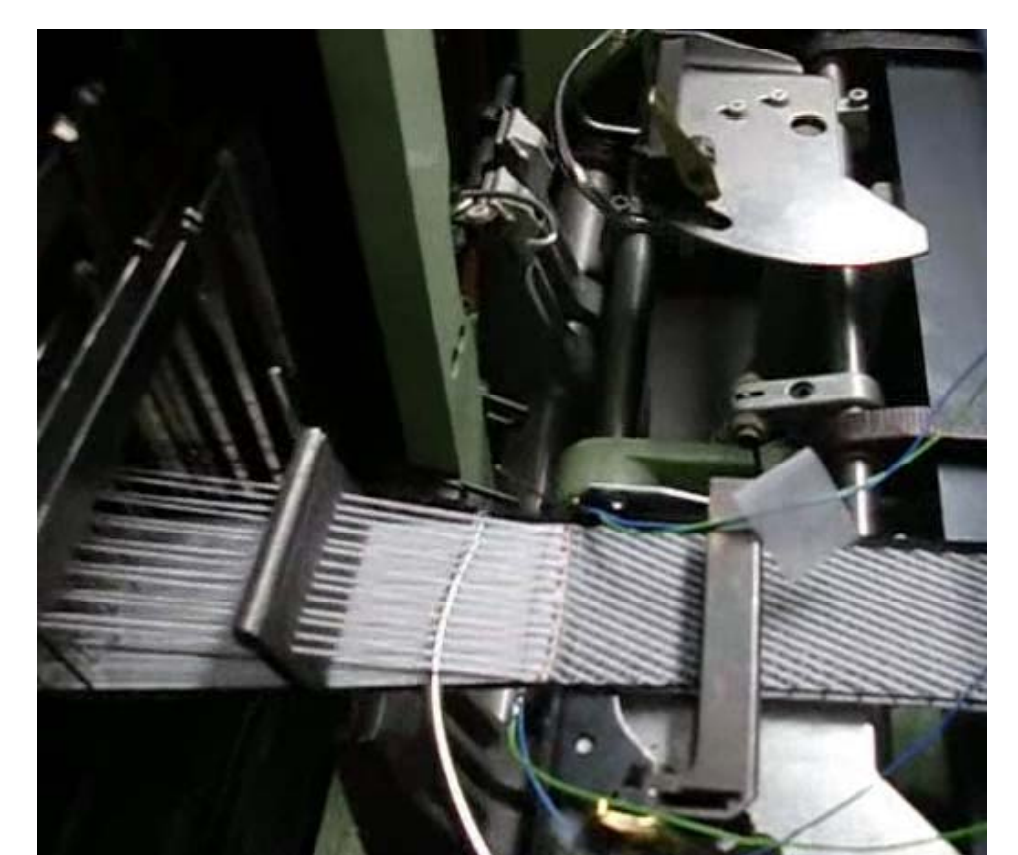
Technology Overview



Process flexible substrates in clean-room

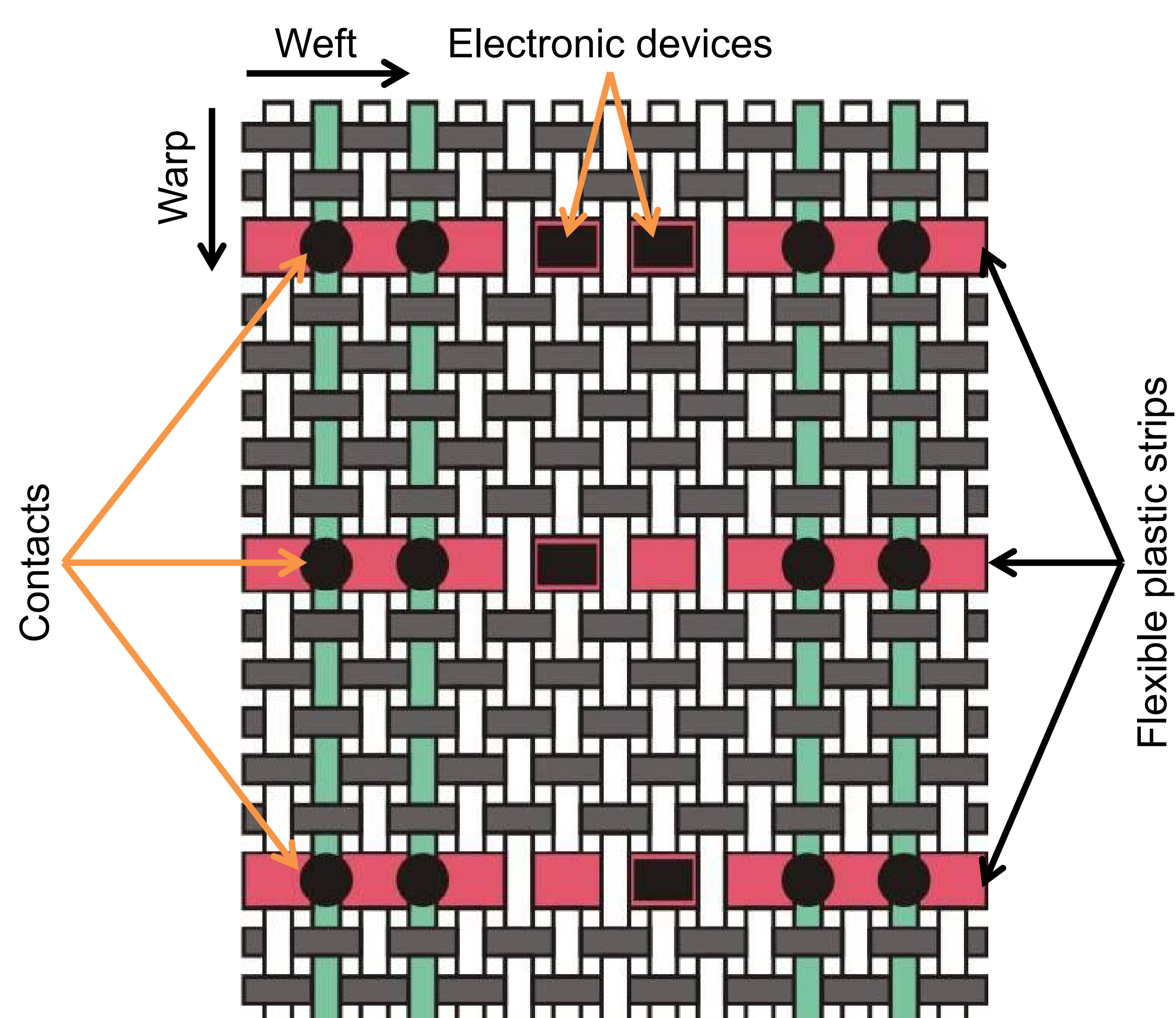


