Situations and Choices
Why worry about SOFTWARE power management?
NEW CHALLENGES
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NEW OPPORTUNITIES
Since we can’t use our existing techniques, what we need is a NEW FRAMEWORK for power management.
Choice architecture

Structure choices so that people make the best decisions relative to their own interests.
Situational awareness

“Knowing what is going on so you can figure out what to do.”
– E.C. Adam
Example: FatBatt

Created in 2011, FatBatt was our first foray into mobile (laptop) devices.

It incorporates both situational awareness and choice architecture.
This is the FatBatt interface. It incorporates several improvements over normal laptop power management choice architecture.

- **Improved mappings**: close the (temporal) gap between cost and benefit
- **Useful defaults**: help lazy humans make the right choice
- **Meaningful feedback**: improve response by clarifying the connection between actions and results
- **Reduced decision costs**: lower the effort of making impactful decisions

Source: IEEE Computer May 2013
FatBatt

- Power model
- Location model
- Idle model

Wireless networks
FatBatt

- Power model
- Location model
- Idle model

Running programs
Input device activity

Sleep (system/monitor)
What’s NEXT?
NEW INPUTS

New physical sensors

Better access

Off-device information
New controls

New power states
Better access
Off-device feedback
NEW MODELS
It’s time to take off the BLINDFOLD.
QUESTIONS?
Cell phones are taking over.

More than one phone per person worldwide!

Source: ITU
Cell phones are hungry!

This is only 10 years!

Source: ITU, EPA, cellphone datasheets