

Racial Violence Archive: Public Information System on Incidents of Violence during the Civil Rights Period

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Abstract

We designed a social media interface that allows both scholars and the general public to contribute to an archive on incidents of violence in the South during the Civil Rights Movement. The archive currently contains more than 2,000 entries based on memos/reports generated by state and city administrations, county and court records, news articles, etc. To make this archive more accessible and plentiful, we prototyped a novel web-based system enabling the public to view and search information about events of racial violence in interactive ways (e.g., dynamically filter out incidents using a time slider on the map), and to contribute new event information or add information to existing records, such as related photographs, documents, or details. The usability test showed that our system is well designed to make historical information freely available for use without any restrictions.

Keywords: Racial violence, open data approach, data visualization, user interface design

Citation: Lee, H., Bellato, M., Jain, S., Spanghero, F., Singer-heinze, R., Lin, Y-W., Gupta, S., Ward, G., Kobsa, A. (2015). Racial Violence Archive: Public Information System on Incidents of Violence during the Civil Rights Period. In *iConference 2015 Proceedings*.

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Acknowledgements: This work was conducted as a term project of the class "Informatics 231: User Interface Design and Evaluation" which is one of the core classes in the Informatics department at UC Irvine.

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1 Introduction

Many researchers in social ecology are collecting data on incidents of violence in the South during the Civil Rights Movement, and the contexts in which these occurred, using a variety of sources (e.g., memos/reports, surveillance of activists, generated by state officials, counties records of various sorts, news articles, etc.). They wish to create a public database where users will be able to search, report and discuss those incidents. To these ends, user-tested mockups of interfaces with which the public and researchers can enter new events and add new documents, and see events of violence displayed in temporal and geographic visualizations, have also been developed. However, many users reported that these interfaces have several usability problems (e.g., no integrated user interfaces for both entering a new record and visualizing existing data). To tackle these problems, we designed a novel web-based system enabling users not only contribute but search incidents of violence in an integrated user interface. We tested existing mockups with users, designed a new system based on their comments, and tested it with a subset of the users who tested existing mockups. The results of the user studies indicate that our system outperformed these mockups in various aspects.

2 Previous Works

In our class, there exist several past projects which had same goal as abovementioned. They would be largely divided into two perspectives: data contribution and data visualization. Regarding data contribution, two kinds of user interfaces were designed and prototyped. By using these user interfaces, registered or anonymous users can add a new data with incident-related information such as time, location, people, attachment, external link and description. In addition, users can search a specific incident from database using keywords. Regarding data visualization, two kinds of web-based interactive maps were also

designed and prototyped. Users can investigate a specific incident by clicking a marker geographically displayed on the map. By doing this, users can see additional information about the incident or add her/his own knowledge on it. Below, we presented a previous mockup for data visualization.

Interactive Visualization of Racial Events (1963)

Visualized below are **ALL** the events from the Historical Racial Violence Database providing information about racial violence, that occurred during the American Civil Rights Movement from the time period, January, 1, 1963 to December, 31, 1963.



Disclaimer: As it is hard to obtain the exact coordinates of each event, most of these locations have been approximated and their markers placed at the county or the city coordinates.

Figure 1: Previous mockup for data visualization

To define usability problems from these works, we did two things: analysis of the previous projects and customer interview. In consideration of the principles of human-computer interaction [1], we investigated and tested mockups of past projects in the user's perspective. As a result, we found several usability problems which should be resolved. We also collected the voice of customer by interviewing social ecology researchers who participating in research on historical racial violence. We briefly summarized important usability problems which were found from these activities such as following.

Usability problem	Type
No integrated user interfaces for both data contribution and data visualization	Common
No ways to correct or update an existing incident	Data Contribution
No ways to systemically filter out incidents with spatiotemporal parameters	Data Visualization
No ways to filter out incident search results using a criteria (e.g., location)	Data Visualization
No ways to allows system administrators to review incidents posted by users	Data Contribution

Table 1: Main usability problems derived from the past projects

3 Project Details

We developed our system through following steps: operating a focus group, designing a system, and conducting a usability test.

