

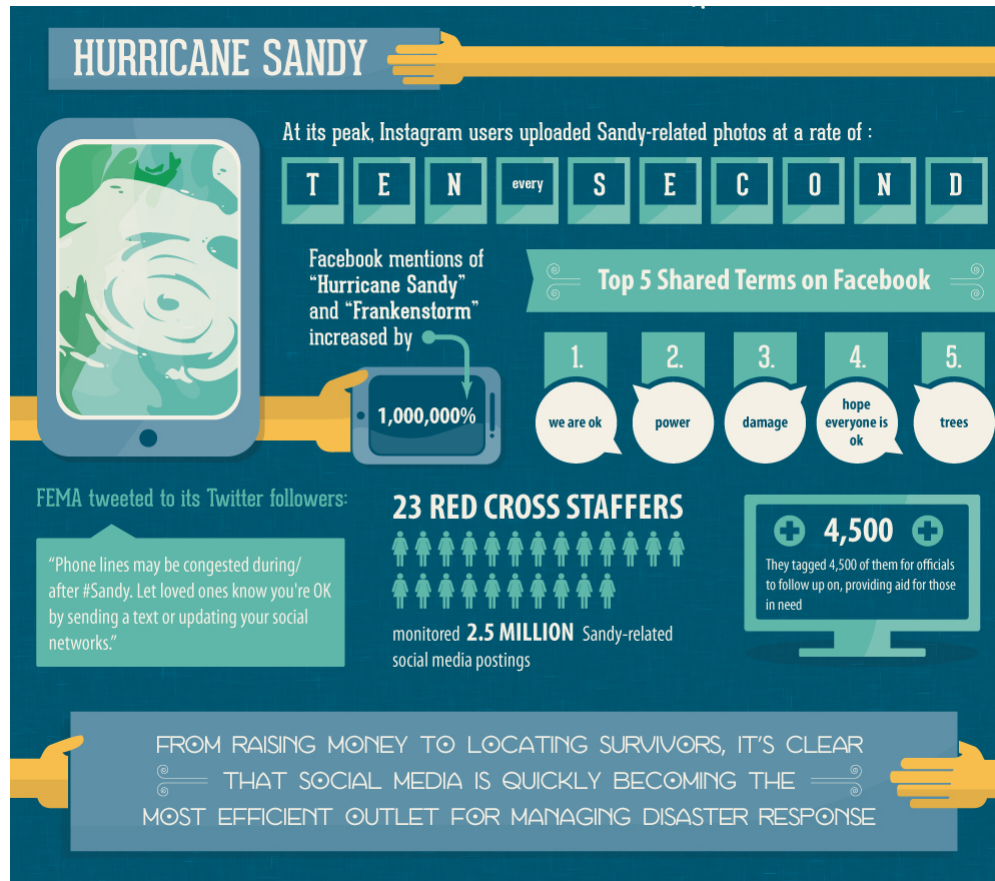


## **INTELLIGENT ALERTING AND RESPONSE USING SOCIAL MEDIA AS A SOFTWARE SENSOR**

International Conference on  
*Public Alerting and Social Media during Crisis and Disasters*  
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# We know it is used for alerting...



Courtesy: University of San Francisco Online Master of Public Administration

## ...and notification, at times in interesting ways...

"Storo: Vi fikk melding om pågående husbråk med kvinneskrik. Da vi kom fram fant vi et sykepleier-vorspiel. Vi forlater stedet snart."

Jan 11, 2013: *"Storo (Oslo): We received a message on ongoing domestic violence and women screaming. When we arrived we discovered that it was a nurse's party. We will soon leave the location." - Won the Tweet of the year competition!*

"Elgen har nå forlatt adressen, og er etter all sannsynlighet tilbake i skogen hos sine venner."

*"The moose has now left the address, and in all probability back in the woods with his friends."*

*80,000 follow the Oslo police...an excellent way of maintaining cordial relations and trust...*

## ...and then during a disaster we have mistrust...

- Hurricane Katrina – Roving gangs rumor
- Mumbai terror attacks – inaccurate information
- Hurricane Sandy – FEMA rumor control
- Boston Marathon bombings – fake requests for donations

