HIGH TECH STARTUPS 2012 IN SWITZERLAND

2013/01/15

Niels Quack

a personal snapshot with focus on MEMS

startup.ch - Top Swiss Startups 2012

Background

- startup.ch – online portal
- study published October 2012 (2nd time)
- private initiative to increase visibility

Modus Operandi

- 100 experts choose 100 best startups
- 100'000 companies founded 2007-2012
- spin-offs from companies not considered

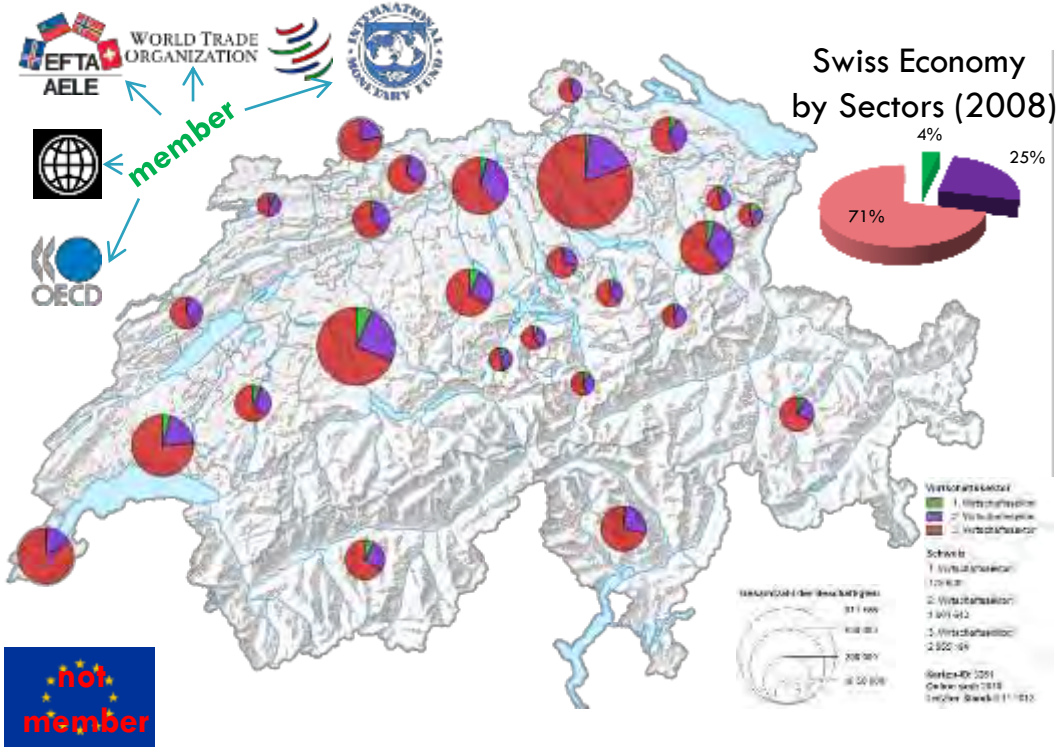
startup fsrm IFJ INSTITUT FÜR JUNGUNTERNEHMEN VENTURE KICK KICKSTART YOUR HIGHTECH BUSINESS MICRONARC csem EPFL ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich

Swiss Economy – Some Numbers

	CH	US	EU	SF Bay
Inhabitants 2010	8M	315M	500M	7.2M
GDP (2011, IMF)	0.66T$	15T$	17T$	0.52T$
GDP/Capita, nominal (2011, IMF)	83k$	48k$	35k$	72k$
GDP/Capita PPP (2011, IMF)	45k$	48k$	32k$	44k$[2)]
Unemployment Rate	3.1% (04/2012)	7.9% (10/2012)	11.1% (07/2012)	7.5 %[1)] (11/2012)
Expenditure Ratio 2008	35%	43%	47%	-
Public Debt % of GDP (IMF, 2011)	49%	103%	83%	-
Tax Rate (% of GDP)	29%	27%	39%	-

