

# Start-ups in a Digital World

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Vice President for Knowledge Transfer and Corporate Relations

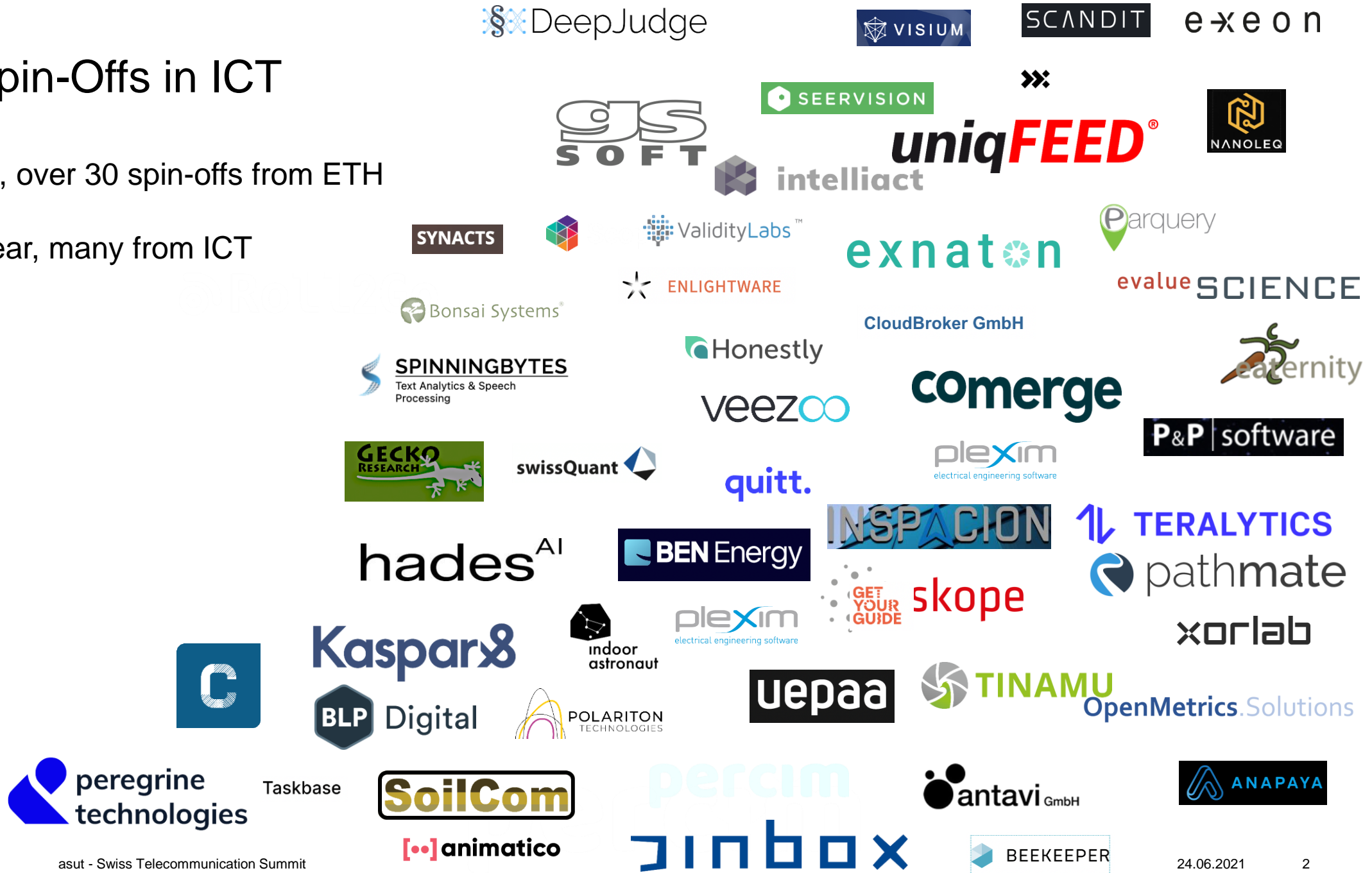
24. Juni 2021, Bern





# ETH Spin-Offs in ICT

- in 2020, over 30 spin-offs from ETH
- each year, many from ICT