## Social media is huge...so is the information...

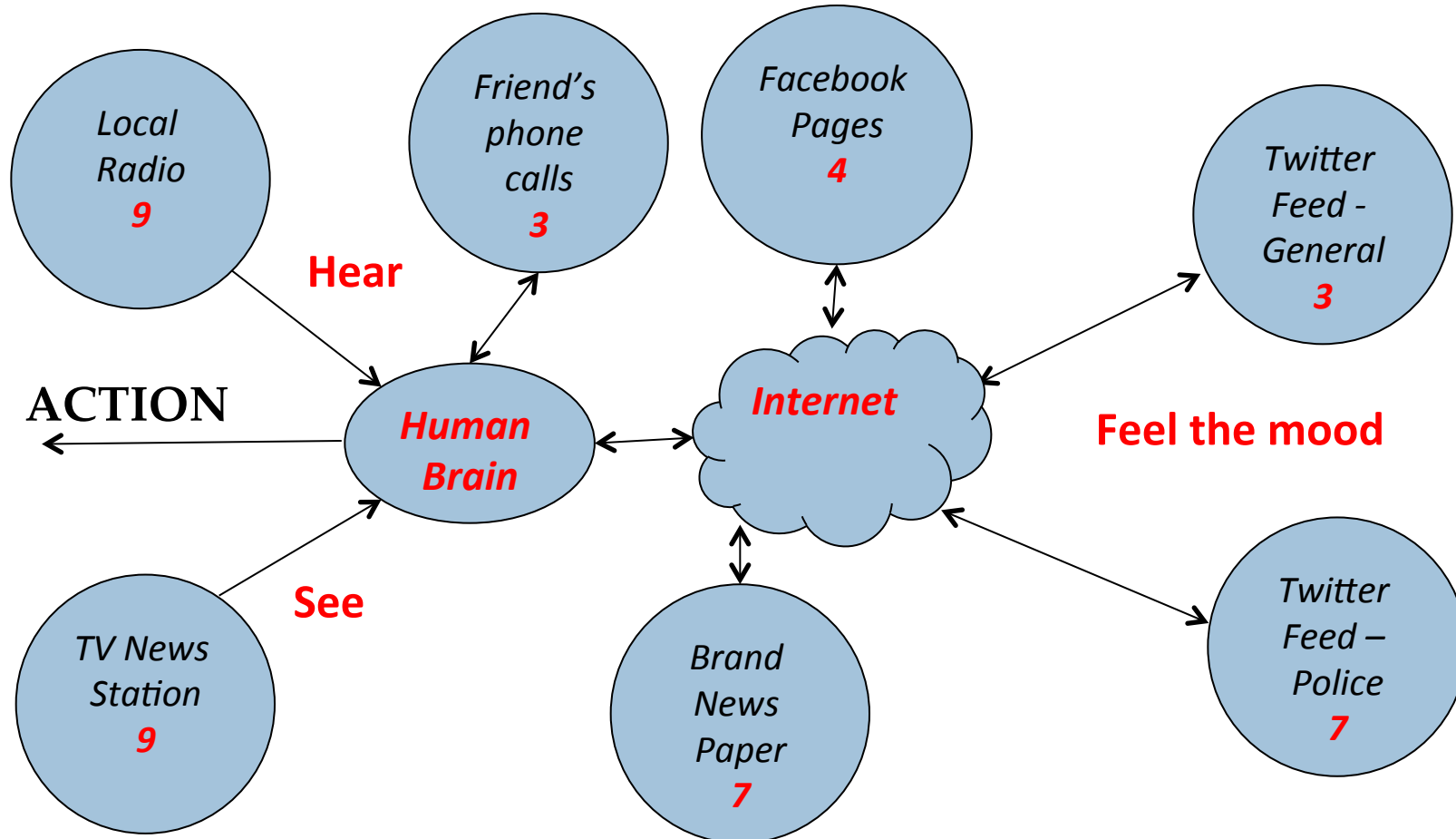
- Social Networks - Facebook and LinkedIn.
  - Bookmarking Sites – Delicious and StumbleUpon.
  - Social News – Digg and Reddit.
  - Media Sharing - YouTube and Flickr.
  - Microblogging - Twitter.
  - Blogs
- 
- We need advanced data analytics to discard defective data

## Human perception is accuracy...

- News cannot be quantified
- Accuracy for humans is based on perception
- We apply our own trust factor or a weight to a news source
- Perceptions vary...widely
- Accurate data is actionable data
- An alert and notification should be actionable!

# This is how we perceive and react...

A friend calls... "there has been a shooting at the university"...

