

Appendix B: Detailed Work Plan

The main goal of the mission is to add the DJ scratch model developed at the KTH (Royal Institute of Technology) by Kjetil Hansen and Roberto Bresin to the reactable developed at the Music Technology Group of the Universitat Pompeu Fabra. The study will be focused on finding the best way to control the DJ scratch model using the reactable tangible interface and the best way to incorporate it to the current reactable modular synthesis paradigm.

The DJ scratch model [1] consists of a series of recordings of the movements (record and crossfader) of professional DJs while they perform some common scratch gestures. A physical model of a turntable is used to reproduce the prerecorded figures and allows the user to change some model parameters in real time. The implementation of the model has been done in PD (Pure Data) and it has been used by professional DJs in concerts.

The reactable [2] is a musical instrument with a tabletop tangible user interface. Several simultaneous performers share control over the instrument by moving physical artefacts on the table surface while constructing different audio topologies in a kind of tangible modular synthesizer. The instrument hardware is based on a translucent round table. A video camera situated beneath analyzes the table surface tracking the position and orientation of the objects that are distributed on its surface. These actions directly control the topological structure and parameters of the sound synthesizer. A projector, also from underneath the table, draws dynamic animations on its surface, providing a visual feedback of the state, the activity and the main characteristics of the sounds produced by the audio synthesizer.

Before I go to the KTH I will have to prepare a small, portable reactable that will allow me to test the system during the implementation and test stages. It will need, at least, a webcam, a transparent surface and a reduced set of tangibles. I will also have to prepare a reduced version of the reactable audio engine with control input and ready to add one or more new modules.

Once at the KTH my work plan is:

- Study the DJ scratch model and its implementation and decide how to integrate it inside the reactable PD patch (the DJ scratch model is implemented in PD too).
- Once I have it working, think about different ways to control it with the reactable tangible interface. Since the people at the KTH have already tried to control their model using different control interfaces their previous knowledge will be very important. Some user test will also have to be made.
- Work on the visual feedback of the system and decide how it will look once it is integrated in the reactable.

Back in Barcelona we will have to decide the way to incorporate the implemented system into the current reactable modular synthesizer paradigm and see how it works.

In overall I think it is a good mission because it will help improve the KTH DJ scratch model and it will add some new advanced functionalities to the reactable. Also, the collaboration between the two research groups will help them know each other better and exchange some knowledge. Personally, I think this mission is very positive for my academic career and it is a very good opportunity to work with people from another research group.

References:

[1] Hansen, K.F. & Bresin, R. (2003).

DJ scratching performance techniques: Analysis and synthesis

Proceeding of the Stockholm Music Acoustics Conference; Stockholm, Sweden

[2] Kaltenbrunner, M. Jordà, S. Geiger, G. Alonso, M. (2006).

The reacTable: A Collaborative Musical Instrument*

Proceedings of Workshop on Tangible Interaction in Collaborative Environments; Manchester, U.K