OAMK

SMART FISH

Electronically tracking your food

OUAS PrinLab

Northern Periphery and Arctic Programme 2014–2020

EUROPEAN UNION
Investing in your future
European Regional Development Fund

PrinLab – R&D and small-scale manufacturing laboratory

- Offers companies and end-users the environment to get familiar with printed technology and possibilities
- Brings together different disciplines for development
- Focuses on development projects and end-user applications
- Offers excellent “hands-on-ink” skills in different printing technologies
- Includes printed electronics as a part of the engineering education

What is printed intelligence ? (printed technology, printed functionality, printed electronics)

Printed intelligence are:

components and systems which **extend the functions of printed matter beyond traditional** visually interpreted text and graphics.

perform actions as a **part of functional products or wider information systems**

multidisciplinary – combines new technologies, applications and markets

Printed technology enables the manufacturing of thin, lightweight, flexible and possibly large-area structures.

Printed electronics - many different processes and applications

Printing conductors is realism

- Inks are conductive, typically silver based
- Etching copper is widely used, e.g. RFID antennas
- Inks and substrates need matching

Printing electronic components is challenging

- Resistors and capacitors are OK; with wider tolerances than with Si
- Printing transistors in volumes is in the future
- Printing memory can be done, capacity is only a few bits
- Printed batteries exist

Printing complete electronic devices is a dream

- Si component performance and cost is still often unbeatable

Why printing ?

Speed

- speed -> mass manufacturing -> low manufacturing costs

Surface area

- continuous and large area machinery

Flexible, freely shaped substrate

- substrate can be arbitrary shaped
- thin materials (<100 µm), flexible => new applications

Light weight

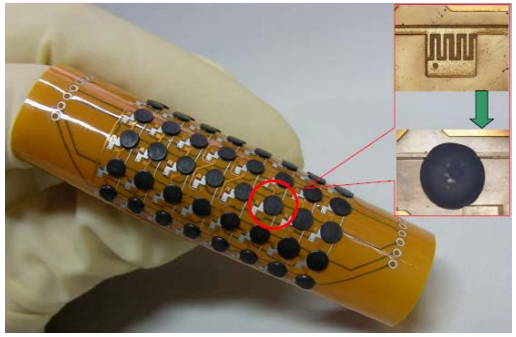
Existing manufacturing technology

- some of the technology well-known and proven

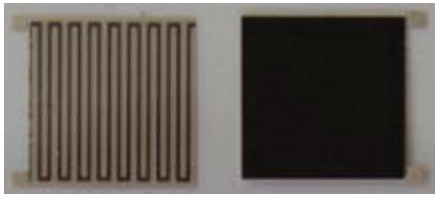
Additive method

- less material waste
- environmentally friendly

Printed temperature sensor



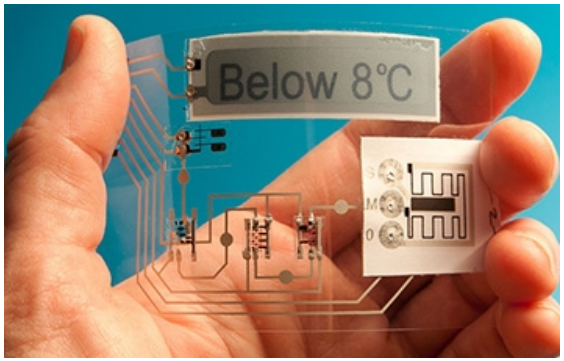
National Taiwan University



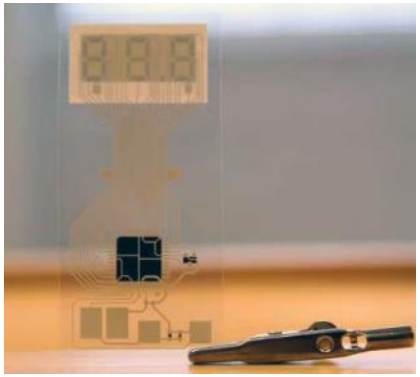
PST Sensors

Printed temperature measurement

Enfucell/NXP

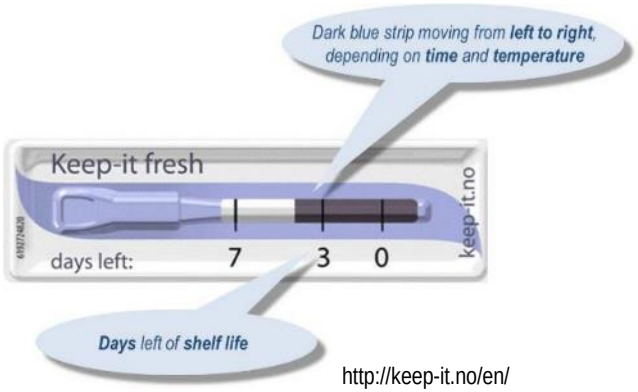


Thinfilm



PrinLab

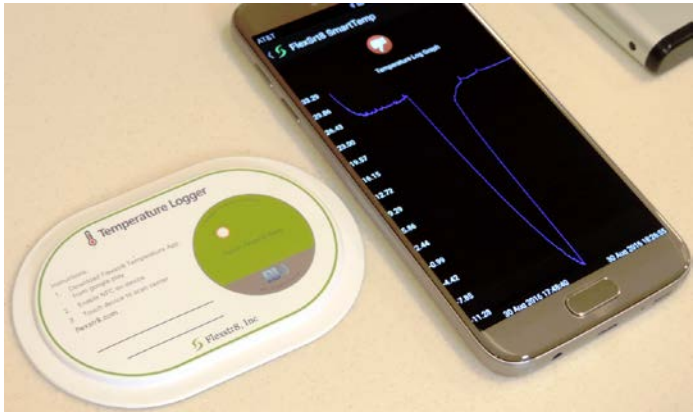
TTI



http://keep-it.no/en/

http://www.onvu.de

Applications




VUODESTA 1938
Hätälän
graavisuolattua
Norjan lohta
fileesiivuina.
GRAAVATTUA
NORJAN LOHTA

Thank You!

Mr. Harri Määttä
Special Researcher, M.Sc.
Project manager

e-mail: harri.maatta@oamk.fi
Tel: +358 50 599 6612

oamk.fi/printedintelligence

OULU UNIVERSITY OF APPLIED SCIENCES

PrintoCent

Northern Periphery and Arctic Programme 2014–2020

EUROPEAN UNION
Investing in your future
European Regional Development Fund