Kurios

A Web App for Saving and Sharing Audio Memories with Physical Objects

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ABSTRACT

Kurios is a smartphone web application for saving and sharing audio stories embedded in physical objects. People can use *Kurios* to preserve their memories sparked by family photos, heirlooms, travel souvenirs, and trophies into the objects themselves. By creating this easily accessed semantic platform, the project seeks to not only preserve past stories but also promote the bonds and sense of community that come with storytelling itself.

CCS CONCEPTS

•Human-centered computing ~Ubiquitous and mobile computing ~Ubiquitous and mobile computing systems and tools **•Information systems ~Information systems applications ~Digital libraries and archives** •Information systems ~World Wide Web ~Web applications

KEYWORDS

Audio; memory; tangible; storytelling; preservation; narrative

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1 Introduction

For thousands of years, storytelling has existed as a means of communication and bonding between persons. Both as an oral and written practice there are times when stories are recalled by mementos traded between family or friends. These personable objects often lose their original memories through the generations when the story keepers perish. *Kurio*s was created to aid in the preservation of these memories, and to create a system that allows users to easily engage others through creating and sharing stories.

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By simply scanning a labeled object with their phone, a user can access all the precious narratives stored within.

2 Interface

Kurios exists as a text-driven web-based application built using HTML, CSS, JavaScript, PHP, and MySQL. A preview of the application is available at https://kurios.app/ This application relies on custom generated QR labelling to register items within the system. While anyone can listen to stories by scanning a labeled object with their phone, they need a free account to record new stories. Each object can hold multiple stories by multiple authors, figure 1. This allows for fluid sharing of objects and narratives between people.

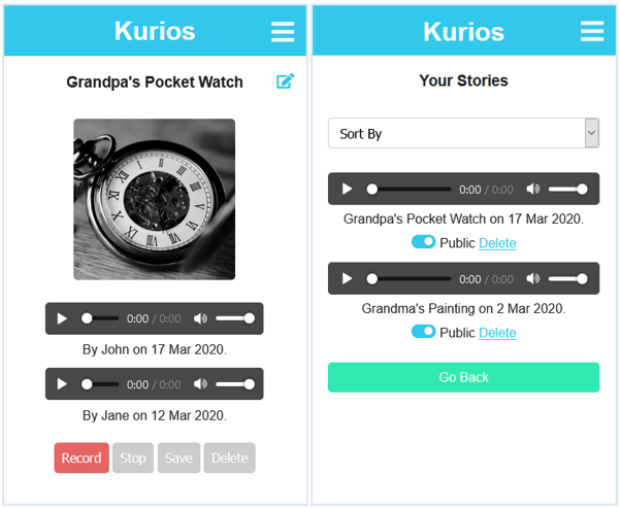

Figure 1: Object View Page and User's Stories Page

To access *Kurios*'s deeper capabilities, a user must first tag an object with one of our archival quality QR labels, figure 2. The labels are available in a variety of formats, such as stickers and hanging tags, through the web app. The QR codes themselves are generated uniquely, meaning that every object has its own identity in the system's database. Scanning a label with a QR reader directs a user to the webpage for that object.

When a user first names an object in the database they become the 'owner' of it, which allows them to set its mode. In communal mode, anyone capable of scanning the object can also record

stories to it. This is useful for families and friends who might all want to record their own story about grandpa's clock, for instance. In individual mode, only the objects 'owner' can record to it, which is useful for institutions like museums that may not want the public recording stories on objects in their collections. Similarly, stories may be marked public – accessible to all, or private – only accessible to the author.

A multicode system is incorporated into each object's URL making it difficult for someone with nefarious intentions to access an object that is not in their possession. The website also serves as a hub where users can view all the objects and stories they have recorded thus far.

Figure 2: QR label sample points to interactive demo

3 Related Work

The idea of embedding audio narrative into physical objects is not new. Tangible memory was pioneered in The Memory Box and The Living Memory Box [3, 9]. These systems established guidelines for work with physical-digital mementos, such as using audio as a narrative media, being able to tag any object, and including editable metadata [8]. Mementos uses Radio Frequency Identification (RFID) to tag physical souvenirs with photos from vacation travels, which can be displayed in a public kiosk or home computer [2]. One of the second author's previous research projects also uses RFID tags for an audio memory interface specific to a rock collection [5]. Sonic Gems demonstrates a need for preserving audio memories in physical form, particularly around special events, and emphasizes the need for immediacy and intuition in the systems user interface [6]. Sonic Souvenirs shows that sound is evocative and intimate when paired with physical objects and reiterates the need for simple record and playback controls [1]. Petrelli and Whitiker prove that despite our contemporary digitized lives, physical mementos are still more meaningful though their stories re often lost [7]. Tales of Things implements the most comprehensive system for tagging physical objects with text and photos using a combination of NFC and QR codes [4]. This desktop system is most similar to *Kurios* but asks for additional data from the user that may not be necessary. Further, their archive is available for public browsing regardless of proximity to the objects contained within, which compromises privacy. *Kurios* distinguishes itself from these projects by having an intuitive user interface and accessible hardware. We have elected to use QR codes in *Kurios* because we believe they have the greatest potential longevity.

3 Future Work

While the web application is fully functional as is, it will not scale appropriately, and as such, the system will be migrated to online cloud computing and hosting. We are also pursuing partnerships with local museums to showcase the technology as an alternative to audio guides. As *Kurios* does not rely on proprietary hardware it should present museums with significantly reduced equipment and maintenance costs. And as each person has their own listening device the system reduces the chance of spreading disease. Once these trials are in place, we will be able to conduct a user study. As a result, the system will not only be capable of sharing stories between family and friends, but also between communities and cultures.

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