

Mobile Music Creation using PDAs and Smartphones

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ABSTRACT

This paper reviews the current state of available mobile music creating application software for PDAs and Smartphones. The paper explores developer's motivations and thoughts on the future of mobile music, and the responses of a few users to questions about how they use mobile music technology, and draws conclusions regarding the future of mobile music making.

Keywords

Mobile Music creation, Handheld, PDA, Synthesis, Sampling, Notation, Sequencing.

1. BACKGROUND

Palm Sounds (<http://the-palm-sound.blogspot.com/>) is a blog devoted to all forms of mobile music making and technology. This paper is the first attempt at understanding user and developer views and suggesting possible futures in the mobile music space.

2. INTRODUCTION

The field of mobile music making on PDAs and smartphones is still relatively small. There are only a handful of applications available in a market for PDA software that is comparatively very large. Although the desktop market for music software is huge the handheld market has never experienced the same level of interest. This paper explores some of the current issues.

3. HISTORY

Since the first palm devices appeared in 1996 users and developers have pushed the boundaries of mobile applications. The first music based applications for Palm OS based PDAs were simple keyboard apps creating beeps and allowing simple sequencing. As the platform developed MIDI applications appeared. Similarly the Pocket PC/Windows Mobile platform has allowed developers to explore a range of music making applications from drum machines and sequencers to more complex studio applications supporting synthesis plug ins and mixing capabilities.

4. FUNCTIONALITY

The functionality available in current applications can provide many of the requirements of desktop or laptop users.

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4.1 Sampling

A number of applications provide sample editing possibilities such as applying effects, cut and paste functions, and even waveform drawing such as in Bhajis Loops (see figure 1).

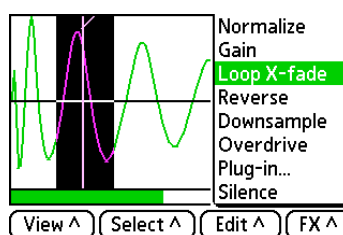


Figure 1. Bhajis Loops

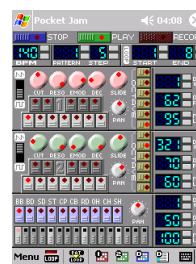


Figure 2. PocketJam main screen

4.2 Synthesis

There are a number of applications providing synthesis, from simple synths with drum machines such as Microbe (see figure 3), Phoenix Studio and PocketJam from Ledset (<http://www.ledset.com/pocketjam/index.htm>) (see figure 2).

Other applications allow sounds to be created using FM synthesis and even the building of FX networks in applications such as miniMIXA. Griff uses synth plug ins in a similar manner to VST and AU architectures, and the Audio Box application provides a comprehensive range of synthesis features.

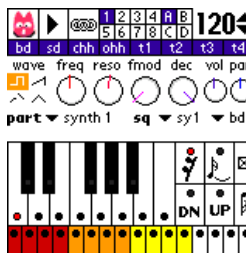


Figure 3. Microbe Screen



Figure 4. Psytexx

4.3 Sequencing

Most applications make use of some form of sequencing. However, this can come in a variety of different flavours. Step time sequencing is the method of choice for the vast majority, and does not greatly differ in look and feel from one application to the next. However, there are departures from this format. Two handheld applications that follow the tracker standard. Milkytracker (<http://www.milkytracker.net/>), and also Psytexx (<http://www.warmplace.ru/soft/palm/>) based on the XM Fast Tracker format (see figure 4). NotePad from miniMusic (<http://www.minimusic.com/>) uses formal notation (see figure 5). Finally, one of the most innovative is SpinPad (demo) from miniMusic which uses the positions of icons to determine velocity, pitch and instrument (see figure 6).