data sources: IMF, wikipedia

1) proxy data for SF/oak/frem CA MSA 2) sf.org

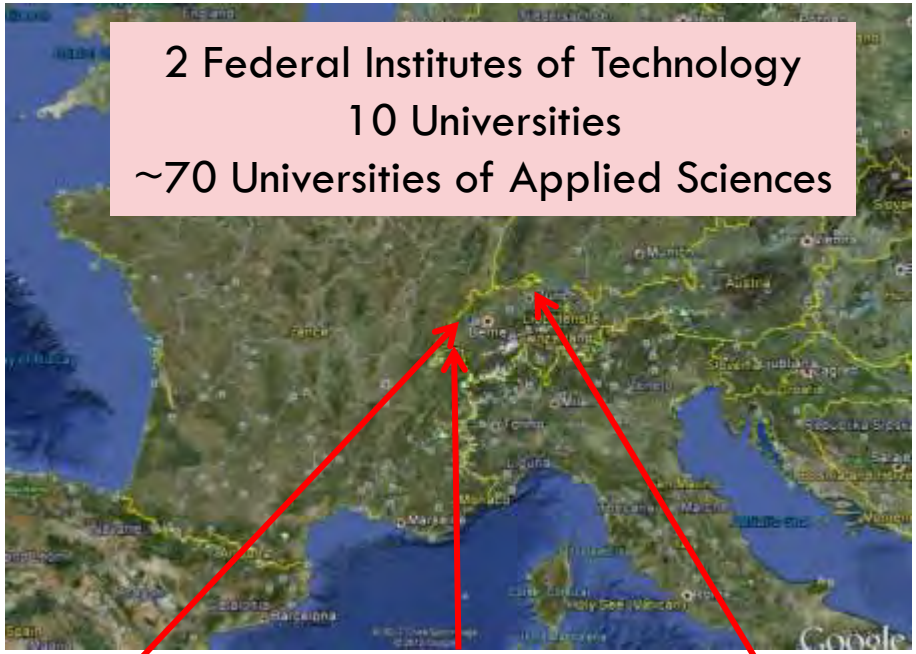


source: interactive statistical atlas of Switzerland http://www.bfs.admin.ch/

startup scene in Switzerland

Switzerland – fertile ground for startups:

- Center of Europe, 8m, multicultural
- **Political Stability, Investment Security**
- 100++ years of industry know-how
- Quality Label 'Swiss Made'
- **(General) High Level of Education**
- **Low Taxation, Efficient Administration (e.g. zero capital gain tax)**
- Investment Availability
- High Quality of Life
- Innovation Centers
- **Coaching/Transfer/Government Support**
- Tech Incubators: ETH Zürich (ETHZ), EPF Lausanne (EPFL), CSEM and others…



csem

EPFL

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Some Swiss Tech Company Names

Zurich Instruments
oerlikon
NOVARTIS
SULZER
ALSTOM
ABB Power and productivity for a better world™
serono biotech & beyond
abionic
optotune
when it has to be right
Leica Geosystems
KISTLER measure. analyze. innovate.
SENSIRION THE SENSOR COMPANY
CLARIANT
SWATCH GROUP
Ciba
Schindler
Doodle
Dacuda
syngenta
AR@ptix Switzerland
Logitech
ALPES LASERS
sercalo microtechnology ltd
greenTEG efficiency enabled
ROLEX
HILTI
Roche
PHONAK life is on
SENSIMED
COLIBRYS
phocone PHOCONE AG - LASER TECHNOLOGY
SYNTHES
kooaba IMAGE RECOGNITION
CLIMEWORKS

now: my very personal startup selection...

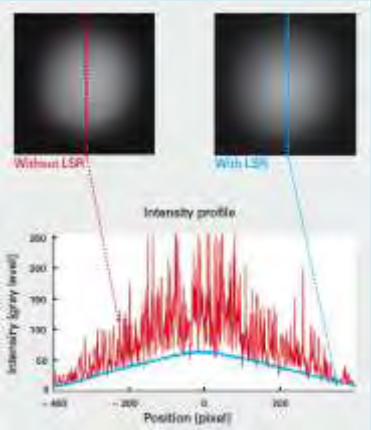
optotune

www.optotune.com

Vision ***adaptive polymer based optics as a smart, low-cost, yet high-quality alternative to traditional optics***

Products

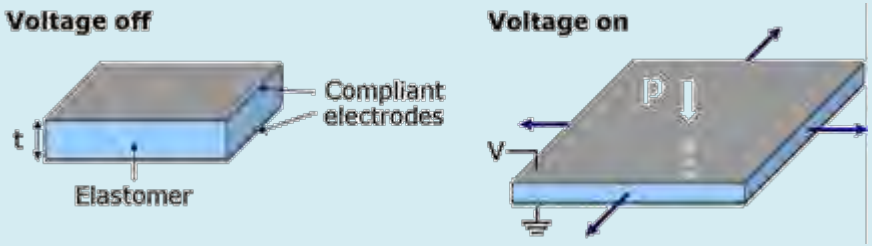
Focus Tunable Lens



Laser Speckle Remover

Core Technology

Electro-Active Polymers (EAP)



