

...k

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Gatsby Unit, Tea Talk

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My tablet got blown away by the wind. Any suggestions?



# Electronic ink (=:E-ink)

- Enables electronic paper displays (EPD).
- Pigments as in printing industry.
- Ink rearranges electronically  $\Rightarrow$  graphics.
- Creator:
  - E-Ink (<http://www.eink.com>),
  - MIT spin-off, 1997.

# How does electronic ink work?

- Electronic ink = millions of microcapsules.
- Microcapsule =
  - $\oplus/\ominus$ -ly charged white/black particles.
- $\Delta$  electric field: the
  - corresponding particles move to the top,
  - $\Rightarrow$  white/black 'pixels'.

# How does electronic ink work? - demo



- Power off: image remains.
- Consumes power only upon changing.
  - Example: eReader → page flip.
- Traditional LCD: refreshed at 60Hz.

- LCD (emissive):
  - light from a backlight,
  - projection through the display towards the eyes.
- E-ink display:
  - reflective surface,
  - no backlight,
  - more ambient light  $\Rightarrow$  brighter display.



- Microcapsules  $\Rightarrow$  E-ink film can be affixed to
  - $\approx$ any surface,
  - glass, plastic, fabric, even paper.
  - $\Rightarrow$  light + flexible displays.
- Thin:  $\leq 380 - 560\mu$ .
- Rugged: non-glass, shatterproof  $\Rightarrow$  durability.



# Sony digital paper (13", 2014, \$799)



- $\approx 357.2\text{g}$ , 3 weeks battery,  $1,600 \times 1,200$ .
- USB: drag & drop PDFs.
- Memory: 4 GB + micro SD slot.
- Wifi: WebDAV  $\rightarrow$  cloud.
- Stylus.

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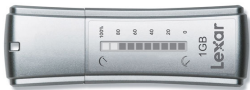
Note: Netronix 13.3" (Android, 2015, coming).

# E-ink reconfigurable keyboard (Sonder, 2015, \$199)

- Keys can change
  - appearance and function
  - application-specificly.
- Works with: PCs, Macs, tablets, smartphones.
- Connects via Bluetooth.



- Lexar JumpDrive Secure II Plus:
  - available storage space,
  - platform independent.



- Motorola's intelligent battery:
  - state of charge & health.

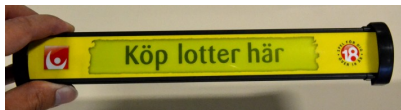


# Sony's E-paper watch (2014)

Battery life: 2 months.

# Shelf labels, E-bar, dual-screen phone

- Electronic shelf labels, changeable price tags,
- E-bar: motion sensors → advert when picked up:



- Active phone decoration, dual-screen phone (YotaPhone 2, 2014), E-ink case (e.g., boarding pass, map):



# Vikaura screen (2015, \$129-229)



- Customization from smartphone.
- Example: visualize
  - notes, photo, to-do-list, favourite recipe,
  - access feeds (daily weather, exchange rates, ...).

- Fully programmable colors and patterns.
- Example:
  - change wall/ceiling/room color instantly.
- Interactive surfaces:
  - doors: conference room = occupied?
  - wall: respond to noise/temperature.



Thank you for the attention!



# The Pen Is Mightier Than the Keyboard – Advantages of Longhand Over Laptop Note Taking: Psychological Science, 2014

- Authors: Pam A. Mueller, Daniel M. Oppenheimer.
- Task: taking notes; recall/understanding.
- Laptop users:
  - tend to transcribe lectures verbatim,
  - minimal processing/reframing.
- Hypothesis: writing stimulates RAS (reticular activating system), a filter.