A low-cost visual sensor network for elderly care
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1. LittleSister
- e-Health care project: use technology to improve the quality of life of elderly people in their homes.
- In LittleSister we use a sensor network based on very low-resolution (900-pixel) visual sensors which enables monitoring of elderly people’s health and safety at home, postponing institutionalized healthcare.

2. Approach
- Distributed processing algorithms running on microcontrollers and microcomputers analyze changes in motion and behavior patterns over time and detect possible emergency situations.

3. Data capture installation
Service flat — CM, Dendermonde
- Installation date: 01/03/2014
- 10 visual sensors
- Capture duration: 12 months
- 1 inhabitant
- 83 years old
- Diabetic
- Decreased mobility

4. Distributed processing pipeline for automatic behavior analysis

5. Results of long-term behavioral change analysis

6. Conclusion
Despite significant technical challenges, low-resolution visual sensor networks are a viable solution to monitor people’s behavior at home. They provide sufficiently rich information to detect health-related behavioral changes.