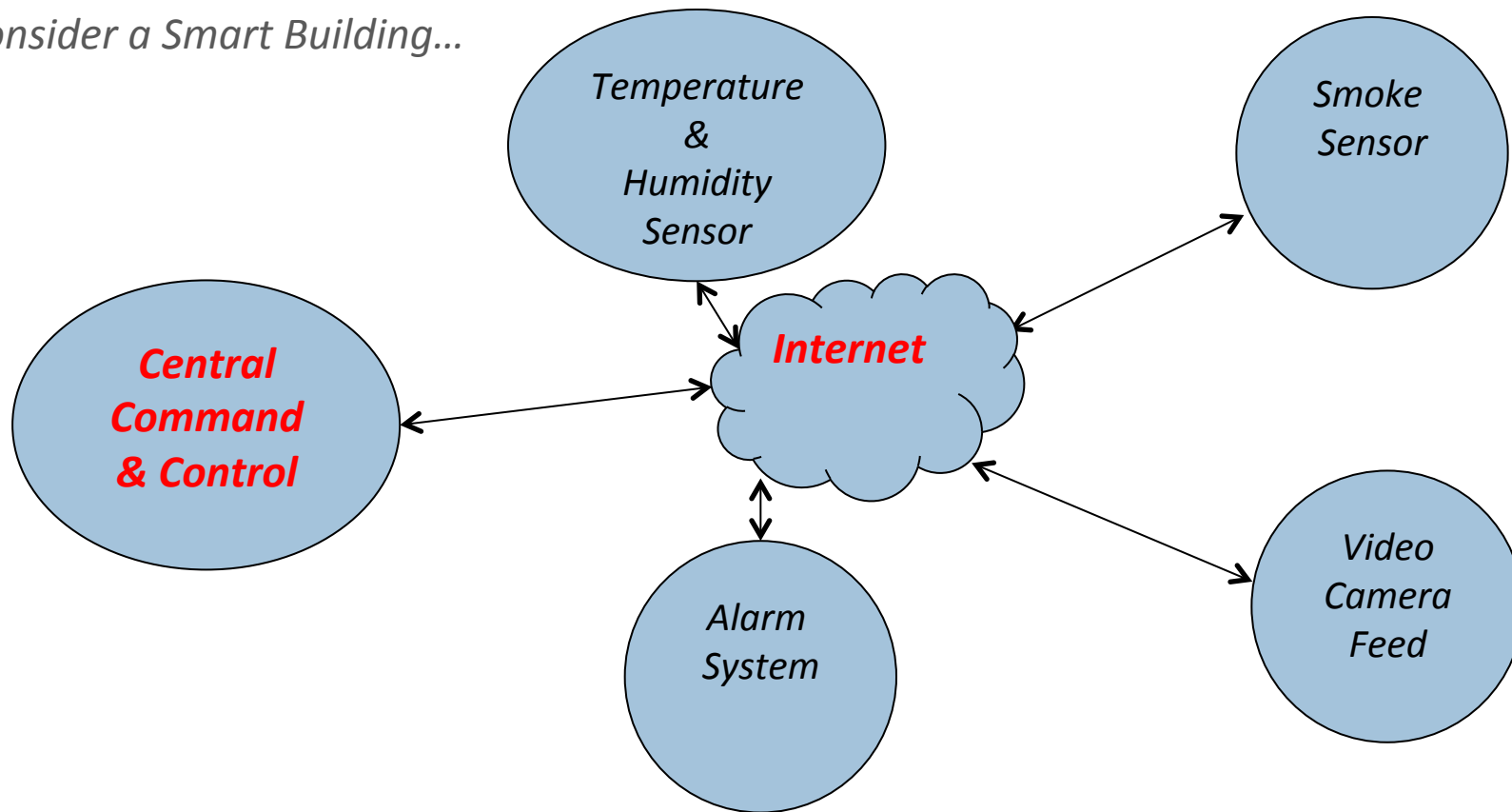


# Internet of Things...collection of smart objects

*Each smart object with its unique IP*

*At the core of each object a sensor/actuator and intelligence*

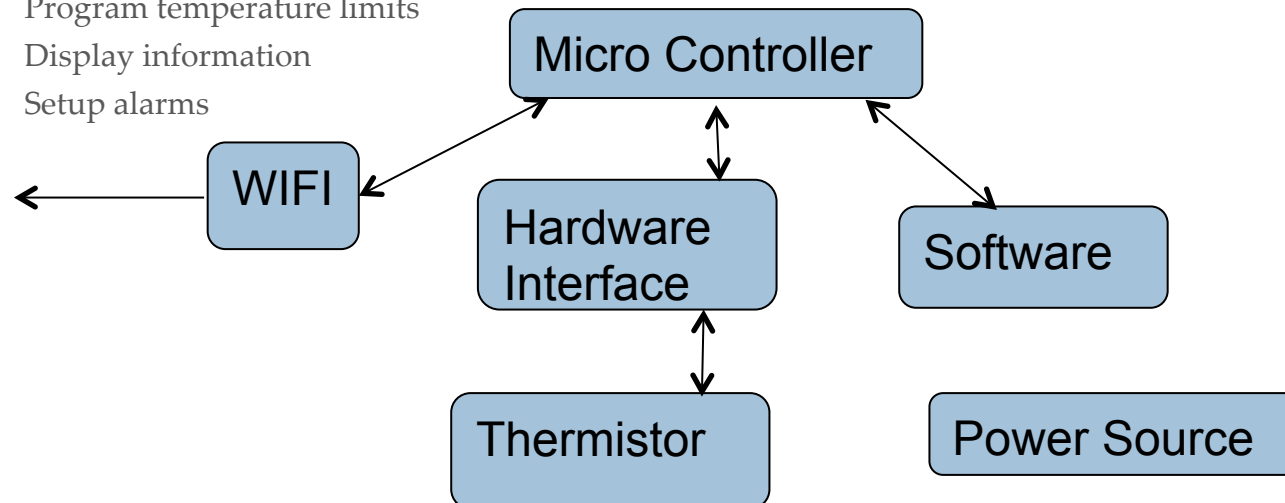
*Consider a Smart Building...*





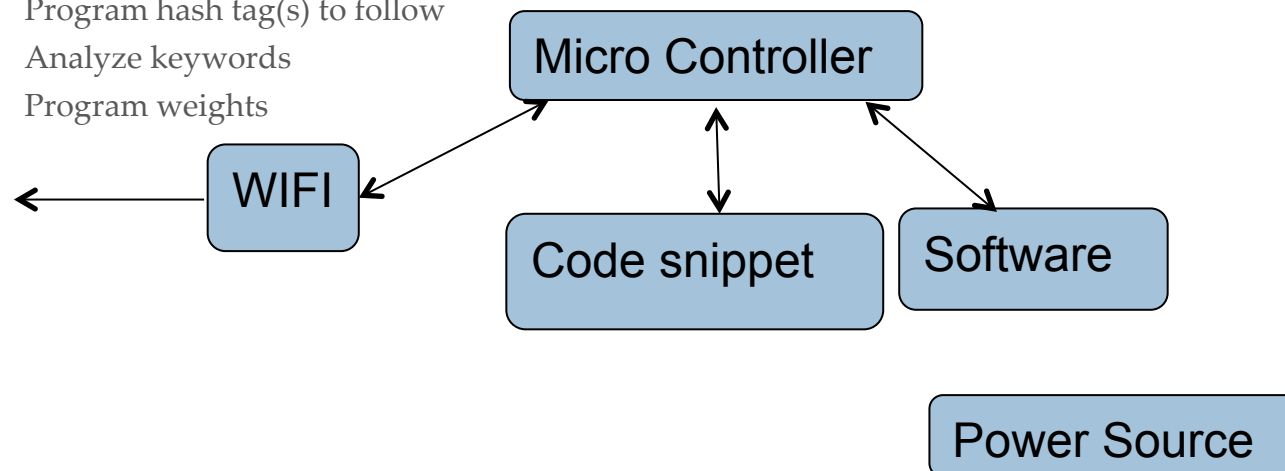
## Sensors...they sense and react...

- A device that detects or measures a physical property and records, indicates, or otherwise responds to it
- A temperature sensor, e.g. Thermistor.
  - Converts temperature to resistance, read by a Ohm meter
  - Use of thermistor as a smart object – fully self contained
  - Smarts
    - Program temperature limits
    - Display information
    - Setup alarms