3.1 Focus Group

We formed a focus group and discussed with them to finalize or refine abovementioned usability problems. Regarding participants, we recruited nine students from our campus. We asked them to try to use previous mockups as an end-user, and gathered their opinions on it. Surprisingly, most of them agreed with the usability problems which we already found. Also, they provided several minor usability problems (or requirements) such as adding more filter options on the interactive map page. We tried to apply all of these suggestions in designing our own system.

3.2 Design

First of all, we developed an overall information architecture for our system. This process is essentially required because we need to provide an integrated user interface for both data contribution and data visualization. Under the main page, there are four sub-pages composing of Map, Submit, Search, and

Admin. Submit page provides functionality of adding new data record (i.e., data contribution), on the other hand, Map and Search pages enables users to investigate incidents in more intuitive ways (i.e., data visualization)

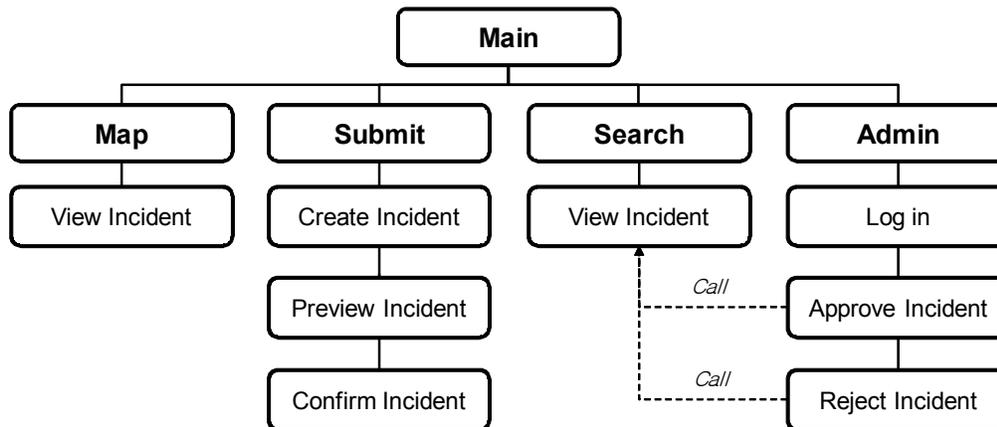


Figure 2: Information architecture

With the Submit functionality, users can contribute a new event record about the racial violence. Users can designate a specific timeframe, add victim information with various fields (e.g., name, age, sex, race, etc), and write detailed explanations. On top of that, the system also enables users attach additional reference materials like a document file. All newly submitted incidents should be reviewed by a system administrator to check whether it contains any illegal or duplicated contents. Except for this, anyone can make a new data record without any restrictions. When users try to edit an existing record, same user interface will show up for providing a consistency in the user experience.

Regarding data visualization, there are two main functionalities: Map and Search. Even though the main role of these two functions (i.e., searching incidents) is same, each of them gives the results in a different format. For Map, it provides data geographically and/or chronologically. Users can not only view numerous historical incidents on the interactive map, but can filter out incidents with specified time periods. If a user adjusts a provided time slide located under the map, the incidents on the map are dynamically changed. By clicking a specific location (i.e., county) on the map, users can check more details about an individual incident with textual and graphical information, in a chronological sequence.