Deformable Lenses
Transmission Gratings
Refraction Gratings

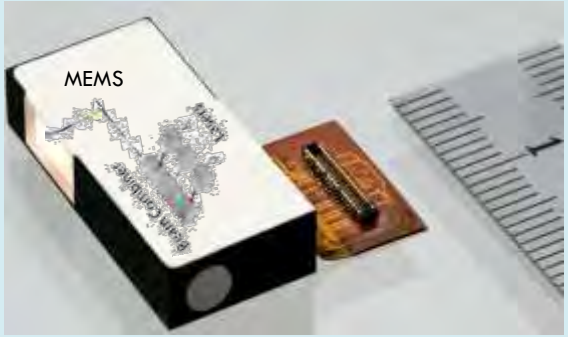
Spin-Off	ETH Zürich	2012	Top 6	2011	Top 1	Founded	2008

lemoptix

www.lemoptix.com

Vision ***next-generation (MOEMS) - based laser scanning and microprojection technologies***

Products



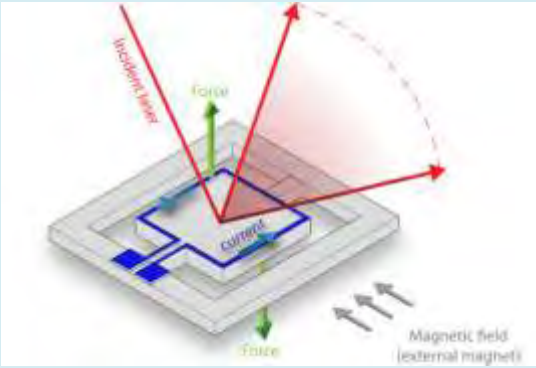
LSCAN

Individual Micromirror Module
3-24kHz, 9-18 deg.

MVIEW

"world's smallest laser microprojection system"

Core Technology



Magnetically Actuated Scanning Micromirror
CMOS-compatible actuation voltage (< 3V)
High-frequency operation (up to 70kHz)
Large scanning angle, ≤80°, with low power consumption
Embedded scanning angle sensor

Spin-Off	ETH Zürich	2012	Top 8	2011	Top 4	Founded	2006

LESS

just brilliant

www.less-optics.com

Vision ***thinner, low-power consumption displays dedicated to the future tablets and ultrabooks***

Products

- lighting solution
- optical fibre for:
- *LCD edgelighting*
- *Microscopy illumination*
- *Machine vision inspection*
- *Medical / surgical lighting*
- *Scanners and copiers*

Core Technology *(not disclosed in detail)*

- nanostructured fiber, < 200um
- spatially continous illumination
- aimed at replacing white LED edge lighting

Spin-Off	EPF Lausanne	2012	Top 18	2011	-	Founded	2012

phocone
PHOCONE AG - LASER TECHNOLOGY

www.phocone.com

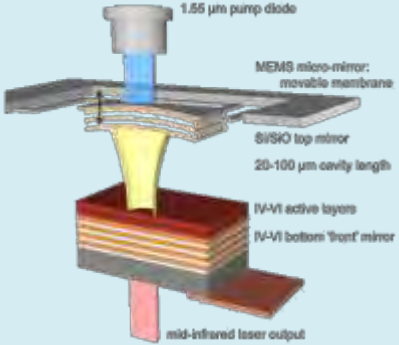
Vision ***develops and produces novel mid-infrared laser modules for simultaneous multi-gas detection***

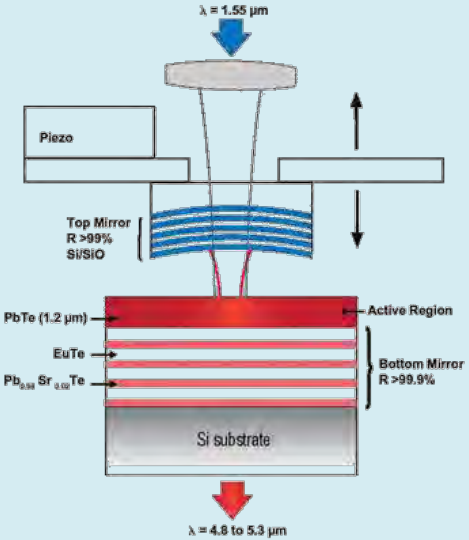
Products

- Single-mode emission VECSEL
- Mid-infrared
  Center WL 3.0 - 4.5 µm
- Continuous tuning of up 100 nm
- < 4° divergence
- Pulsed, duty cycle up to 0.1%
- Output power > 10 mWp