# U-blox – founded 1997



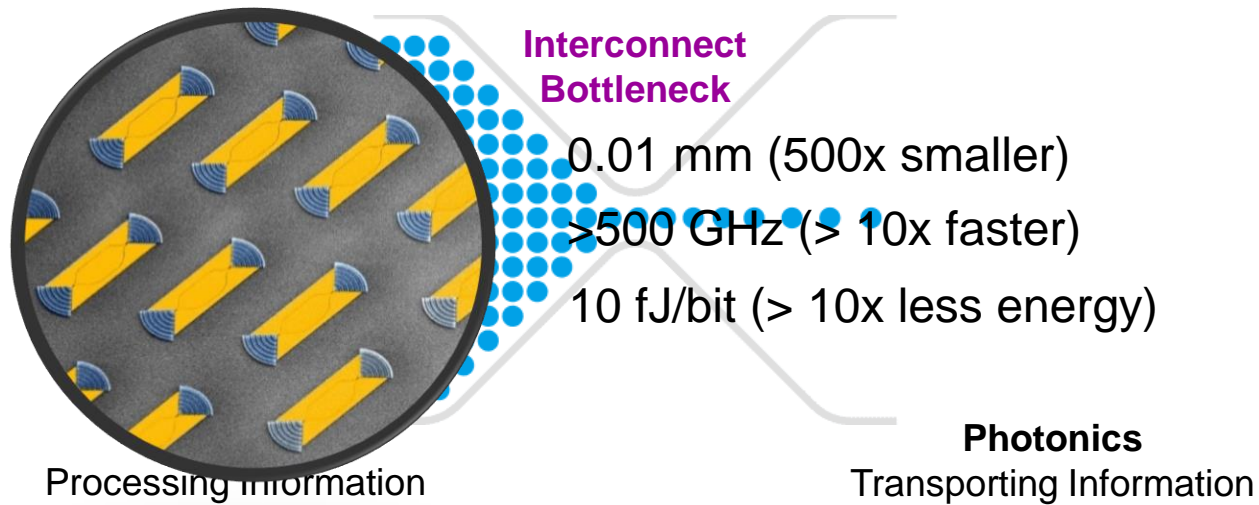
14.0 x 14.0 x 1.5 mm

cellular, radio, and positioning  
chips, systems, and services



<https://www.u-blox.com/>

# Polariton Technologies – founded 2019

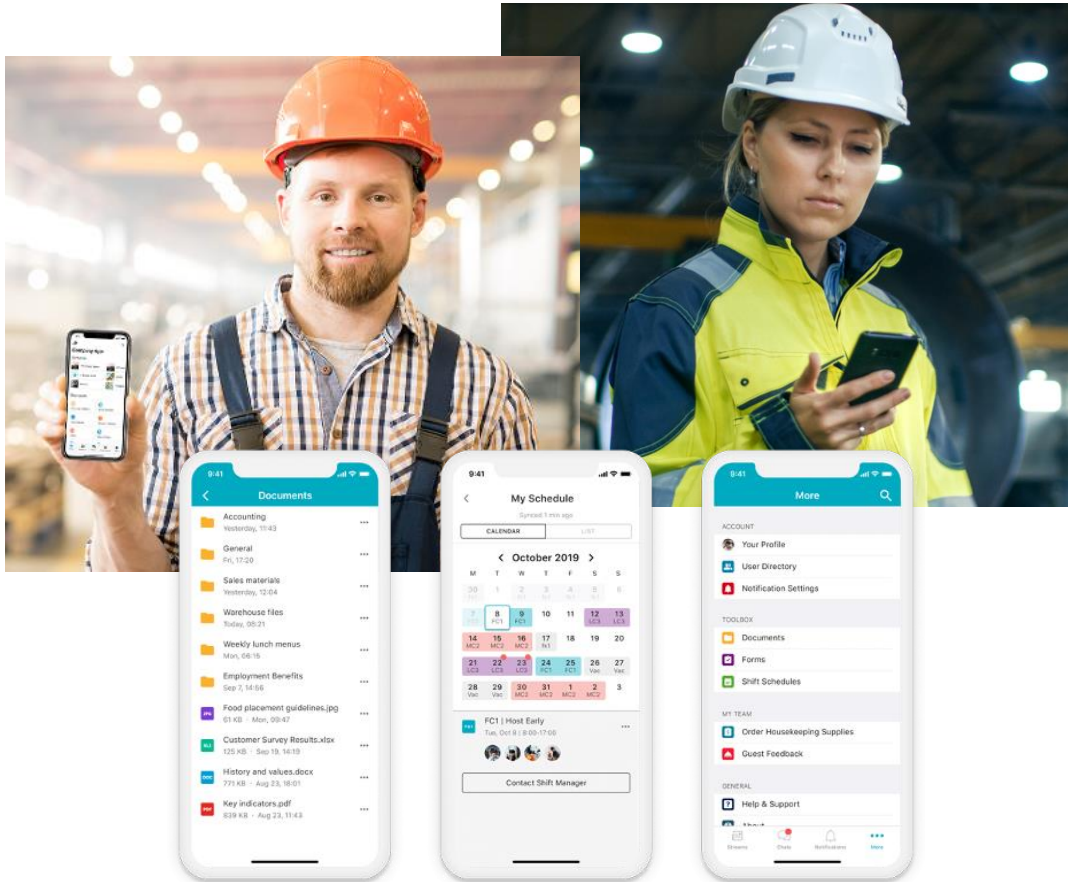


<https://www.polariton.ch/>