Cut substrate into stripes



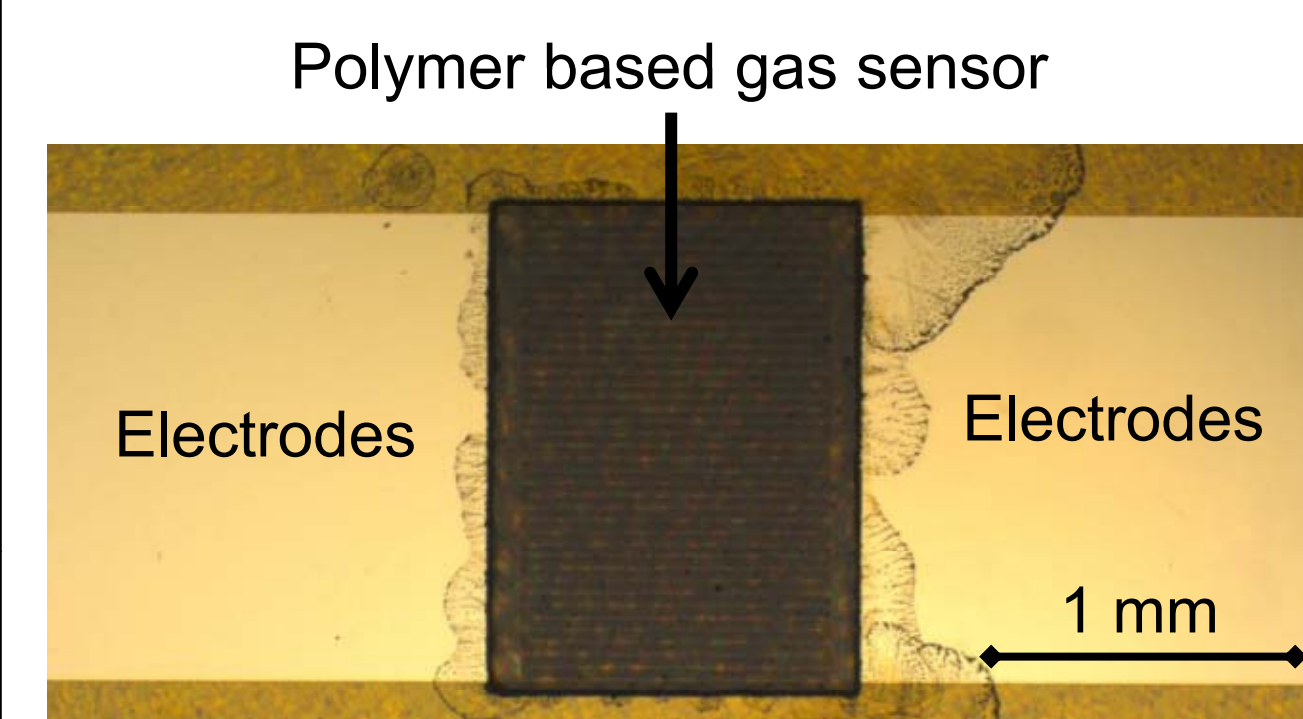
Weave stripes on commercial weaving machine

