LoRy: A Locative Story Game to Encourage Playful and Social Learning

Nicholas Noack
University of California Irvine
Irvine, CA 92612
nnoack@ics.uci.edu

Silvia Lindtner
University of California Irvine
Irvine, CA 92612
lindtner@ics.uci.edu

Josef Nguyen
University of California Irvine
Irvine, CA 92612
josefn@uci.edu

Gillian R. Hayes
University of California Irvine
Irvine, CA 92612
gillianrh@ics.uci.edu

Abstract
In this paper, we introduce LoRy, a system for an interactive story telling game that engages children in reflective ways on issues around healthy nutrition. LoRy provides distributed information from different perspectives in a ubiquitous computing environment where children can explore, gather, combine, and reconfigure information.

Keywords
Educational game, social play, adolescents

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

The LoRy System
LoRy is a framework for an interactive story telling game, encouraging participants to think about different perspectives on a topic. The goal of LoRy is to provide a highly extensible toolkit for telling interactive stories with location-based components. A wide variety of scenarios are possible in health, history, science and other domains.

Example Instantiation: Healthy Choices for Anna
Children begin by reading a story about Anna's daily food choices. For example, Anna chooses French Fries for lunch. Players can then pickup the French Fry-shaped trinket and deliver it to stations representing people in Anna's life. When presented with the trinket,

Figure 1: Two examples of satellite station husks – in the bottom picture, feedback could be provided by motors moving a piece of fruit out of the basket in recommendation.

Anna's acquaintances give their opinions and suggestions about that choice. Finally, comments on what players heard/saw can be left for later reflection.

The LoRy system includes a centralized kiosk, several satellite stations, and special trinkets specifically designed for the story being presented. Each RFID-enabled trinket represents a topic in the story. These trinkets can be made of silicon, fabric, plastic, or other 3-dimensional modeling compound. RFID is an ideal technology for this domain as it is cheap, non-intrusive, and small enough to be built into physical objects.

All users begin their interactions at the kiosk, which serves not only as user registration and entry into the game, but also as the central server through which the story is managed and presented. There, players are presented with an overview of the story on a large display. After viewing and hearing the story, they are presented with options for which portion of the story they would like to explore further. Each option is associated with a physical trinket available at the kiosk. A player takes a trinket, representing their choice, and proceeds to a satellite station.

Each satellite station includes an RFID reader and a light-weight computer. The station connects to the kiosk server over the wireless network. Stations may include video screens for images, speakers for audio, motors for physical responses, and so on to create the output necessary for the experience of the particular story element. Each station also includes a video camera and microphone, allowing players to leave comments for themselves and others as a record of the game, for the public as part of a playful community, or for the characters within the story. Although the core components of each satellite station are the same, they are each encased differently, depending on the particular story. These differences may be as simple as a different color or as complex as large fabric and plastic installations designed to represent the person, object, or concept of focus in the story. This choice provides maximum customizability, flexibility, and reusability.

Upon reading an RFID tag, the satellite station requests specific content from the kiosk. The content can be text, video, audio, or commands to various physical actuators attached to the station. After the content has been successfully executed on the station, any video or audio responses left by the players are stored on the kiosk, allowing comments to be aggregated and reviewed for enjoyment after the story is completed.

Conclusion

The LoRy system provides an innovative way for people to explore multiple points of view tied to locations and artifacts in a story format. This system can be used for a variety of artistic and educational experiences from the canonical museum and city tours to engagement with children in school-based interventions. Furthermore, this system provides an extensible, flexible, and reusable framework through which non-technical end users can continue to create and expand stories, adding and removing story elements, satellite stations, artifacts and characters within the stories and more. In this way, LoRy not only provides engaging experiences for an initial set of environments, but the potential for playful interactions across many scenarios.