

# **HUMAN-ROBOT INTERACTION (NO NATURAL LANGUAGE)**

## **3. INCIDENTAL INTERACTION**

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# INCIDENTAL INTERACTION

**... where actions performed for some other purpose or unconscious signs are interpreted in order to influence/improve/facilitate the actors' future interaction or day-to-day life** (from Alan Dix)

- The interaction is not purposeful from the person side, but it is designed “to happen”
- It “happens” in relation to signs which are not done for that (body temperature, unconscious reactions such as blink rate, or unconscious aspects of activities such as typing rate, vocabulary shifts (e.g. modal verbs), actions done for other purposes, ...)
- It is *designed* to happen
- It is designed for people acting

## II EXAMPLES

- car lights that go on when the door is opened
- room lights that go on when entering in a room (and stay on so long as there is movement)
- auto-flush toilets
- bio-sensors used for dynamic function allocation
- active-badges



**...and, in the computer domain:**

- adaptive interfaces
- automatic 'help' systems such as the Microsoft paper clip
- other forms of 'auto-completion' or automatic macro creation interfaces
- e-shopping systems that recommend alternative purchases based on your previous shopping basket (e.g. Amazon)

# AWARENESS

|          |                   | Intention           |                        |
|----------|-------------------|---------------------|------------------------|
|          |                   | Purposeful          | Accidental             |
| Modality | Sensing Actor     | Conventional Input  | Incidental Interaction |
|          | Influencing Actor | Conventional Output | Awareness/Ambient      |

# AN EXAMPLE: CAR COURTESY LIGHTS

What does the car need to sense?

What should the car do?

What kind of timing?



# AN EXAMPLE: MEDIACUP

**Sensors in the base of the mug**

**What could they be for?**

**What is the purpose?**

**What could they sense?**

**How could this be interpreted?**

**How could this information be used?**



# A LAST EXAMPLE: XEROX PEPYS

**Active badges (early '80s) able to send signals to IR receivers in the vicinity, within the whole building: people tracking**

**What could be recorded?**

**What could the system infer from those data?**

**Why was it abandoned after a short trial (and in Italy anybody never had the possibility to test it)?**



# DESIGNING INCIDENTAL INTERACTION

- **Purpose:** what is it for?
- **Modality:** how can it be done? Sensors, actuators, decisions
- **Presentation:** what should be explicitly presented to the user? Co-option
- **Privacy and opportunity:** is this interaction useful/desirable?
- ...

# LET'S TRY....



Let's focus on a smart home, and on getting back home after a hard day (Minority Report).

- What kind of incidental interactions might we have?
- What do we need?