Weaving Strips

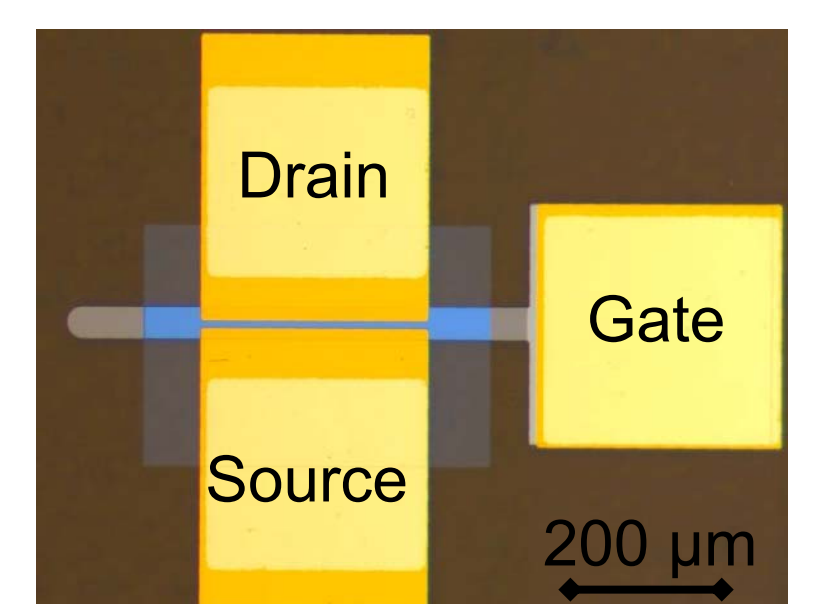


Electronics on Strips

Thin-film sensors



Thin-film transistors

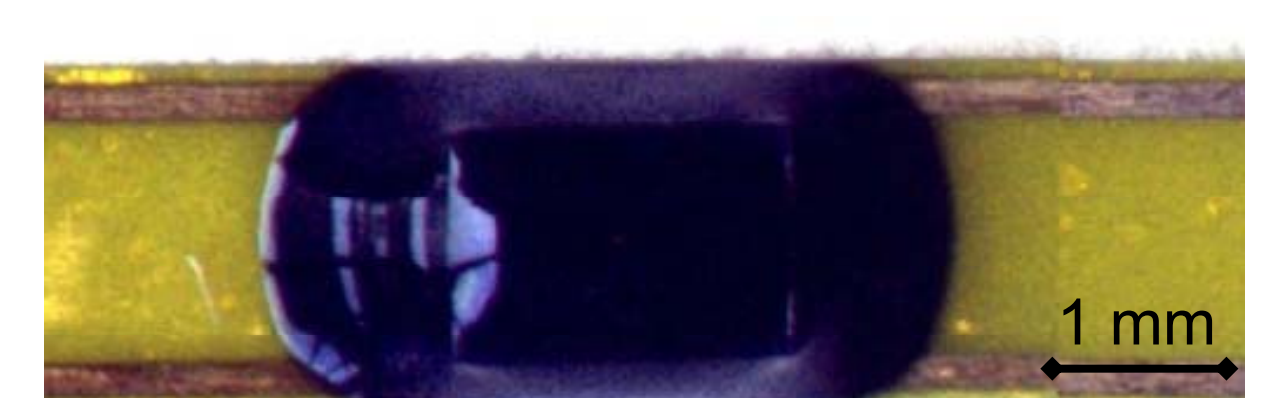


Surface mount devices



