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Development and Evaluation of Twitter based Social Response System

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Abstract: Twitter is a very famous communication tool. We focused on Twitter as a platform of a response system to collect comments of audience about a presentation. We have developed a system that automatically generates a responsive environment about the presentation using various input and output interface. In this paper, we describe the outline of our system and the performance validation of our system.

Keywords: Response System, Social system, Twitter

1. Introduction

Twitter has been used as not only tweet everyday but also a method of questioning and presentation of opinion at some conferences and events (Reinhardt, 2009). In educational technology research, there is a study that explored the students' computer-supported collaborative learning behavior based on the Facebook platform (Chan, 2012). On the other hand, Twitter, a micro-blogging tool, has been recognized as a learning tool, and many researchers and educators have already begun investigating its benefits and limitations (Kanjanapongpaisal, 2012). Social networking sites such as Twitter allow for informal learning (Hall, 2009). The tweet has effective for searching the Web to find some questions (Arai, 2012). There is a study that uses Twitter as a back channel of presentation of lectures in order to extract useful information to share audience's opinions and questions (Oishi, 2012). So we focused on Twitter as a response system to collect comments of audience about a presentation.

2. Our approach

The clicker is famous as a response system. However, it limits the answer-pattern from learners because it is fixed by hardware input interface. In our approach, a presenter posts to Twitter about the presentation and receive responses from the audience via Twitter by triggering it. The approach supports to collect their responses in an open environment by the following methods.
(1) Embedding response information to the slide
In this study, the contents and type of the response are embedded in the presentation slides in order to adapt the response item and slides.
(2) Post to Twitter in synchronization with the presentation
Our system will automatically post to Twitter the slide content to suit the progress of the slide using the response information incorporated in the slide.
(3) Prepared the response interface
Our system dynamically creates a response interface corresponding to the slide. The audience input a response or tweets about the slide through this environment.
(4) Delivery of Twitter response information
By posting to Twitter response results of the audience, our system encourages the other participations on Twitter and assists to rally a lot of responses.

3. System implementation

3.1 System configuration

(1) Presentation system

This is a system for a presenter and handles a PowerPoint file (pptx format) as the presentation file. The presenter describes response contents in the notes area of PowerPoint using a response

