CONTEXT AWARENESS & ITS IMPORTANCE IN UBICOMP
Anita Foley
OVERVIEW

- What is Ubiquitous Computing?

- What is context awareness and why is it important for standard users?

- Four primary context types: Location, Identity, Activity and Time

- Importance of context awareness for users with disabilities
  - Assistive Technologies
  - Design Process of Assistive Technologies
  - Ubiquitous Computing ATs
UBIQUITOUS COMPUTING

- Proactive
- Invisibility
- Adaption
- Security and Privacy
PROACTIVE

- Track and record user intent
- Predict system actions that can help user
- Allows system to remain invisible
- Important balance

Example:
  - Microsoft Office Assistant
ADAPTION STRATEGY

- Needed adaption strategy for changing environments
  - Memory
  - Network
  - Energy

- Allows system to remain invisible
- Instils trust in the ubicomp system

- Example: Smart Vacuum Cleaner
SECURITY AND PRIVACY

- Need to ensure person is who they say they are
- Ubicomp itself requires a good security system due to large data collection
- Instils trust in the system
- Encourages user participation
- Example – Biometric Sensors
CONTEXT AWARENESS

- Ability for system to discover and react to changes in the user’s environment

- Four context types:
LOCATION

- Aware of User's Location
- Aware of User's Environment
  - y Temperature
  - Available Resources
- Benefits for Ubicomp
  - Adaptation
  - Example: Network signal
ACTIVITY

What is user doing?
What has user done in the past?
System can collect this data and predict user's intent

Benefits for Ubicomp:
• Proactive
  - Example: iTunes
IDENTITY

- Aware of user's identity
- Gives access to user's secondary information:
  - Date of birth
  - Address
  - Other relationships
- Benefit to Ubicomp:
  - Proactive
  - Security
TIME

- Aware of time of day
- Aware of time of year
- Time elapsed
- Not utilized as much as it could be

Benefits to UbIComp:
- Security
- Adaption
- Example: Security Scanning
BENEFITS

- Standard Users
- Disabled Users
ASSISTIVE TECHNOLOGY

- AT is a product that assist users with disabilities

- Problem: 30% of AT devices abandoned in the first five years of usage

- AT Devices do not adapt to user’s changing needs

- Context awareness can help:
  - HAAT Model
  - Adaption Strategy
  - Invisibility
CONCLUSION

- Importance of context awareness
  - Standard Users
  - Users with disabilities

- Ubiquitous Computing cannot be achieved without context awareness.

- Interesting to see what happens in the future
QUESTIONS