

ELEVATORS ADVANCEMENTS FOCUSING ON USERS

Madrid, April the 2nd 2009

Because the population is
diverse



**DESIGN FOR ALL....UNIVERSAL DESIGN,
INCLUSIVE DESIGN, DESIGN D'UTENZA
AMPLIATA, etc....**

- Design for All is the intervention in environments, products and services with the aim that everybody, including future generations, regardless of age, gender, the capabilities or cultural background, can participate in social, economic, cultural and leisure activities with equal opportunities.

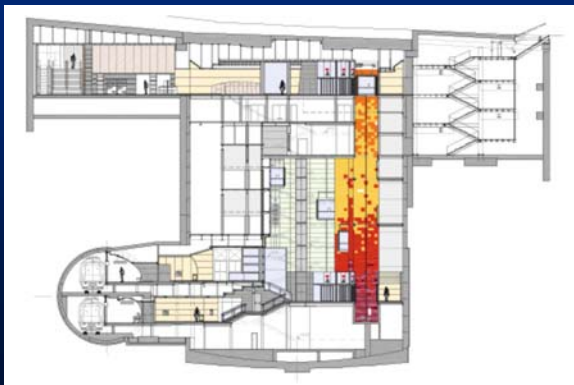
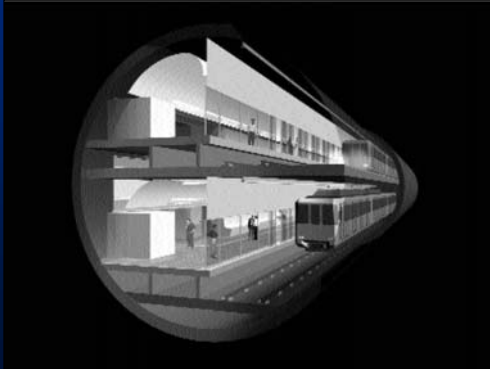
LINE 9 OF THE BARCELONA METRO

AIMS

- Apply the latest technological advances to achieve the most modern and long automated "driverless" line in the world.
- Meeting the demand of passenger transport, offering a service that is safe, regular and fast, with high quality, comfort and customer attention, while minimizing operating costs.

FEATURES

- 42 km. in length and 47 stations –15 of them intermodal.
- A fleet of 50 driverless cars, continuous, with 5 wagons, that at maximum speed of 80 km/h will reach commercial speed of 33 km/h.
- Depth between 60 and 80 m.
- Access by the public has been solved with a special configuration of the tunnel-station pair.



FACING USER DIVERSITY

PRO solutions

視覚障がい者を自動認識して
高い利便性を提供するエレベータ

Really? Elevators that Automatically
Recognize Visually Impaired Users!

株式会社日立製作所 デザイン本部
Design Division, Hitachi, Ltd.
久保田 大栄
Taei Kubota
Oct. 2006

PRO solutions

1-1 視覚障がい者の不便さ
INCONVENIENCE TO THE VISUALLY IMPAIRED
タッチセンサ式のボタンが使いにくい
UNFRIENDLINESS OF TOUCH SENSOR BUTTONS

1-2 視覚障がい者の不便さ
INCONVENIENCE TO THE VISUALLY IMPAIRED
運転状況がわかりにくい
DIFFICULTY IN DETERMINING
THE ELEVATOR DIRECTION

DIFFICULTY IN RECOGNIZING THE BUTTON ARRANGEMENT
ON THE CONTROL PANEL

旧配列 Old arrangement
新配列 New arrangement

PRO solutions

2-2 公共機器とユーザカスタマイズの手段
PUBLIC EQUIPMENT AND DESIRABLE USER CUSTOMIZATION

- 専用の手段を設ける
Special button for visually impaired
- 識別タグ等を利用する
Non-contact IC card held by a visually impaired
- 機械側で自動認識する
Automatically identify visually impaired by machines

あなたは目が見えないの
ですね？
OH!

Really? Elevators that Automatically Recognize Visually Impaired Users!

PRO solutions

TOUCH SENSOR BUTTONS : He touched both the up and down buttons by mistake without being aware of it.

PRO solutions

Continually touching the surface before reaching the target.

HYPOTHESIS

周辺から連続した接触による

The visually impaired search the area that surrounds the buttons and continual touch the surface before reaching the desired button.

PRO solutions

3-5 プロトタイプと実験
PROTOTYPE AND RECOGNITION TESTING

視覚障がい者 N=8 暗眼者 N=64

Totally blind user A user with guide dog Not visually impaired

CONCLUSION

- The study indicates the viability of an automatic system to distinguish between visually impaired and unimpaired users with a very high level.
- This recognition system takes advantage of behavioral characteristics. It is effective in assisting users who are unable to derive any benefit from visual information.
- This system does not require the installation of any new special button and enables the elevator to be operated in the regular manner.

- The system is switched to the customized mode only when a visually impaired user is identified. In this way, the over all operation efficiency is maintained. The system can be introduced on quiet environments. And it provides the visually impaired with easier-to-understand information, ease of use and safety.
- The system has very simple architecture

REGULATIONS IN CATALUNYA

- Emergency telephones must be able to receive SMS from mobiles, show the number and answer an SMS to the telephone of the deaf person.
- Panoramic view lifts must have a dull corner for people who suffer agoraphobia to look at a concrete point.
- All multi family buildings will have lifts.

TIBIDABO AMUSEMENT PARK



EL FIGARÒ (Town of Catalonia)



WHAT IS PROASOLUTIONS

- ProAsolutions is a Architectural, Engineering and Design Consultancy, specialising in the sector of Accessibility, Mobility, Sustainability, Usability and Design for All. It collaborates with administrations, companies, professionals and organisations at European level, with the aim that their spaces, products and services are constructed according the requirements of the diversity of users and having been verified and put into service, then adjusted satisfactorily to these needs that involve the diversity.

THANK YOU VERY MUCH

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