plasmonic modulators to solve the interconnect bottleneck



# Beekeeper – founded 2012



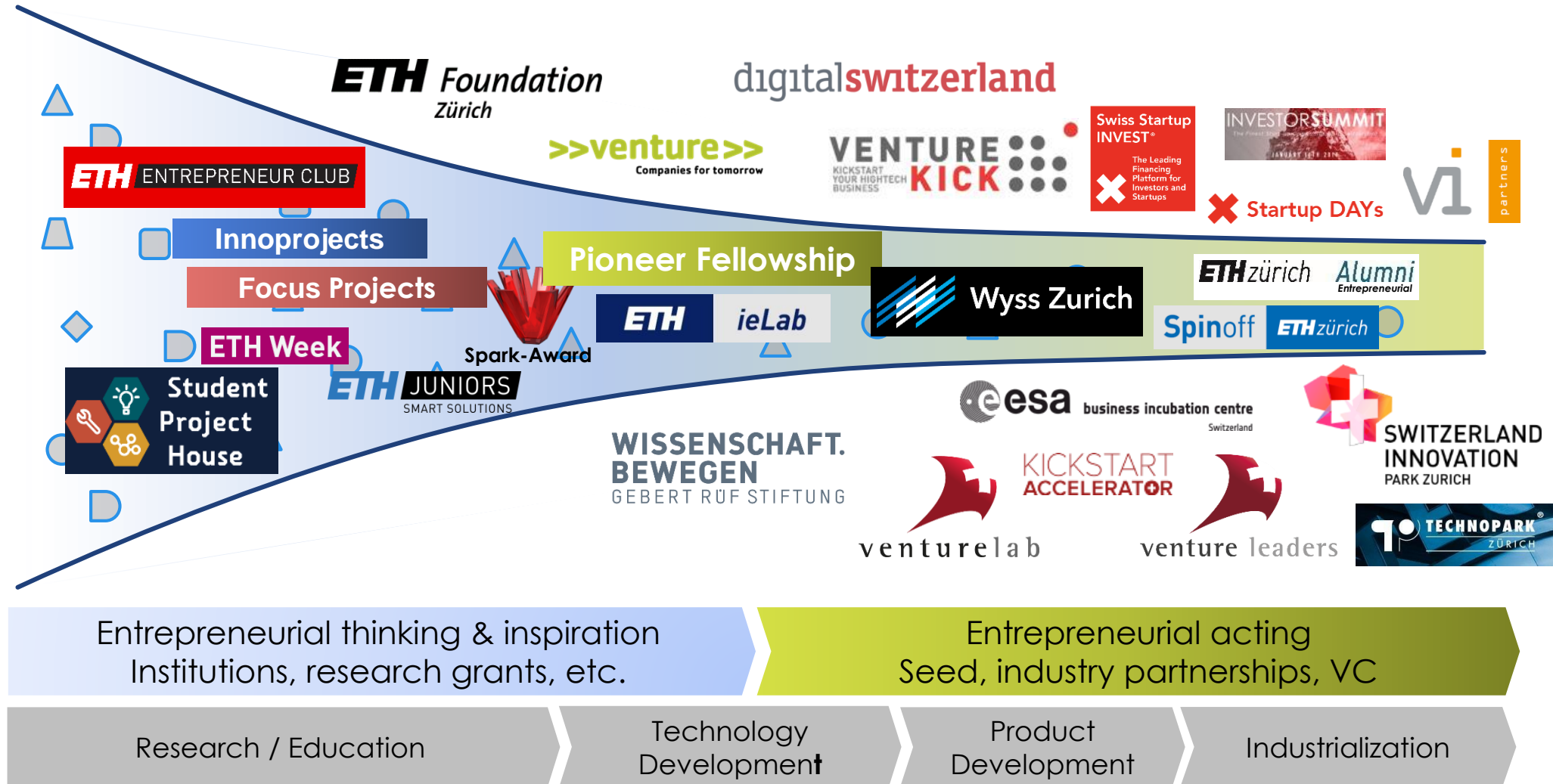
<https://www.beekeeper.io/>

mobile platform for front line workers

# Ingredients for Success

vision  
common goal  
identifying a need  
cooperation  
