

# Circle Canon Chorus System Used To Enjoy A Musical Ensemble Singing "Frog Round"

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## ABSTRACT

We proposed a circle canon system for enjoying a musical ensemble supported by a computer and network. Using the song "Frog round", which is a popular circle canon chorus originated from a German folk song, we produced a singing ensemble opportunity where everyone plays the music together at the same time. The aim of our system is that anyone can experience the joyful feeling of actually playing the music as well as sharing it with others.

## Keywords

Circle canon, Chorus, Song, Frog round, Ensemble, Internet, Max/MSP, MySQL database.

## 1. INTRODUCTION

Everyone loves music and many persons can play music with instruments or sing. However, it is difficult to play a musical ensemble with others because we do not have an enough time to organize the ensemble. An ensemble is a very joyful experience because players communicate with one another through collaborating on a piece of music without language in real time. Playing music together gives us a special pleasure.

Nowadays, the internet infrastructure is being used for musical ensembles. For example Open Sound Control (OCS) provides an application protocol exchanging control messages between players [1]. Many projects about networked music ensembles have been reported [2][3]. However, to participate in such an ensemble, a high skill of operation is required, and everyone can not enjoy an ensemble using the system available to them.

For an easier ensemble playing system that everyone can participate in, we proposed a circle canon chorus system singing the "Frog Round" song aided by a computer and network. A canon is a piece of music which a melody is started by one player and is copied by each of the others. And the copy is started in a uniform interval. A canon is suitable for an easy ensemble to play, because we can play it together by learning a simple melody. And

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as a type of song, a circle canon is a chorus singing as a round with multiple singers. For performing with a musical instrument, some degree of training is required. On the other hand, singing a song is easier for everyone, therefore many countries have their own local folk songs, which have been inherited to sing for a long time, and singing together may be an effective method for establishing a line of communication. The goal of our system is for anyone to enjoy performing a chorus ensemble by singing a song as a round.

## 2. METHOD

### 2.1 System Configuration

Our system is configured on a laptop computer, audio interface, microphone, monitor speaker, and Max/MSP software. It is connected to the internet and can access MySQL database on Linux Server (see Figure 1).

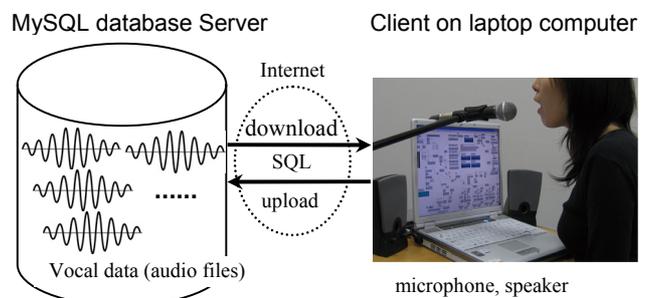


Figure 1. System configuration.

The system can automatically generate four parts of a chorus of a circle canon made of vocal audio files, which are stored in the buffer memory of a PC, downloaded from the database in advance. Any guest user can participate in the chorus by recording his voice singing a song through our system and enjoy an ensemble. The new recorded voice data are uploaded to the database and used for a new part of circle canon chorus.

We use "Frog Round", which is a popular German folk song composed with simple melody, which is easy for everyone to sing (see Figure 2). The lyrics are translated into various languages. In our system, a value of BMP (beat per minute) is 120, which means a melody takes 16 seconds.



Figure 2. Score of Frog Round chorus with German lyrics.

## 2.2 Demonstration

A demonstration of our system is as follows.

- 1) Normally, the system plays four parts of a circle canon chorus. Four vocal data are selected randomly or manually from the database (see Figure 3).
- 2) You can press the start button on the PC to sing a melody of a circle canon. After the count of a metronome signal, you can start to sing it synchronizing with the current chorus played on the PC. Your voice is automatically recorded in the buffer of the PC.
- 3) You can enter the tag data using your own details such as name, sex, age, language, etc. The audio file of your voice is saved in the PC, and then it is uploaded to the database server with tag data through the internet.
- 4) The oldest loaded vocal data in the current chorus is removed and instead of it, your vocal data is newly joined to the chorus. As a result, four new parts of a circle canon chorus including your voice is generated.

After you finished singing, your vocal data remains in the system and continues joining in a new chorus as a part of canon until three new visitors participate. Your vocal data is stored also in the database, and it will consist of a chorus with other singers from other days. Many visitors in the exhibition collaborate to make music together and our system can link a person to another through a music ensemble. Some photos and movies of the demonstration are shown on our web site [4].

If you query the database using tag data, you can make a new canon chorus consisting of your favorite vocal data downloaded from the database. For example, if you select a male as a sex tag, a male chorus is generated, and if you select a teenager as an age tag, a teenager's chorus is generated. If the exhibitions are held at multiple places at the same time, you can generate a mixed chorus with the vocal data of participants from diverse geographical locations.

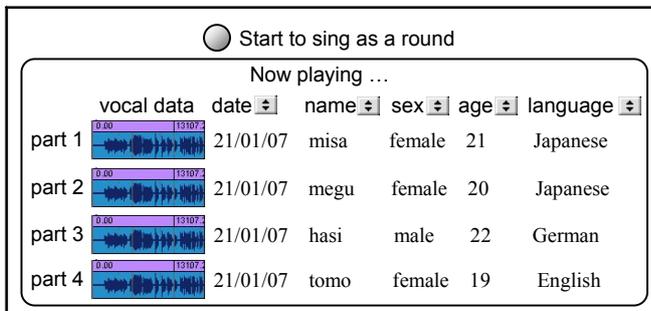


Figure 3. User interface .

## 3. RESULT AND DISCUSSION

All persons who experienced singing in our system said that it was fun to join a circle canon chorus with strangers. Some were ashamed to sing, however they were interested in listening to the chorus played by the system. An ensemble of circle canon chorus may be an effective method for establishing a joyful communication medium with strangers through the music.

Some visitors sang in their own way different from the original lyrics or melody keeping the harmony with the chorus. Another visitor tried to sing a percussion sound using his mouth like a part of a cappella. It is interesting for various visitors to sing in their own particular style. As the lyrics of various languages are added, it may be a more attractive chorus.

Using our system, we could create the feeling that we are participating in the musical ensemble together and it is a new kind of communication or collaboration with strangers.

## 4. CONCLUSION

Using a PC and database server with the internet, we could make a system playing a circle canon chorus with strangers. In the near future, we will build a more user friendly interface for playing on web browser, and everyone can experience our system anywhere with only a PC connected to the internet.

## 5. ACKNOWLEDGMENTS

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## 6. REFERENCES

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