



Point-One

Pole of innovative technology on nanoelectronics and embedded systems

MEMSLand

Cost Effective MEMS to Develop a Sustainable High Tech Business

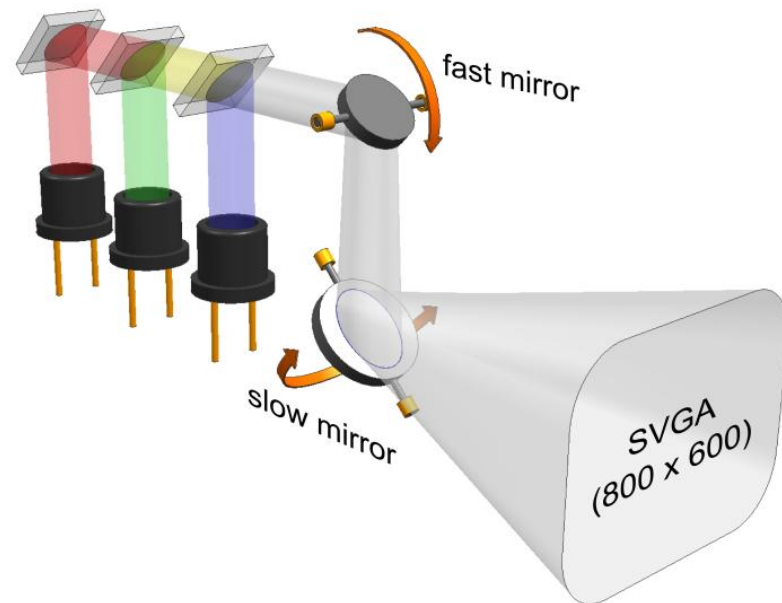
Demo10 Scanning mirror

Diederik van Lierop, Philips Applied Technologies

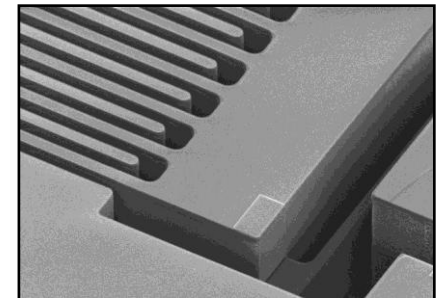
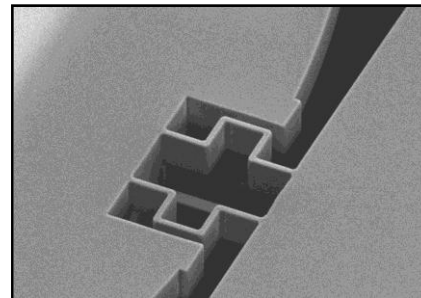
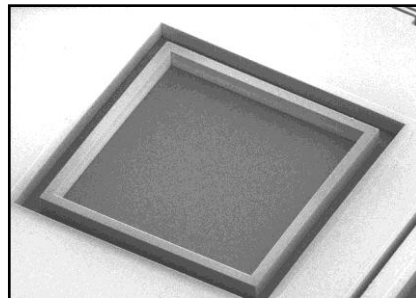
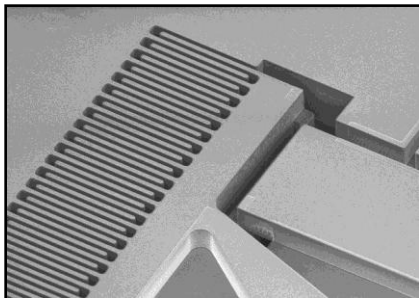
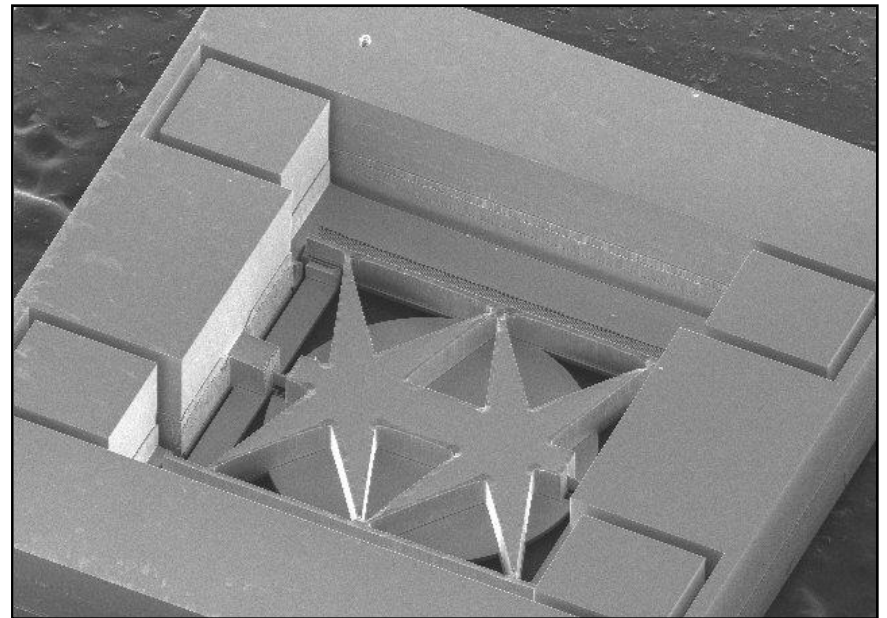
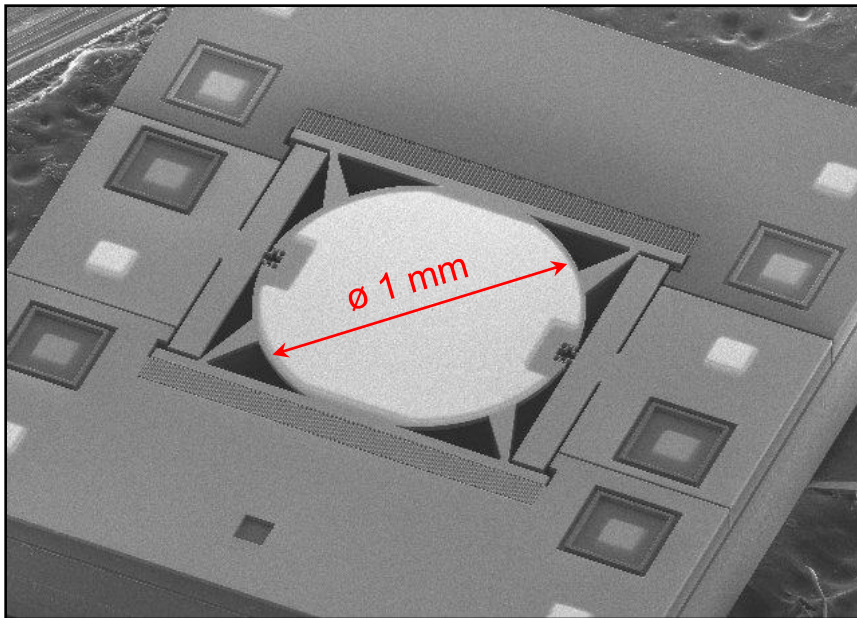
Application: Laser based displays

Cheap & small projection display only possible with lasers, requiring:

- Modulateable green laser
- Combining 3 beams to single beam
- Tilting micro mirrors



First batch realized in 2008



Dissemination

- ASPE Conference (Oct. '08)
 - poster presentation
- SPIE Photonics West (Jan. '09)
 - by far the most relevant conference
 - invited paper
 - all relevant players attended our lecture
 - our main message: 2x 1D is the most attractive solution!
 - 2D usually has an intermediate body , which adds:
 - mass, requiring more power and reducing the bandwidth
 - compliance, reducing the dynamic performance and image quality
 - area, making the a 2D mirror typically 2.5x larger than a single 1D mirror
 - 2D suffers from cross-talk
 - Single process for two very different tilting modes
 - 2D resonant: Lissajous projection affects image quality

2D has lower performance, is much more complex, and hardly realizes any gain in real-estate or overall cost!
- Euspen (June '09)

Cooperations

Results so far:

- Univ. of Twente: capacitive sensing has been demonstrated
- Bruco: closed loop control has been demonstrated!
- Silex: processing of first batch has been successfully finished

Continuing with:

- improved capacitive sensing
- extending the functionality of the control and thinking towards ASICs
- 2nd run needed

Activities

Current activities

- Continuing the fruitful cooperation with Bruco / UT
- Improving the design (suspension and actuators)
- Discussion with potential customer
- Looking for funding for 2nd run
- Looking into possibilities for commercialization
- Cost estimations

Planned:

- Upgrading our demonstrator
- Closing the loop with integrated sensor