technical expertise  
years of research  
risk-taking  
pivoting  
drive  
team  
creative spark  
self-awareness  
listening to the customer

# Innovation and Entrepreneurship Ecosystem



# Teaching Excellence

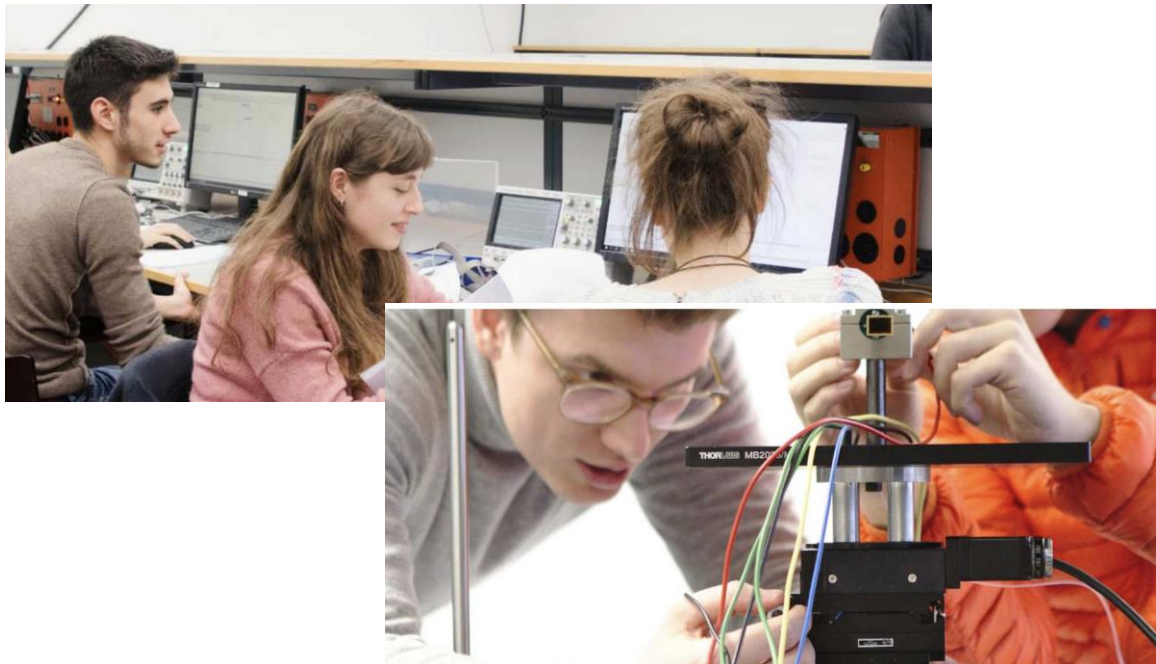
## Example: Center for Project-Based Learning