Core Technology

- IV-VI Semiconductor Lasers
- PbTe, PbSe
- Piezo Tuning
- MEMS Tuning





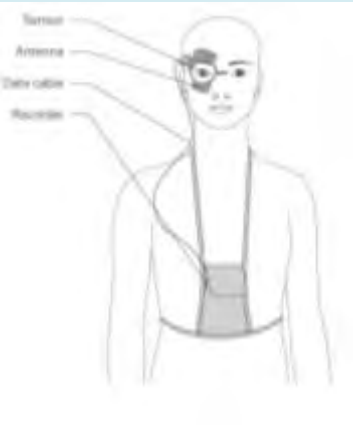
Spin-Off	ETH Zürich	2012	-	2011	-	Founded	2011

SENSIMED

www.sensimed.com

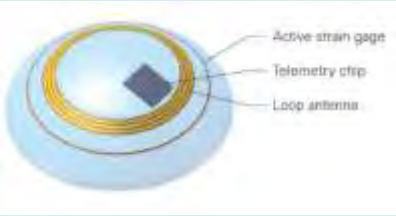
Vision ***a breakthrough solution to continuously monitor fluctuations of intraocular pressure***

Products

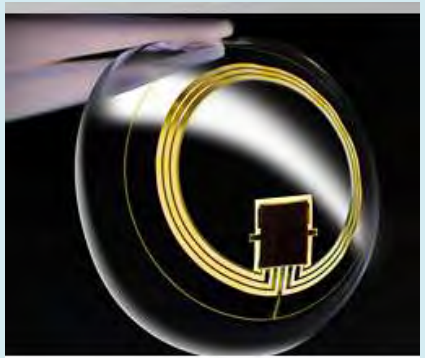


contact lens with integrated intraocular pressure sensor and wireless readout kit

Core Technology



- Strain gauge, antenna and ASIC in contact lens
- Biocompatible materials
- On-Wafer fabrication
- EU approved, US on the way



Spin-Off	EPF Lausanne	2012	n.q.	2011	n.q.	Founded	2003

SENSIRION
THE SENSOR COMPANY

www.sensirion.com

Vision

relative humidity sensors and flow sensor solutions with unique performance

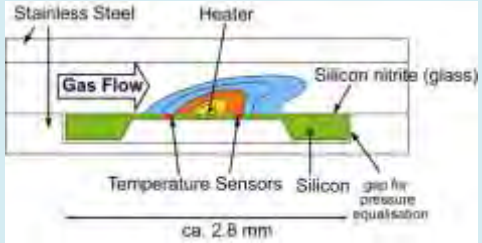
Products

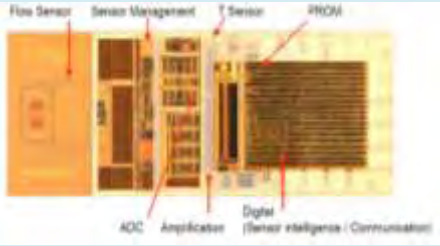


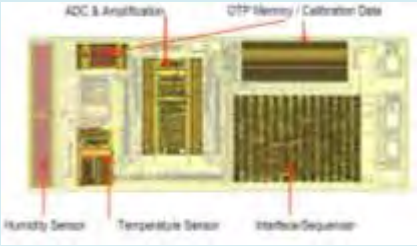


Gas Flow Sensors, Mass Flow Controllers
Liquid Flow Sensors, Differential Pressure Sensors,
Relative Humidity and Temperature Sensors

Core Technology







Relative Humidity: Capacitive (Polymer H_2O uptake)
Flow: SiN Membranes, incl. heater & T sensor
CMOS integrated (CMOS & post-processing)

Spin-Off	ETH Zürich	2012	n.q.	2011	n.q.	Founded	1998

kooaba
IMAGE RECOGNITION

www.kooaba.com

Vision ***unlock the information captured in images using sophisticated image recognition technology***

Products

YOUR VISUAL MEMORY Déjà Vu

Shortcut

- Smart Ads
- Interactive Print
- Personal Memory in the Cloud
- API (Licensing)

Core Technology

- Compares taken image with database
- Feature Recognition
- Efficient Algorithm (SURF, Server Side)
- 28M images (2011)