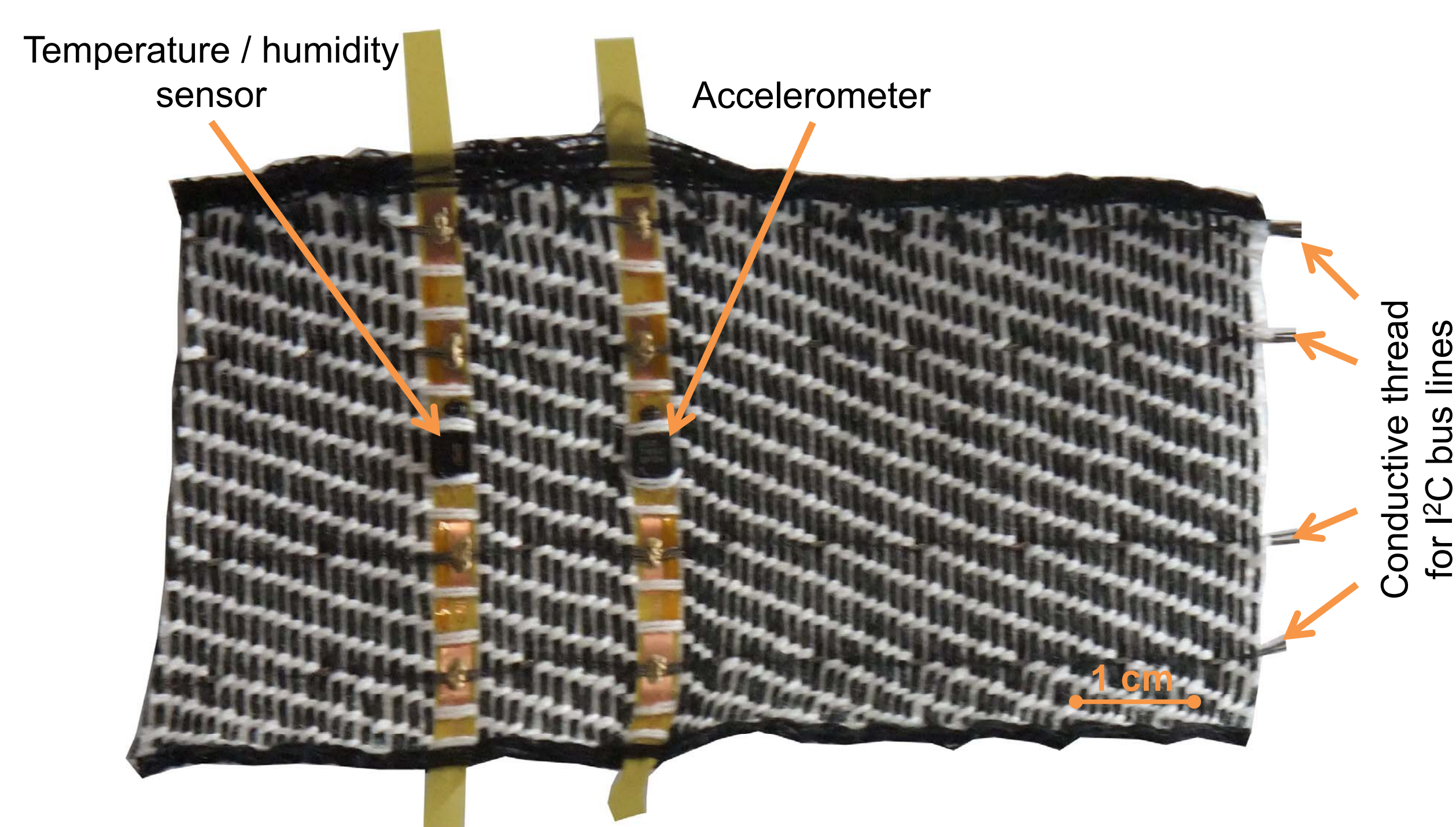
Surface mount accelerometer

Bare die silicon chips

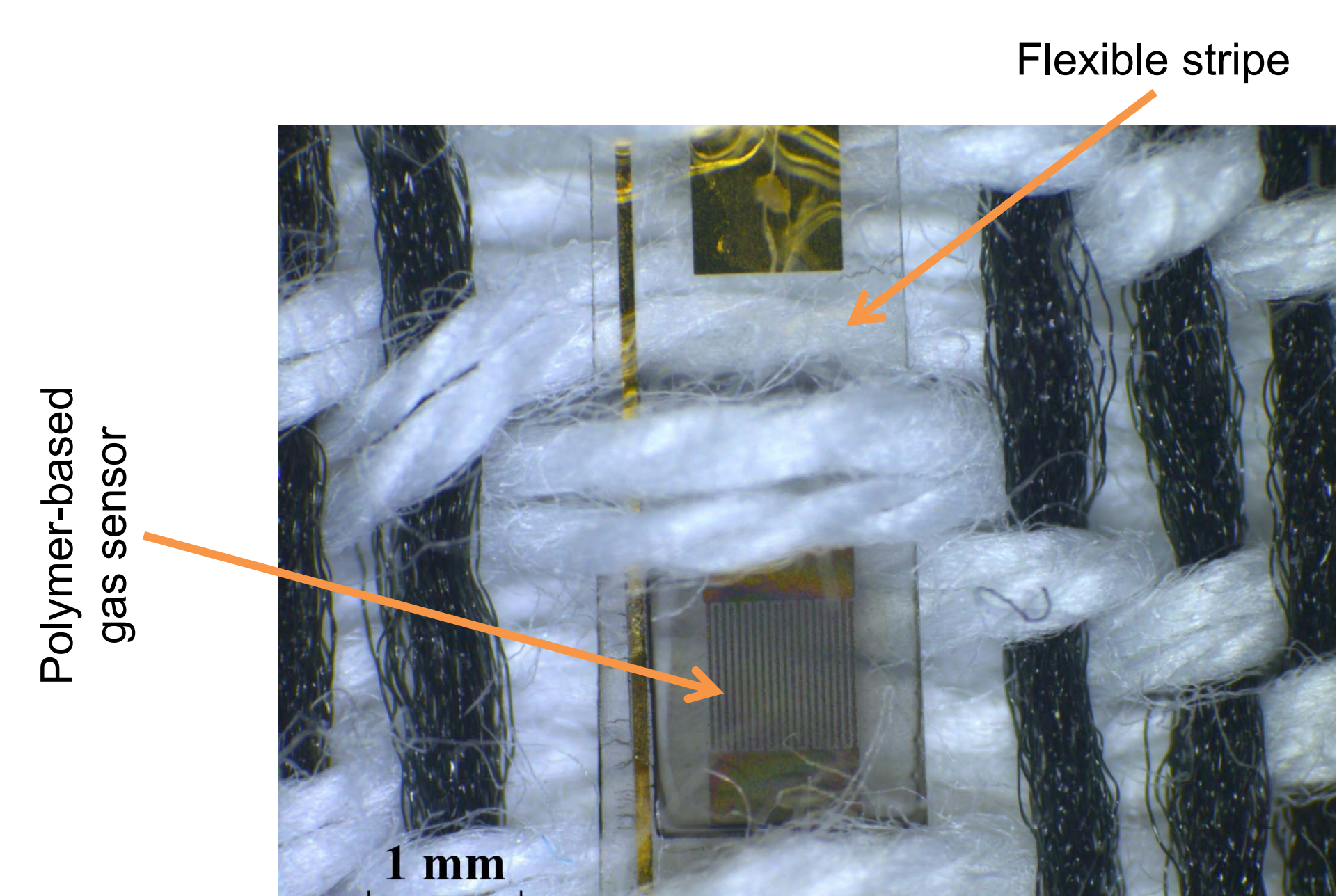


Encapsulated bare die temperature sensor

Smart Textile Prototypes



Accelerometer and temperature/humidity sensor integrated into woven textile. Sensors are interconnected with I²C bus.



Polymer-based gas sensor woven into textile.