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Exploiting Seams in Mobile Phone Games

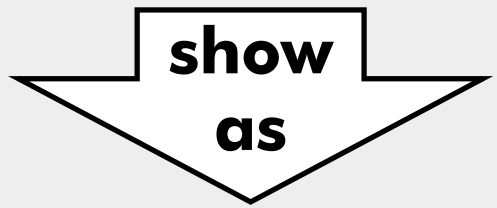
Gregor Broll (Embedded Interaction Research Group, LMU Munich)
Steve Benford, Leif Oppermann (MRL, University of Nottingham)

Seams and Seamful Design

- Systems and infrastructures have technical limitations and constraints
- Seams as deviations from notions of seamless, continuity and uniformity
- Discontinuity in technology and interaction
- Users recognize seams during interaction with a system
- Seamful Design: Presenting and exploiting seams as a resource for better usability, gameplay or interaction design
- Designing for appropriation

Inaccuracies in sensing and positioning, patchy network coverage, delays, ...

Seams



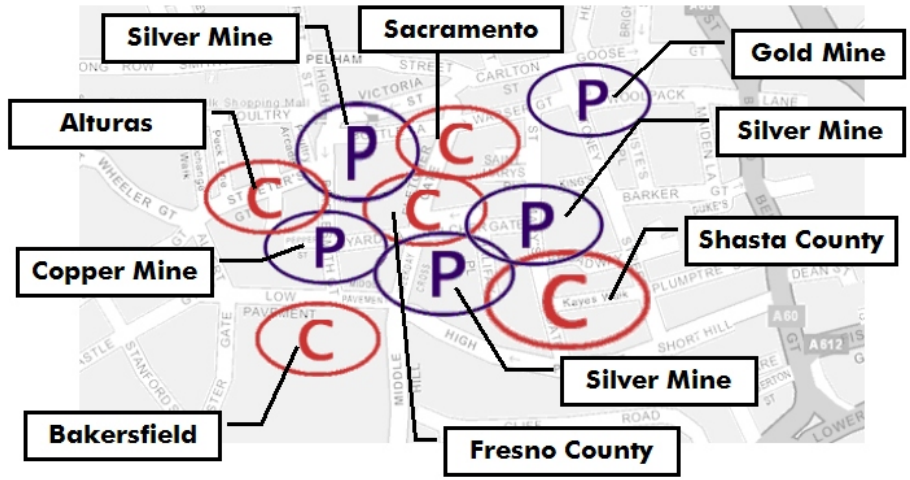
Uncertainties, Ambiguities, Inconsistencies

Seams in Mobile Phone Applications

- **Dynamic cell-coverage:**
  - Coverage and propagation of GSM cells dynamic and dependent on many factors
  - increased coarseness of cell-id based positioning
- **Expensive internet-connections:**
  - Rather high fees for GPRS-connections
  - necessary for synchronising mobile clients with the server‘s global game-state
- **Data-inconsistencies:**
  - Occurs when individual clients change globally shared data
  - differences between global game-state and its local copies

Introducing Tycoon and its Gameplay

- Location-based consumer-producer multiplayer trading-game
- Consumers and producers virtually mapped to GSM-cells
- Wildwest-metaphor set in California; Players collect local resources (gold, silver, copper) from mines (producers)
- Players use resources to claim unique global objects (buildings, estate) from brokers (consumers)
- Players get credits for claiming global objects
- Game finishes after all global objects have been claimed; player with most credits wins

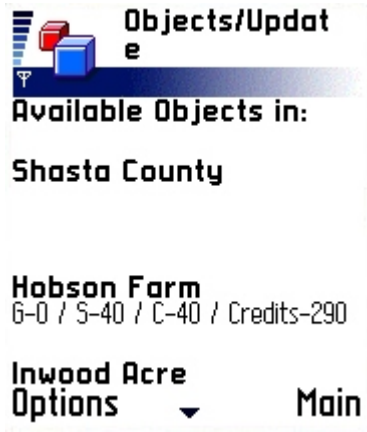


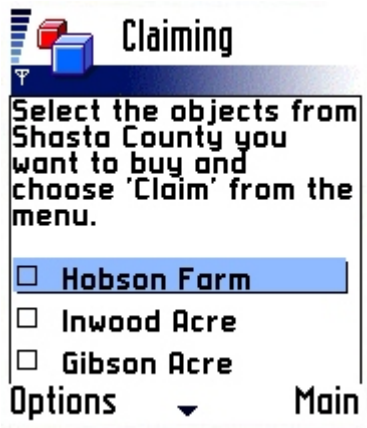
Visualisation of Seams

- Proactive alerts improve basic visualisation of cells´ propagation and boundaries
- Players have to discover mines and brokers themselves
- Allows exploitation of effects like flipping cells
- Players can exploit their spatial knowledge and adopt their own strategies of how to travel between cells most efficiently

Gambling with Inconsistencies

- Emphasis on offline-play, incentives for making less expensive GPRS connections
- Discount for successfully claiming several objects at the same time
- Credit-per-second-ratio rises when collecting resources for more valuable objects
- More time offline increases the risk of inconsistencies between local and global game-state
- Gambling approach: more time offline, greater risk of inconsistencies, more profit possible





Conclusion

- Design and development of a seamful game that incorporates and exploits seams on the mobile phone platform
- Revealing, incorporating and exploiting seams as features of gameplay and interaction
- Seamful design as a different, alternative approach to designing ubicomp applications
- Prototype has been tested successfully, but no user study yet

Questions?