



June 2005

R-EVOLUTION

Newsletter for the Developer Community

For Private Circulation only

Editorial

Dear Developers,

Mobile users today have access to a variety of entertainment and fun-based services on their handsets of which mobile gaming forms a significant part. Mobile gaming has rapidly caught on with the mobile users - primarily the youth, thanks to the availability of handsets with advanced capabilities, bigger screens, better processing power, affordable costs, and of course higher bandwidth networks. As per research reports of In-Stat/MDR, mobile gaming revenue in India is expected to grow from \$26 million in 2004 to \$336 million by 2009. Game developers and operators will need to be clued into the usage habits of the ballooning mobile gaming population in order to make the most of this opportunity. Our cover story in this issue gives an overview of the crucial aspects of mobile games market - both in India and abroad - and indicates the plausible trends in the near future.

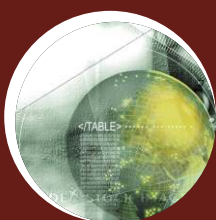
We are happy to receive contributions from our readers for publication in 'R-evolution'. The Developer Forum section of this issue brings to you an article 'J2ME for Beginners', which has been submitted by Kunal Deo, a DADP member from Dhule, Maharashtra. The article covers the installation and execution of J2ME Wireless Toolkit. In the 'Interview of the Month' section, we bring you face-to-face with Surya Pulagam of JAMDAT Mobile (India), a leading global wireless publisher providing entertainment applications to operators across the world and is associated with DADP to develop games for RIM users.

As always, we look forward to receiving your useful feedback and valuable suggestions.

- S P Narayanan



Application of the Month
MICROTRIX



Interactive
Developer Forum



Interview of the Month
Surya Pulagam
JAMDAT Mobile (India)



Quiz



A gold mine called mobile gaming

Burgeoning market

A recently released research report by IDC India on the mobile data market in the country has pegged the non-voice revenues of mobile operators at 4.7 percent of the total mobile services revenue, which is estimated at Rs 15,000 crore or \$3.4 billion. Though encouraging, there is still a long way before data revenues of Indian operators catch up with the international standards. Nevertheless, there is greater awareness and increased acceptance of Value Added Services (VAS) on mobile phones among users compared to the recent past. Non-voice revenues have been primarily delivered through a suite of popular data services like SMS, MMS, Internet or email access, ringtones, wallpapers, branded content, etc. Yet, it is the single category of mobile games that has most successfully captured the imagination of mobile subscribers in India.

The sheer growth of the mobile user base in India is fuelling the demand for non-voice services, along with the proliferation of color and data enabled handsets with enhanced capabilities. The total number of gaming capable handsets in India is reported to be in the region of around 20 million, and paid download figures for mobile games are estimated to be in the neighborhood of 600,000 a month.

Even though mobile gaming in India is at a nascent stage compared to the advanced data markets like Japan, Korea, Philippines or Western Europe, there clearly exists a great potential for its growth. As per In-Stat/MDR, the mobile gaming market in India is expected to grow to \$336 million by 2009 vis-à-vis \$430 million in the US.

The strong projections of mobile gaming applications corroborate the trends and assumptions that consumers are increasingly spending more time and money to lap up all forms of mobile entertainment services. This has led to rapid market development in the area of game development for developers, gaming companies and publishers.

Games people play

In the absence of concrete research findings or studies on mobile gamers in India, most operators and gaming developers are trying to make use of the findings available from advanced markets in Europe, Korea, Japan and US to gain insights into the profile of the game user. One such latest research by Sorrent Inc., a leading creator and global publisher of mobile entertainment in the US has revealed interesting facts on the mobile entertainment users' profile in that country.

As expected, college going kids and twenty-something users are found to be the major consumers of mobile games. Sorrent's survey also confirms that 60 percent gamers belong to the age group of 18 to 26. Also, men are found to show a stronger preference for sports, action/adventure games compared to women who are more inclined to playing the classic and puzzles variety. Significantly, the research also revealed that tweens (children between eight and twelve) and teens are the key users of mobile games. They use their mobile gaming experience as a primary vehicle for social interaction. This group exhibits greater tendency to play mobile games at school, college, and home and share their experiences with siblings and parents. This group also shows greater concern about handset capabilities in delivering enhanced gaming experience and is keen to play and compete with friends.

Evidently, mobile games have come a long way since the 'Snake' was first deployed on wireless handsets in 1997. In most markets, gamers have been classified into casual, occasional and hardcore groups. This kind of segmentation has helped gaming developers and operators to fine-tune their strategies.

Plenty of game titles are now available to cater to the specific needs of all these classes of gamers. Web sites like Wireless Gaming Review list more than 200 different titles for some UK

networks targeted to all categories of users.

