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abstract

Sharing Method of Mutter in Multipoint Distance Classroom

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The purpose of this research is to capture the mutters of remote students and to visualize them for an instructor and the students by using sound information in a multipoint distance classroom environment. In such distance classroom, it is often not possible to send sound from the remote students because it causes echo or howling problems or it is difficult to know who speaks in mixture sound from the multi participants. However, due to lack of such sound information, it becomes difficult for the instructor and the students to grasp the atmosphere of the virtual classroom. In order to solve these problems, this research aims to share "soliloquence", "filler", and "onomatopoeia" as mutters from the sound information of the students. We have made a model for mutter sharing and made design of the web application and implement a multipoint distance classroom environment with the mutter sharing system. One of the main point of this system is to provide two types of display for the shared mutter, one is the timeline display, and another is the hierarchy display by the students. To reduce the development period, we applied some existing API for our prototype system such as WebRTC, which realizes real-time communication between web-browsers, Web speech API, which translates sound stream into text as a javascript API, and Nifty cloud mobile backend as a database of mutter information. We did a case study to investigate the effectiveness and issues about the developed prototype system with 4 participants. Every participant gave a small lecture on the system as a role of instructor and the others join the lecture and make any mutter with the mutter sharing system. From the results of the case study, we found that the number of the mutter was strongly correlate with degree of interest to the lecture. The accuracy of sound recognition was not so good and depended on the microphone of the device. For impression for sharing the mutters, all the participants agreed with the positive effect of the timeline display for the instructor. For the remote students, the timeline display would make them presence and the hierarchal display might improve feeling of sharing space. From these results, we got an expected results for the effectiveness of the proposed system. But, there are some issues especially in display method.