Interaction Design

Interaction Design Approaches

revised version of Marco Loregian's talk

How to face a problem?

A problem is an opportunity

- It exists very different approaches that are appropriate for very disparate situations
- The best designers are able to adopt different approaches (alternately or concurrently); however, in general, a designer mainly uses a single approach
- Actually, it is right to adopt the preferred approach

ID Approaches

- User Centered Design (UCD)

- Activity Centered Design

- System Design

- Genius Design

User-Centered Design
UCD

Users know best

We don't design a service without involving the people that will use it

Who are the users?

The users are not the people designing the system, rarely they are similar
"You are not the user!"
The identification with the user is not enough! The designers suffer for their preferences and false believe

Talk:: Observe :: Conceive

In all phases of the project

UCD

Users know what their needs, goals, and preferences are… designers must find out those things and design for them

- Designers should try to fit products to people instead of the other way around (PCs have been designed in the wrong way!)

- In the best UCD approach, designers involve users in every stage of the project (see participatory design)

UCD in short

- UCD focus on user needs and goals

- Users are the guides of design

- Designers are the translators of user needs and goals

Activity-Centered Design

The focus is on the activities, on their purposes and on the instruments used by the users to accomplish them; differently from UCD which focuses on the users' goals

For example: the objective of a gardener is to obtain a clean and ordered garden which is nice to see. Instead, the purpose of using a rake is to collect the leaves.
ACD focuses on designing the instruments to collect the leaves

ACD

- This approach can be appropriate when particularly complex activities are involved

- In fact it is easier understanding the purposes of the activities instead of trying to understand the goals

- Sometimes the *objectives* and the *purposes can coincide or be very similar*
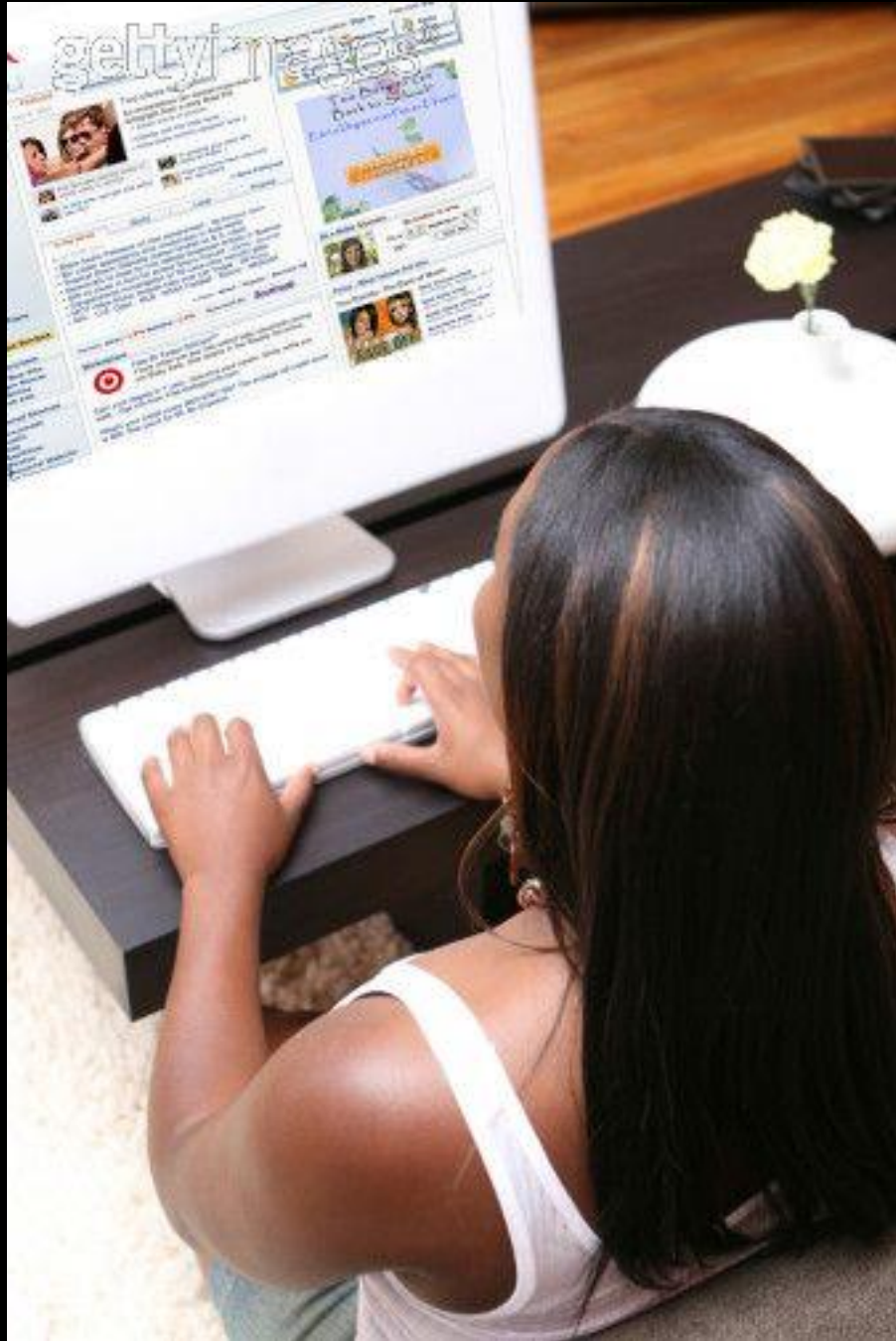
The design centered on the activities is a typical approach for designing:

