4Z-5

"My / Drum" - Music creation/recreation using cell phones

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1. Introduction

Japanese have for many years been enjoying percussive music such as "Wa-daiko", the music played at festivals, and "Beatmania", the rhythm-based computer games found in any self-respecting arcade. While composing and performing music traditionally requires at least access to an instrument, a more spontaneous approach such as say, humming a few notes or clapping your hands are actions that can be carried out by people with no musical skill and enjoyed together with other people. Moreover, musical inspiration is seldom something that appears at a given time, but rather a more unpredictable phenomenon that can happen to you as you're taking a walk, shopping for groceries or sitting on the train. This application seeks to provide a musical creation and recreation tool to accommodate these facts, and make music composition a fun and enjoyable process incorporating rhythm traditions from different parts of the world.

2. Purpose and problem area

Keywords for this project are *creation* and *recreation*. The word "recreation" is used both in the sense of "reconstruction", as the program allows the user to change and tweak existing music, but also in the meanings of "leisure" and "amusement", since fundamental for this project are also the aspects of immediacy and "fun", as well as connecting the user's own imagination with rhythms from around the world. Moreover, it should be possible to create original music in a quick and intuitive way.

2.1 Target group

The aim has been to make a program that is not really intended for professional musicians, but is fun and easy to play with and use for the average cell phone-owner with no musical skills, allowing anyone to use it anywhere, anytime to create their own mini-compositions, kill time on the train or make "musical memos" as they move about in their daily lives.

2.2 Issues

How is it possible to construct something that allows anyone to create basic but meaningful music? "Meaningful", referring to something that is not simply perceived as noise, but makes rhythmical and harmonic sense, and is commonly accepted as being "musical". We have sought to solve this problem by constructing a program that focuses on the musical aspects of rhythm and percussion. Since cavemen began banging rocks together to create sound thousands of years ago, rhythm has been a very fundamental thing that humans can relate to instinctively and immediately. Furthermore, a drum does not have a pitch or tone, thus dispensing with the need for musical theory associated with melody and harmony. Therefore the idea was to develop a form of basic "drum-machine", a tool for creating drum rhythms using a simple, intuitive interface. The program is not only highly portable being a cell phone-application, but also aims at being easy and enjoyable to use.

3. Features

Figure 1 shows a screenshot from the actual application in use. The main features of the program are as follows:

3.1 Rhythm creation

The user has a choice whether to create a new rhythm from scratch or modify one of the built-in or previously saved rhythms. The interface itself is based upon hardware drum-machines that traditionally take the form of small boxes with 16 buttons on it, each representing a 16th of a

Fig.1 My Drum screenshot

musical bar. Buttons are switched on and off using a cursor. When "play" is pressed the drum-machine begins cycling continuously through these 16 buttons and whenever it hits a button that is switched "on", it plays a sound, thus creating a rhythm pattern.
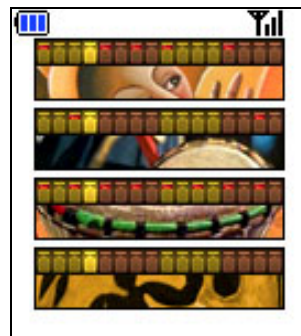
3.2 Multiple instruments/cultures

Each rhythm consists of 4 different instruments playing together resulting in a polyphonic drum rhythm. The sound of each track can be changed by pushing buttons on the cell phone, and the current version comes with 4 different sets of drum sounds. These built-in sounds as well as their associated rhythms are based on actual percussion traditions from different cultures such as Africa and Latin-America and the user is able to mix and match these cultures to create a hybrid cultural percussion mix. As the sounds are changed the graphics also change to represent the currently selected sound, making it easy to get an

overview of which sounds from what culture are interacting at any given time. Moreover, several users can work together on the same rhythm, each creating their own track for a total of up to 4 users collaborating on composing a song.

3.3 Real time editing
Real time editing allows users to write music while the music is playing. Thus the user can instantly react to the feelings he/she gets from hearing a certain sound, follow that inspiration, and react accordingly. The rhythms can be changed in real-time, "on the fly" without stopping the music and the results are heard instantly. For example, the sounds of the individual tracks or the rhythmical

Fig. 2 My-drum in use

structure can be altered as you are actually listening to the music, allowing the user to get a feel for how different placement of drum hits or choice of sounds has an impact on the composition.

3.4 Archiving
My Drum comes with a built in save/load system that allows the user to store any original rhythms, as well as load one of the several pre-programmed rhythms. Once again this is all done in real-time, thus saved rhythms can be loaded and sequenced while listening to the music, effectively creating small songs/mini compositions.

Using the above-mentioned features, rhythms can be built up from scratch or existing rhythms edited, and since everything takes places within a percussive environment, there is no need to worry about harmony or melody. Even fairly ad hoc placements of drum hits will create decent, listenable results, and ideally in time the user, with inspiration from the traditional rhythms of various cultures, will become more adept at recognizing and combining rhythm structures.

4. Testing and evaluation
The current version of the software has been tested by roughly 20 individuals in the age group of 20-50 years old ranging from first-time users with no musical background to experienced musicians. The users where allowed to test the program with as little prior explanation as possible, thus giving them an opportunity to freely explore the functions and naturally point out any potential problem areas.

4.1 Pros
Even the testers having no prior musical experience quickly figured out the basics of creating rhythms and pointed out how even with no understanding of musical theory the program allowed you to just play around, enjoy the process and still produce musically decent results. Several testers were interested in potentially using the software to create your own calling tones and everyone expressed enthusiasm about the potential for creating and having fun with music wherever you go, using only a cell phone.

4.2 Cons
The testers with musical experience requested more control and customization options, such as being able to change the preset sounds, use your own sounds etc. For example, it would be very useful if you could record your own sounds and change different parameters such as timbre, volume etc. However, at this time, such direct control of a cell phone's built-in synthesizer is limited. As mobile technology becomes more developed, hopefully My Drum will become able to take advantage of new features and specifications and evolve into a more full-featured musical application. Another point made was that after having completed a rhythm there are no additional options besides saving, allowing the user to use newly created music in different applications or contexts.

5. Further development
In its current state, My Drum is very much a "stand-alone" program that is not capable of interacting with other software or applications. However, as several users pointed out, having the ability to for example export the created rhythm-patterns would instantly increase the worth of the program, since it would then be possible to go beyond the limits of the software itself. This sort of functionality could be taken further, so My Drum could end up functioning as an instrument that could be played together with other cell phones in a cooperative performance involving multiple users.

References
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