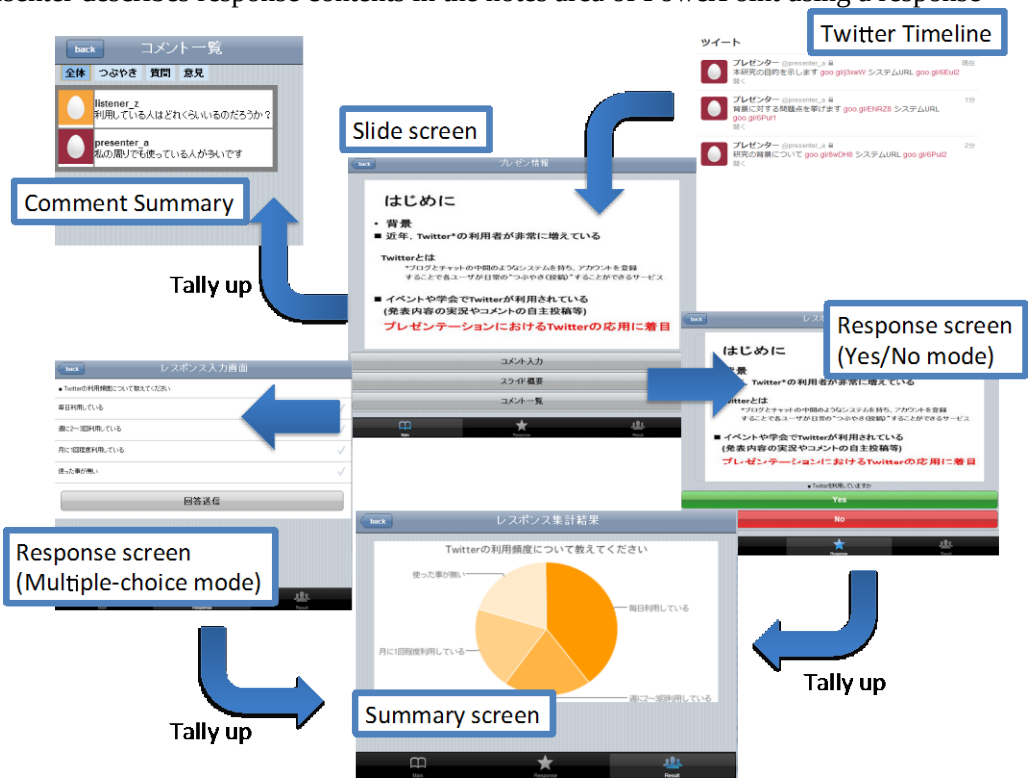

Figure 1. User interface.

definition language beforehand. The system analyzes the PowerPoint file before presentation in order to create a presentation definition file. The system also posts automatically to Twitter as the presentation progress. The system posts note information in the PowerPoint slide, URL of the slide jpeg image and URL to navigate to the mobile response system.

(2) Mobile response system

We implemented this system for the audience. It has a Web based mobile interface for a tablet or Smartphone as a response system. It generates the response screen using the response definition language in the pptx file.

(3) Response Management Server

This server manages information about the presentation slides in order to realize the above functions.

3.2 User Interface

We describe below the user interface of each system (Figure 1).

(1) Presentation system

This is used to read PowerPoint files and registration of Twitter account. It does not display during the presentation and work background of PowerPoint. The system tweets the note information of the slide by detecting the slide-changed event of PowerPoint. Moreover, the link to the response system is appended to the Tweet.

(2) Response system

This interface is called the URL in the tweet that the presentation system posts automatically. It consists of the following screens.

(A) Response main screen

This displays the image of the presentation slide in progress. The user can move the presentation slide page by tapping the left and right of the slide image. The slide outline button displays the note information on the PowerPoint slide. The user can post a tweet to Twitter by adding the three intents ("comment" or "question" or "tweet") by pressing the comment button input. Tab button switches the response screen and input screen.

(B) Response input screen (multiple choice mode)
This screen displays the question and the multiple choices by the radio button. The user selects one choice button and send.
(C) Response input screen (Yes / No mode)
This screen displays the question content as well as the choice mode. The user can send a response to the choice of either Yes or No and be able to post the response result to Twitter through on her/his own account.
(D) Response summary screen
Response management server collects analyze the response from the user and displays the results of the analysis to this screen. This information is shown to the only user who sent the response. We used the Google Chart API in order to the response results.

4. Evaluation

We examined the out system to use without any problem in some conference presentation. We have tried to use our system in the conferences in August 2011, March 2012, May 2012, and December 2012. As a result, we got the response from the user who is not in the conference. He said, “I can understand the contents of a presentation via the Twitter”.

In the Society of December 2012, we did not put the URL of the image slide to post a presentation system. We got the comments that he wants the slide-image because it is difficult for him to understand the contents of the only character via the Twitter. We can see the needs of posting slide-image from this result. In the conference on December 2012, our system has stopped working a problem of network environment A poster session at the Society of November 2011, we made a demo of our system and get the comments that are “It is not good to show the response to all users” and “there is resistance to user the Twitter account. In the future, we modify our system to handle the communication errors in in the network trouble and implement the access control function for the user’s privacy.

About the verification of system operation in a presentation, it took some time to read the presentation file into our system. It means that it is necessary to prepare the system setting shortly before the presentation. About the post to Twitter during a presentation, the system was able to post to Twitter without disturbing the presentation process. Moreover, the user (audience) can response her/his answer to the response system in real time and our system stored the result to the datastore immediately.

5. Conclusion

We have developed a response system using Twitter in this study. Our system delivers a presentation information using Twitter in order to collect responses from the on-line user who is not in the same room. Then the system tally the number of the user’s responses. In future work, it is necessary to modify the system to run continuously, even when the network is unstable. We also implement private setting function of response collection results. Further, it is necessary to find the improvements from the use of actual, leading to improve on the system.

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