- Online systems
- Appliances
- Systems with well defined workflow

The duration of the activity plays an essential role; e.g.: listening to music versus withdrawing money with the debt card

ACD

- The activities consists of actions and decisions, often named task; each single task is an instant of the life of an activity

- The most complex tasks are practically sub-activities

- For example, in order to make a phone call is necessary to find the phone number (task); however, it is possible to find the number in many different ways and some of them are quite complex

ACD

- The user is still part of the design phase
- The designers try to understand their behaviors (not the goals and the motivations)
- After the formalization of the behaviors, the designers fill the "holes" and finally search for suitable solutions for completing the tasks (not solutions achieving the goals)

ACD in short

- ACD focus on the tasks and activities that need to be accomplished

- Users are the performers of the activities

- Designers create tools for actions

ACD

The risk of this approach is of being too focused on "small" things without sufficiently taking into account the whole project
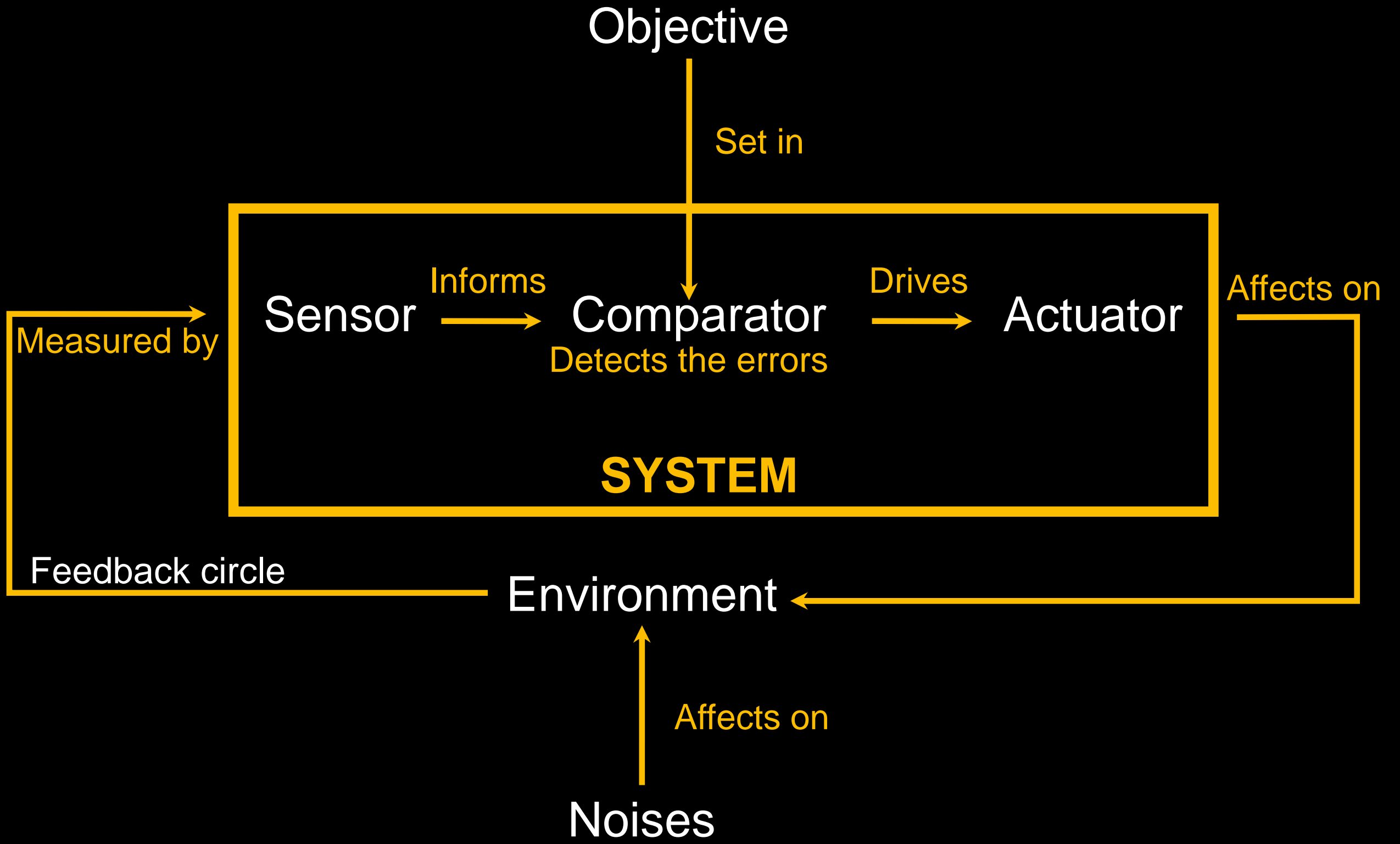
System Design

