

Notification vs. Alarm Reading Notes

“What Constitutes a Well-Designed Alarm System?” (Thunberg)

- Well-designed, user-friendly alarm = maintains safe and efficient operation
- Consistency between new system and existing system > need to follow design guidelines - modernization = extension/improvement of old system
- Questions that arise in upgrading alarm systems:
 - How is operator affected by intro of new tech?
 - What design guidelines are important?
 - Are deviations from existing system justified? What are the deviations?
 - Specific conditions to consider?
 - What new ideas are applicable?
- Alarm definition = “signal indicating abnormal or deviating condition”, “should require a physical or cognitive response”
- Alarm system should: alert, inform about nature, guide initial response, confirm
- Guidelines:
 - Timely, relevant, unique, prioritized, understandable, diagnostic/advisory, manageable
- Definitions of alarms/division of alarms into different levels of urgency
- Design alarm system to be connected to overall control system
- Alarm control functions: silence, acknowledge, ringback, reset, reflash

“AMON: A Wearable Multiparameter Medical Monitoring and Alert System” (Anliker)

- If everything is ok, user is informed, and if a health parameter is out of range, alarm is sent to medics -- alert system without alarm noises to maintain confidentiality

“Analysis of Wearable Interface Factors for Appropriate Information Notification” (Kostov)

- Notification systems should work autonomously and not require additional time
- Timeliness and reliability without being intrusive
 - Notification as a low urgency alert - single tone, harmonic

- Context-sensitive, notification also as a speech event and/or designed ringing tone or a tone effect

“Monitor Alarm Fatigue: Standardizing Use of Physiological Monitors and Decreasing Nuisance Alarms” (Graham)

- Alarm fatigue happens when large amount of monitor alarms overwhelms medical staff
- False alarms occur often because cardiac monitor algorithms are purposefully set for high sensitivity
 - Probability of response to alarm is lower if false-alarm rate is high

A Critique of Design Approaches for Notification Systems (Terrell)

- Notification systems = applications that are not the primary user task, provide reaction and comprehension without unwanted interruption
 - Continuous displays and alarms
- Scenario-based design works best

Again?!! The Emotional Experience of Social Notification Interruptions (Paul)

- Notifications = useful service provided to help users maintain awareness of events/info while focusing on other tasks
- Auditory or haptic cue that gains user's attention, interrupting user while they are engaged in other tasks but not being distracting or emotionally draining
 - Notification sound should create satisfaction and awareness, not alarm
- Think of email notification alert, or text message alert tone

Thoughts

- Alarms are meant to disrupt, whereas notifications are meant to interrupt but not distract
- Alarms inevitably create emotional distress, while notifications should not
 - Logical to have either a singular tone/pulse or use harmonic regularity - thinking of how phone ringtones can be customized to be songs or harmonic melody