stREetMIX

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Abstract

stREetMIX players remix dense urban social environments, becoming documentary storytellers of their surroundings as they challenge themselves and other players to sift through the ephemeral traces of everyday life—fliers, abandoned objects, graffiti, —and employ 'found' images and text as raw materials in the creation of urban narratives. Each team submits time- and location-stamped evidence of their discoveries. They race to claim the largest territory by identifying markers that we use to describe an irregular planar polygon. Contemporary web and mobile application technologies receive, format and display player submissions as well as provide additional possibilities for real-time adaptive strategy in game play.

Game Precis and Rules

You are part of a team of an experimental team of innovative realtime urban detectives. Your mission is to develop a compelling explanation of a social mystery within a tight time limit. To do this, you'll document and use nearby evidence so as to create your explanation. Each piece of evidence must be submitted as a photo with its location included by your mobile phone. Your team must be back at Mission Control within the time limit so as to report your results and compare your explanation with that of the opposing team.

To determine the winner, teams will earn one point for having located the greatest number of clues (photographed pieces of evidence), one for covering the most ground with their evidence (i.e. claiming evidence over the widest possible territory), and one each for the most creative, plausible and entertaining narratives linking the evidence together. Only evidence that contributes to the overall story will count toward a team's total evidence and area scores.

Related Works

Scvngr. A mobile phone-based platform for scavenger hunts, Scvngr allows players and organizations to create scavenger hunts for their friends which can be accessed through the phone interface. Our clue

search race game is somewhat similar to a scavenger hunt; architecturally, we also leverage a mobile app in communication with a central server.

Go. *stREetMIX* bears a structural similarity to Go, the classic Chinese game in which two players place tokens on a grid so as to enclose the largest possible area within. The completed *stREetMIX* may include rules to prevent overlapping territory capture or to deactivate / capture an opposing team's marker by surrounding it.

Journey to the End of the Night. In this urban tag game, players compete to move through a series of checkpoints without being tagged by enemy agents. *stREetMIX* shares the element of speed and the imperative to cover a substantial territory quickly, but it is not a tag game; rather, players interact primarily with the social space of play, identifying and documenting markers within it.

SF0. Both SF0 and *stREetMIX* condone pursuit of an idiosyncratic goal or object within a shared urban space. Both incorporate a strong social element, since other players may assist and provide secondary rewards for play, such as affirmation, camaraderie and even friendship. SF0 adds to *Mission: Mission* a social networking website allowing players to submit "research questions" in the form of zany tasks for other players to complete. We hope to incorporate elements of personal response, open-endedness and participant observation into *stREetMIX* in future iterations.

Hypothesis

Contemporary mobile technologies have applications in surveillance and gaming that may be combined, provoking game players to engage in exploration of dense urban social spaces. Though rooted in "make believe," such exploration incorporates many of the major constraints and dynamics of empirical research.

Objective:

In developing *stREetMIX* we aimed to test our hypothesis through game design and software development. We aimed to engage players in a fast-paced, collaborative project of generating narratives about the city, teaching fundamentals of empirical research and simultaneously developing a rich photo archive with its own potential for research and analysis.

Methods

First, we developed a game concept through numerous iterations with other seminar participants, rigorously questioning and refining mechanics of game play, the incorporation of narrative and standards for evidence. Early playtests took place entirely with paper maps and standalone phone cameras.

For our first playable prototype, we used existing technologies Twitter and Twitpic to empower players to submit their photos to a team blog in real time via MMS. Although this was partially successful and developed an archive of several dozen photos, we found that players in a timed race game did not enjoy laboriously entering email and phone addresses into their phones to submit their evidence. Also, in these playtests photo locations had to be marked by hand on paper maps, relying mainly on the honor system in the case of close-ups or photos without obvious location indicia.

We then commenced development of the technology platform for our current release, which combines several state-of-the-art technologies and relevant mathematical algorithms to create a faster, much more playable, visually-pleasing game:

Components

Android Application. Developed by Scott Hoag in Java, our Android application makes extensive use of libraries for HTTP client communication, image acquisition from the Android camera, mapping and geotagging via Google API services, and location detection via GPS.

Web Application. Developed by Jesse Sanford, our web application uses the scripting language Ruby and the cutting-edge Rails framework to provide a visually-pleasing web front end for game players. Through the web, players can browse available scenarios, start new games, and review evidence sent in by players. The web application provides object persistence services for the Android application through a SQLite database backend.

Core Algorithms

Representational State Transfer (REST). The Android and web applications communicate with each other using Representational State Transfer (REST), the HTTP-based resource management standard invented by Roy Fielding.

Jarvis March / Gift Wrapping Algorithm. To determine each team's territory, we needed to find the largest irregular planar polygon that

could be described by a given set of points. Following this algorithm, we begin with a known extremity such as the highest or lowest point, then iterate over the remaining points to find the smallest angle to another point, which must therefore be an additional perimeter point. Repeating the walk from the new point eventually ends back in the starting position with the known perimeter calculated successfully.

Results

We have developed a playable implementation of stREetMIX based on the technologies described herein. Multiple playtests suggest our game is fun for players and provokes them to explore their urban environments in a new way.

Analysis

While our results suggest the initial hypothesis may be valid, there are several limitations of our current game mechanics. In particular, games are short and the “replay value” may be low for individual players of the same scenarios. There is no overarching narrative linking multiple scenarios together. Finally, the data collected and the explanations for urban mysteries developed by the players are largely imaginative; while the photos themselves could be material for further analysis and research, any ancillary questions asked of the stREetMIX photo archive would have to address important questions of sample selection and indexicality.

Conclusion

We have developed a fast-paced urban exploration game based on cutting-edge technologies. In coming months we hope to:

- Produce an iPhone version of the mobile phone software
- Explore models for ongoing stories and rewarding skillful players
- Find innovative ways for social networking to accelerate human elements of the judging and evaluation process
- Develop uses for this technology in the social sciences, entertainment, tourism and marketing research.