- An analytical way of facing design problems: it uses a fixed organization of components for building the solutions

- Differently from the UCD which focuses on the user, in system design the focus is the system as a complex entity

- The system is not necessarily a computer, but it can be composed by people, devices, further systems

- This approach works well in complex cases

The system design adopts a structured and meticolous metodology
This approach does not underestimate the goals and needs of the users; however, the attention is posed on the context of use and not on the individual objects

Components of the system and

of the methodology:

1. Objective

2. Sensor

3. Comparator

4. Actuator

Objective

Set in

Informs · Drives

Sensor → Comparator → Actuator

Detects the errors

Measured by

Affects on

SYSTEM

Feedback circle

Environment

Affects on

Noises

The Objective of the whole system (not of the user, even if it can be derived from this one)

The objective states the ideal relation between the system and the environment in which it lives

The environment is everything around the system

, …

Sensors: the ways in which the system observes the changes in the environment

Some changes are obstacles and unexpected

The comparator embodies the internal objective of the system, it compares the actual state with the wanted state

Whatever difference between the two states is considered an error

The actuators are the components which can make the changes on the environment

Genius Design

- It is based on the intuition and on the experience of the designer

- There are organizations which do not make research with the user

But not always things go right
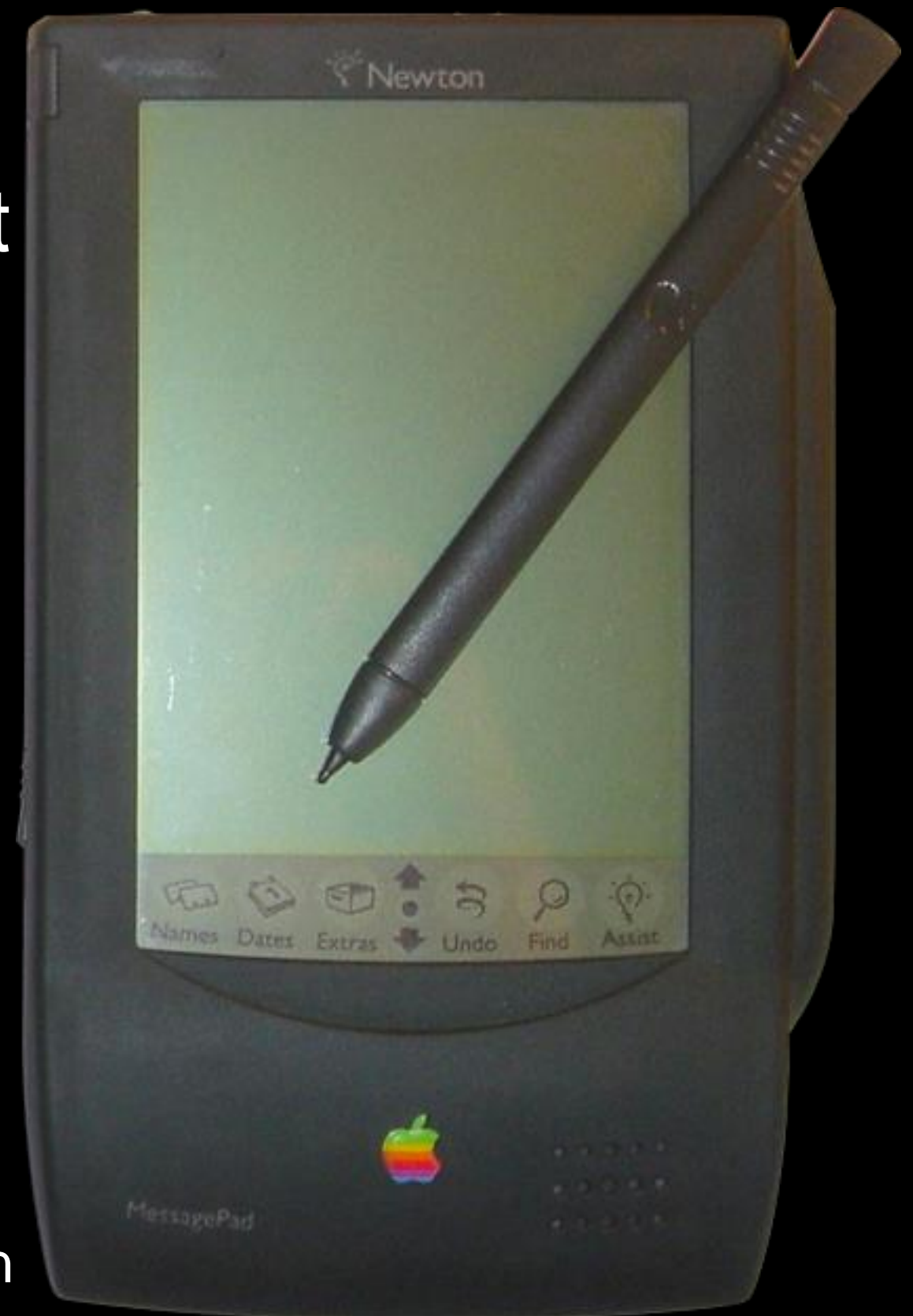
Apple Newton