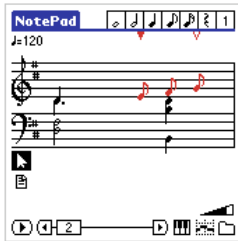


Figure 5. NotePad stave

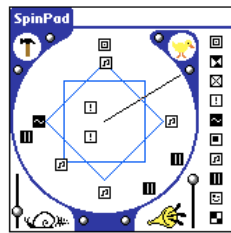


Figure 6. SpinPad interface

4.1 Integration

Some applications are extended by use of desktop components for functions such as back up, wav file rendering and preparation for use with desktop music applications.

Applications from miniMusic are designed to work as a suite. The SoundPad application is an FM synth. The sounds it creates are available in the other applications (AxisPad, BeatPad, NotePad and MixPad). In addition both BeatPad and NotePad applications allow songs to be exported to the MIDI format which can then be read and mixed in the MixPad application.

5. Developers' Views

As part of this review I issued a questionnaire to developers. The questionnaire covered: motivation for development, development path, user requests, reasons for ending development, and attitudes to the future of the mobile music market.

5.1 Motivations

Reasons cited for developing in this area were personal and technical challenge, experimentation, and interest in the platform. Other developers commented that they were excited about the possibilities of the platform and input device.

5.2 Target Market

Hobbyists, prosumers, professional musicians, and the education sector were all mentioned.

5.3 Development Paths and User Requests

Responses tended toward developments being lead by user request rather than holding to a plan. Often user requests have inspired new releases. One developer has had a development roadmap that has largely been kept to. However, this was an isolated response.

5.4 Stopping and Starting Development

Many of the developers surveyed were no longer developing their software. Reasons for this vary greatly. Those cited were, profitability / ROI, issues with OS and hardware, and that the application was feature complete. Factors that would influence developers to return to this area were just as diverse such as convergence of desktop and handheld OS, availability of a new platform, new devices and a modern OS. Sadly, of the developers surveyed, few were still active in the market.

5.5 Attitudes to the Future of Mobile Music

Developers' responses were quite diverse in response to this question. Responses went from long term 10-20 years in the future, to a statement that mobile music making was largely a "fun thing". One of the consistent responses was around the

availability of desktop power in a small device. Other responses suggested two possible options, very small tablet devices with a desktop OS, or dedicated hardware with more a open OS. In both cases, a key factor for success was the backing of a large manufacturer.

6. USER VIEWS

Although a user questionnaire was made available at several sites only a handful were returned, as such the responses may not be entirely indicative of the user community. The range of applications used was broadly consistent with the applications represented by developer responses. In view of the small number of responses I have chosen to take a number of key points from the users who did respond and record them here.

6.1 Location

Many users make music on trains, trams, on the way to work and at lunch breaks. It seems common to use this kind of technology in almost any location. One user cited locations as "on the toilet, when traveling, in bed, but all three at once is not advisable".

6.2 Handheld and desktop

There was no clear split here. Some users made use of desktop applications, others made portable music and kept it portable.

6.3 Collaboration

Only one user was actively involved in using handheld technology in a collaborative setting. This was a gameboy band.

6.4 What users want next

There were no clear themes here. Responses included: MIDI input, further collaborative facilities, using the handheld as a controller, more accurate effects processing, and the ability to have desktop like software available on the handheld. An interesting response was from a user who wanted "something that combines the worlds of sequencing a field recording. We have devices that do each task, but none that do both at the same time."

7. CONCLUSIONS

Virtually all of these applications have their root functionality in desktop origins. They are in effect a translation of desktop technologies into a handheld environment. However, if you take the emergence of applications like SpinPad and AxisPad as proof that there musical uses that could be unique to the handheld environment, then where does this naturally lead to? Has handheld hardware technology got to the point where input devices can be used in new ways to enable the device to become much more of an instrument rather than just a translation of a desktop application?

The iPhone's sensor technology could lead to the use of sensors in music handheld music technology to provide a more directly manipulated and sensitive interface with the possibility of gesture control and recognition. It is perhaps a device of this nature which could extend the usage of mobile music technologies and encourage more users to explore the field.

8. ACKNOWLEDGMENTS

My thanks to all the developers who responded to the questionnaire, and the users who replied with so much useful information.