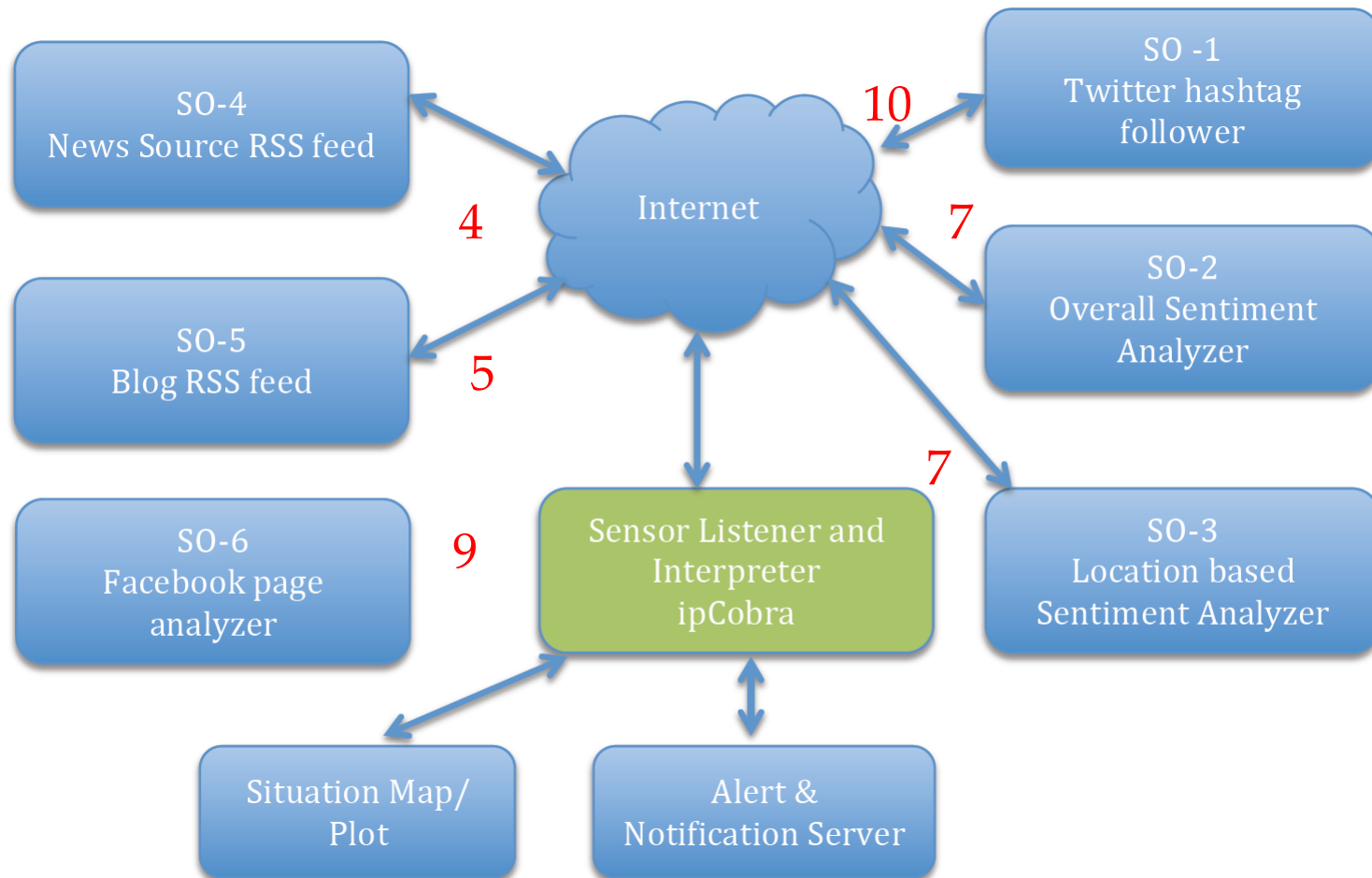


## Software Sensors?

- A device that detects or measures a physical property and records, indicates, or otherwise responds to it
- A software sensor, e.g. Twitter sensor.
  - Converts tweets to a quantified number
  - Use of software as a smart object – fully self contained
  - Smarts
    - Program hash tag(s) to follow
    - Analyze keywords
    - Program weights



# Smart Objects as Social media sensors



## At the end of it all we have...

- Software sensors as smart objects
- Add, duplicate, remove objects
- Setup specific algorithms for triggering specific response plans
- Serves all levels of emergency management
  - Early warning
  - Response
  - Recovery
- Follows the human mind
  - Multiple verifications
  - Application of weights
- Alerts and notifications now handled more intelligently
- Social Media now becomes an intelligent partner in disaster management

## Our Thanks...

- Norwegian Research Council and our industry partners
- Viral Heat for letting us use their Sentiment Analyzer in our research
- Organizers of TIEMS conference for letting us showcase our work