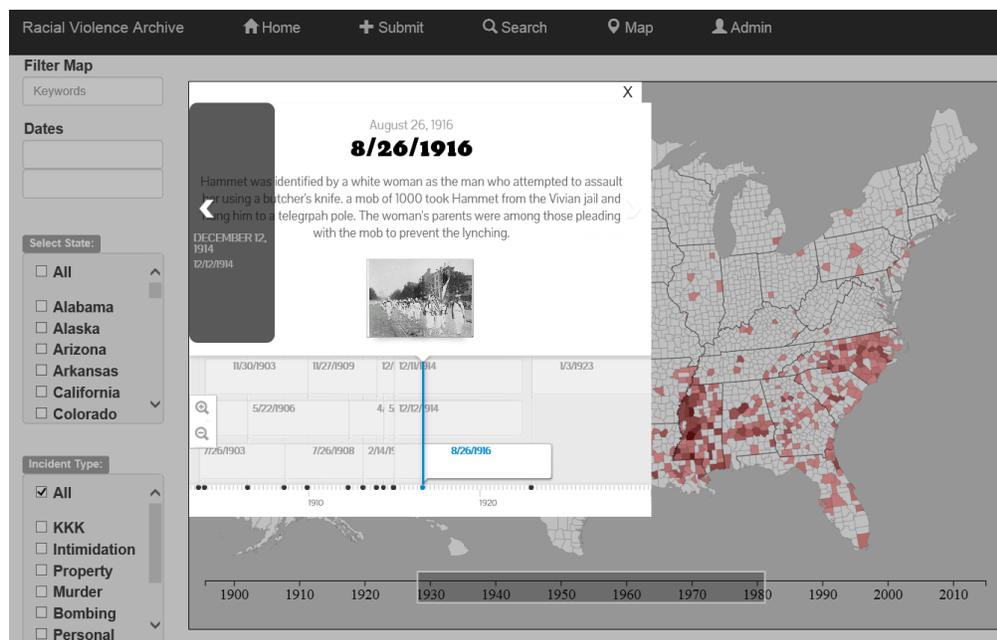


Figure 3: Map

Our system also provides search functionalities in a more static way. Actually, the Search page has the same capabilities as the Map page, but it presents the results in a tabular format. If the search results show up, users can view detailed information of a specific incident by hovering or clicking with a mouse on the corresponding row of the table. In addition, users can filter out search results by selecting various search options such as county-level location and incident types (e.g., KKK, intimidation, murder, etc). By giving these two options for the task of data visualization, users can probably choose a more appropriate user interfaces for their own needs.

Because our system has not been fully developed yet, it was not feasible to gather real data from users. Therefore, we obtained about 2,000 data entries from a social ecology researcher in our institution, and utilized it as an initial database.

3.3 Usability Test

For the user study, we recruited eight participants. Some of them were participants of the focus group. The basic structure of the usability testing was to introduce our system, then we handed them a task sheet where they were asked to perform three sets of individual tasks, each related to a particular functionality of the system. For example, task 1 was to narrow down the timeline of the map interface to three decades and list out the dates on which the events have occurred on 1909 and 1916. Task 2 was to submit an event and task 3 was to login as an administrator and search and approve a given event. After accomplishing each individual task they were asked to rate the specific interface in question and to give their opinions for the same. This was followed by a pre-exit interview which was recorded and their concern about the system was assessed. Apart from the opinions they had already written down, the pre-exit interview did help us in getting a more detailed opinions or problems they had which they could not explain precisely in writing. This was followed by distribution of the incentive. The total testing took about 35 minutes on average per person. The result of the testing was both insightful and encouraging. Many people appreciated our system and gave a lot of positive feedbacks. One of the comments we got was "In comparison with the map interface of the previous mockups, your interactive map is really good". On an average our system received a 7 out of 10 on the satisfactory scale, where 1 was pathetic and 10 was excellent.

4 Conclusion

In this project, we presented a novel system named Racial Violence Archive making historical information freely available for use without restrictions. We believe that there are two main contributions of this project. For one, we suggested a systematic way how users can not only get information, but also contribute to building a large scale database for social purposes. By providing an integrated user interface for data contribution and visualization, users would be nudged to add new data based on their own knowledge and memory. This is fairly well aligned with the open data approach. Also, we developed a new map interface for visualizing and searching historical data in an intuitive and efficient way. By using various options (e.g., time slide) users can easily browse multiple incidents with detailed information. We expect that it can give both general public and researchers more insight about the historical data, thereby they can gain a deeper understanding of our society. As the future work, we plan to make our system more reliable, gather real data from the public, and conduct a usability test with more participants.

References

1. Courage C. and Baxter K. *Understanding Your Users - A practical guide to user requirements*, Morgan Kaufmann, 2005