Genius ID

- Designers use their knowledge and judgment to determine users' wants, and needs

- User involvement, if any, comes at the end of the process (test)

- The most adopted approach in ID

Genius ID

Motivations: it is the simplest to use; lack of money and time does not allow the other methods; the need of maintaining the privacy of the product (Apple?), …

Risks: inability to complete a satisfying project; impossibility to point out important features or problems; non-acceptance of the project by the users; ...

Genius ID

- The Genius ID approach can be appropriate if the designer:
    - Is a potential user (but must be careful)
    - Has a lot of experience
- It MUST NOT be used by inexpert designers (typical approach used by the students!! They adopt Genius ID because it is the simplest and fastest approach; e.g. they don't want to make users' interviews)

A couple of examples to discuss

Some clarification on:

Genius Design, UCD and users

Genius Design, UCD and users

- *The projects start because there is something which doesn't exist or doesn't work* (recall)

- Many innovative projects start from an idea of the designer and not from a request of the users

- Therefore the users, in these cases, join the project a little bit later (in order to refine the idea, to verify the preferences, …)

- In the following we see a couple of examples

Some Students Ideas:
Visual Message System

The problem

The proposed solution

By Elisa Bordoli, Serena Leggieri, TTC, '09-10

Some Students Ideas: Visual Message System

- After the conception of the idea other than doing the canonical studies (ergonomics, usability; e.g. condition of light, readability of the font) *persona* and *scenarios* have been sketched

