

Safety Critical Interaction: Usability in Accidents and Incidents

Philippe Palanque, LIIHS-IRIT,
University Toulouse 3, France

Chris Johnson, Dept. of Computing Science, Univ.
of Glasgow, Scotland

Fabio Paternò, ISTI-CNR, Pisa, Italy

Gerd Szwillus, Institut für Informatik, University
of Paderborn, Germany

Peter Wright, HCI Group, University of York, UK



Outline of the SIG

- Short introduction about the SIG (10 mn)
- Short presentations (40 mn)
 - Human error assessment methods (Peter)
 - Accident Analysis for HCI (Chris)
 - Task Modeling for Safety Critical Int. Systems (Fabio)
 - Reliable Safety Critical Interactive Systems (Philippe)
- Interactive Discussion on the Research Topics (20 mn)
- Interactive Discussion how to increase CHI community interest/participation (20 mn)



Introduction

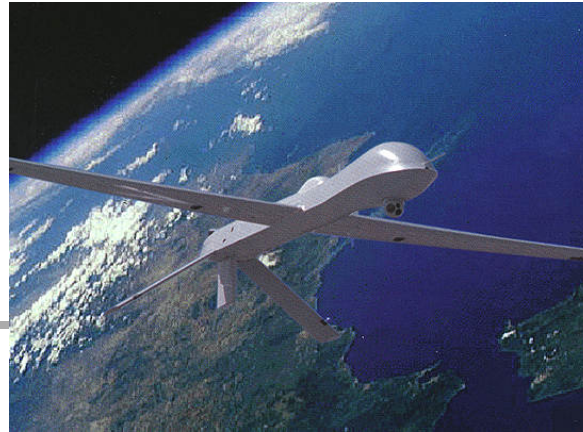
- Give a general overview of some of the topics related Safety Critical Interaction
- Present in some more details some of these topics
- Define what a safety critical systems is



Safety Critical Systems

- People life is at stake
- Cost of a failure much more important than the cost of the development of the system
- Failure must be avoided
- Usually human in the loop
- Error will occur thus system must be error-tolerant

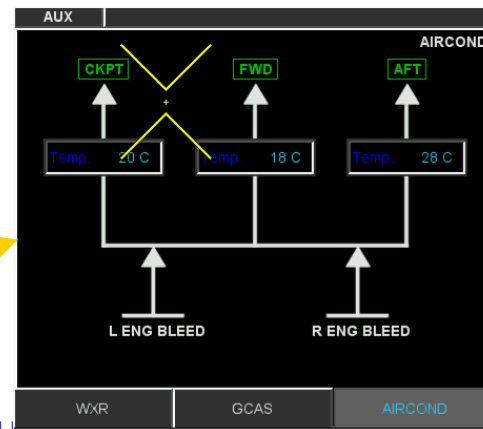
Command and Control



ATM Drones



Cockpits





Presentations



Questions?

- What are the specificities of UIs of safety critical error-tolerant? What type of research exists?
- What is usability in a safety critical context and how to evaluate it?
- How to analyze and prevent human error through system specification and implementation. Possible classifications of human errors improving their understanding?
- How to guarantee the safety and reliability of the possible interactions in a safety critical context?
- How to design for robust co-operation among the users in technologically mediated work?



Provocation

- Safety-critical HCI is called Human Factors and they have their own conference. Can CHI contribute anything at all?
 - Nothing: wrong venue. But usability issues in systems
 - Participatory design already in use for SCS
 - Involve more HCI people in Acc. An. Boards
 - These systems require more theoretical basis
- Toy application is at the opposite of SC domain. Most development techniques would not be acceptable/accepted.
- What about the use of toys while interacting with an interactive SCS? Should the systems be re-designed? Hard to evaluate what is gained and lost



Experience Reporting

- US dept. of energy try to introduce new technology – regulatory obstacles (Ron Boring)
- Medical Area – users find shortcuts if usability is not good enough ()



How to Involve more CHI Community?

- Is it the right place?
 - Looks quite reasonable as about 50 participants to the SIG
- What is the point in doing so?

Announcements (1): ADVISES

- **A**nalysis **D**esign and **V**alidation of Interactive **S**afety-critical and **E**rror-tolerant **S**ystems
- Research Training Network
 - Funded by the European Commission
 - Inter-disciplinary
- Tutorials from each site
- <http://www.dcs.gla.ac.uk/advises/>



Announcements (2): Conferences

- HESSD conference series (Human Error, Safety and Software Development)
 - Toulouse, France, August 22-27, 2004
 - <http://lihs.irit.fr/hessd/>
- DSVIS conference series (Design Specification Verification of Interactive Systems)
- IFIP WG 13.5 on HESSD
 - Send Email to join the mailing list (palanque@irit.fr)
 - Related to several conferences on Safety Critical interaction: IRIA (Incidents Reporting and Incidents Analysis) or SAFECOMP (Safety in Computing)



Information Sharing

- Preparation of a mailing list
- Preparation of a web site for the SIG