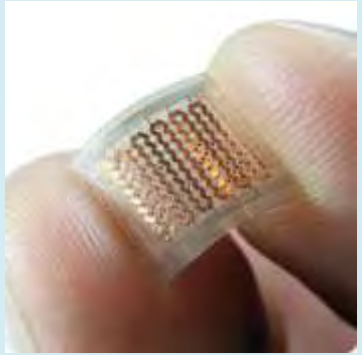
Spin-Off	ETH Zürich	2012	n.q.	2011	Top 16	Founded	2006

greenTEG
efficiency enabled

www.greenteg.com

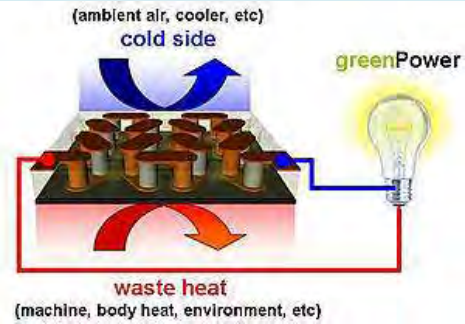
Vision ***efficient and cost effective energy conversion technology in the form of thermoelectric generators (TEGs)***

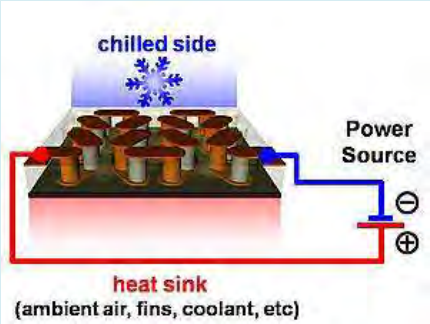
Products



TEGs and TECs on Flexible Substrates

Core Technology





Seebeck: $\Delta T \rightarrow I$ Peltier: $I \rightarrow \Delta T$

Electroplating 'thick' layers of Materials with High Seebeck / Peltier Coefficients into flexible polyer molds

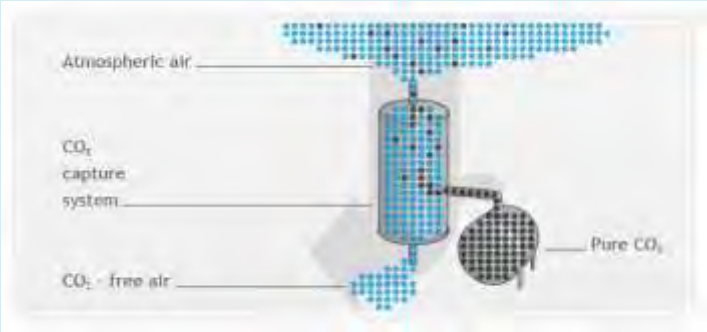
Spin-Off	ETH Zürich	2012	Top 85	2011	Top 20	Founded	2009

CLIMEWORKS

www.climeworks.com

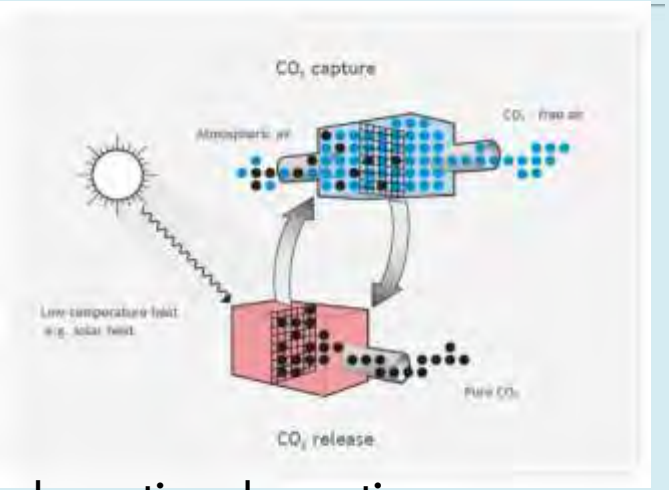
Vision ***capturing CO_2 from air to increase energy security and to stabilize global CO_2 emissions***

Products



CO_2
On-Site CO_2 Capture
Closed Carbon Cycle

Core Technology



Cyclic absorption-desorption process
Absorption – heating – desorption (by low-grade heat (e.g. solar), using silica-gel beads

Spin-Off	ETH Zürich	2012	Top 14	2011	Top 11	Founded	2009

Start your own Company!

...or find a cool job in Switzerland!

Thanks.