@ the Department for Information Technology and Electrical Engineering

Projects for groups of students w/ industrial cooperation and focus on IoT



<https://pbl.ee.ethz.ch>



IBM Research | Zurich



SONY



arm





# High Precision Localization With RTK and LoRa and UWB Self-sustaining Smart patch

**Environmental Sensors**  
Accelerometer, Humidity, CO<sub>2</sub> ...

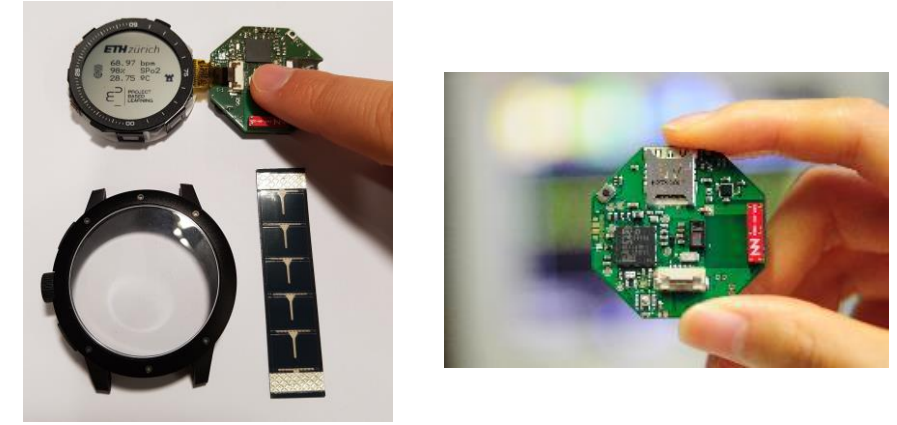
**Energy Harvesting**  
SP4.2-37 Solar Cell

**LoRa**  
SX1216 @868 MHz

**STM32L452**  
Cortex M4 @ 80MHz

**UWB**  
DWM1000 / DWM3000  
data rate of 850 kbps  
@6.5GHz  
BW of 500MHz

# H-Watch: A Self-sustain Smart Watch for Health Monitoring



# Always-On Smart Audio Detector

**A Sense & Control**

- RTC
- MCU
- adaptive comparator

**BH & Supply**

- NVC
- LD0
- energy harvester
- adaptive buck

**C**

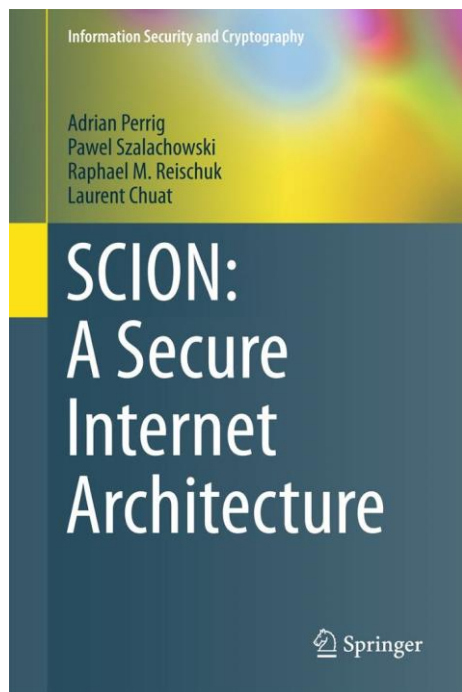
**B**

2.8 mm  
12 mm  
1 cm

# Miniaturized Smart Camera With Machine Learning on Board for Monitoring and Drones

- Flexible Solar panel
- Camera Himax
- Time of Flight Sensor
- Processor
- LoRa Radio SX1262
- Energy Harvesting power management

Example: Scalability, Control, Isolation of Next Generation Networks (SCION)



[www.scion-architecture.net](http://www.scion-architecture.net)



ETH spin-off Anapaya uses SCION to solve the fundamental problems of internet communication



[www.anapaya.net](http://www.anapaya.net)

Coming soon, establishment of an independent SCION Foundation to:

- define a SCION standard
- certify SCION products and implementations in the public and private sectors
- provide the SCION reference implementation open-source

*Hiring director of foundation  
[jobs.ethz.ch](http://jobs.ethz.ch)*

# Centers – bringing researchers, industry, and society together

- **ETH AI Center**
- **Quantum Center – ETH and PSI**
- **Center for Security Studies**
- **ETH Risk Center**
- **Swiss Data Science Center (SDSC)**
- ...

**Many possibilities for engagement with students and researchers**



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