- The potential users have been involved in some experiments especially to verify the preferences
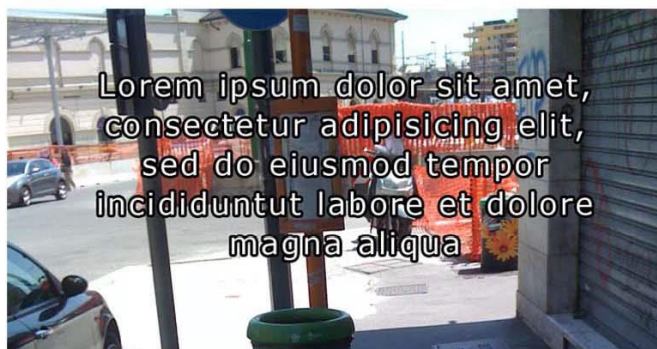
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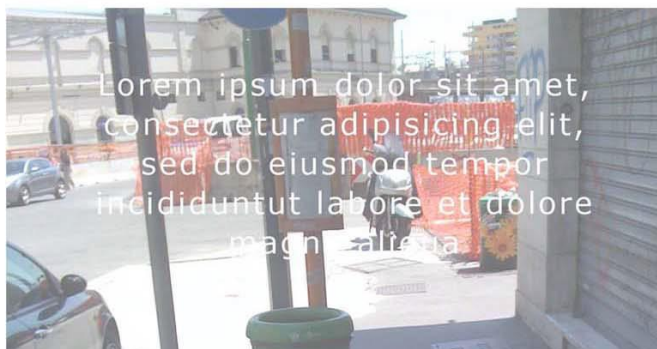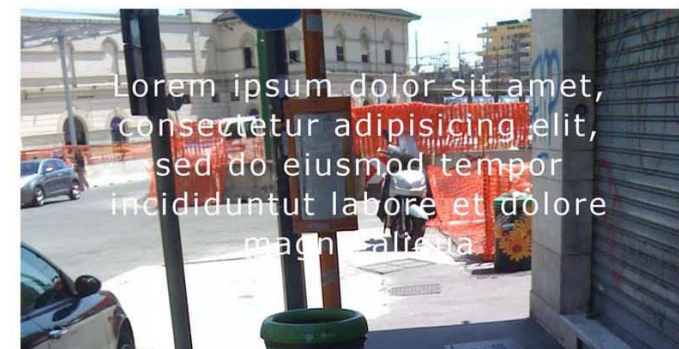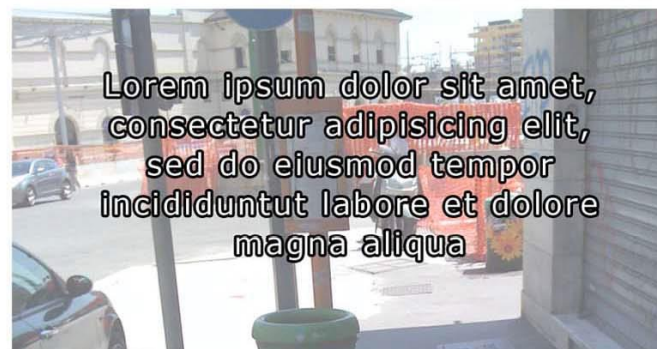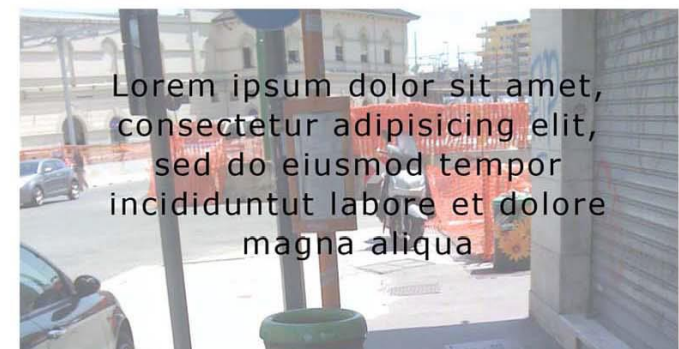
Some Students Ideas: TesserOne

The problem

The proposed solution

By Deprà Elena, Salemi Elena, TTC, '09-'10

Some Students Ideas: TesserOne

"Our application is addressed to women of any age which love shopping. The colors and the look are devoted to this target users."

This is one of the rare cases in which the target user and the designer *almost* coincide; it is *nearly* adequate to involve the users at the end of the project

Further Students Ideas: Trap Examples

- Some cases can lead to trick, for instance:

  - Interactive application for museum

  - Motivator for study on mobile phone

  - The smart shopping cart, the smart fridge …

- The users for these products are too various for basing the design on own preferences; it is not possible to arrive to a valid result