Technological enhancements - like the 'WAP push' - have also played their part in pushing the popularity of games. For example, by sending a simple text message to a gaming portal one can download a game on his handset without navigating the cumbersome menu of operators. And that's not all. High-end graphics in adventure and action games provide that extra bit of thrill. One can also upload his/her score or best time and match against others or see others and play against 'ghost' or 'shadow' players. Multiplayer gaming takes this concept to a different level where one can compete with others on the network on a real time basis using advanced technologies.

However, experts predict that the next big thrust in gaming is anticipated from the casual gamer category as mobiles morph into instruments for mass-market entertainment. This will provide a great opportunity for developers to look into varieties of casual games like puzzles, quizzes and other brainteasers. The idea is not just to focus on developing games for 'hard core gamers' but cater to groups who would not like to spend long time playing high-ticket titles.

RIM users - game for games

Keeping in mind varied user preferences for games, Reliance offers an exhaustive bouquet of gaming titles under various genres like action, board, puzzles, sports, mixed bag, etc. Many of these games namely, Cric Game, Ramson's Quest, India XI, Microtrix, Mole buster, Spyder, etc. have been very well received by RIM users. "We are continuously looking to offer games for music, movie and sports fans with branded multimedia entertainment content and cutting edge graphics. Recently, in association with Paradox Studios, we provided two successful contest based games - 'Everest game' around a reputed soft drink brand's promotional campaign and the 'Jurm Game' based on the movie of the same name," says Mital Khona, Product Manager - Games, Applications and Solutions group, Reliance Infocomm.



Mital Khona

A good number of these titles come from third party gaming developers under the Dhirubhai Ambani Developer Programme (DADP) of Reliance Infocomm. Through this Programme, Developers are provided with all necessary tools and technical support to enable them develop engaging and high-quality games that can maximize revenue earnings for them, thanks to over 10 million RIM customers, majority of whom have data enabled handsets. "Operators must have focused developer programmes (like Reliance's DADP) and proactive inputs from operators on what the market needs. When developers are made part of the ecosystem and co-opted in the whole innovation cycle to come out with better products, it works wonders," says Jayadev Gopalakrishnan CEO, Tinfo Mobile Pvt Ltd, a leading gaming developer.



Jayadev

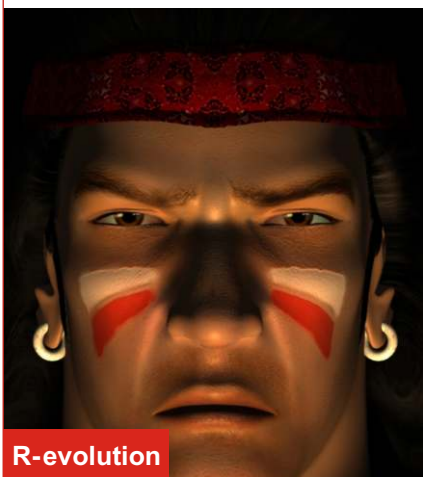
Developing right games for the right set of gamers is the key to building a good portfolio of games that users will come back to play again and again. "A good game sells anywhere. Indian gamers (just like their counterparts in the US, Europe, rest of Asia) will prefer to play good games. If a developer is going the Bollywood/Indian content route, it needn't necessarily work if the content has just got an attractive splash screen. But combine Indian content with superb game play and you have a winner at hand," assures Amit Chandra, Product Manager, Applications and Solutions Group, RIC, DAKC who is closely working with third party gaming developers



Amit Chandra

No time out

As technology behind mobile gaming takes radical leaps, wireless gaming is set for exciting times in the days to come. Better processors, advanced handsets, new interface and better compression technologies will allow easier downloads, more natural game play and empower developers to create innovative games. And coupled with effective marketing, this surely seems to be one spectacular success story in the making in the Indian wireless business arena.



MICROTRIX

Microtrix is a highly exciting block game, which has gained tremendous success among R-World users. It is simple to understand, easy to play and is highly engaging. The six basic features influencing the engagement factor of a game comprising interactivity, flexibility, excitement effects, usability, competition and reality were also kept in the mind while designing the gaming instructions and strategy of Microtrix.

For years, block games have always been popular among PC users. The main focus behind developing the game was on providing an exciting and engaging experience, without causing much strain on the user. "The most complicated block game is only half as complex as war games and adventure games of even moderate complexity. But the satisfaction of playing Microtrix and its very high level of simulation is indeed a good combination," explains Amit Chandra, Product Manger, Games, Applications Solutions Group of Reliance Infocomm.

The game involves dropping of blocks of different geometrical shapes in a container. The objective of the game is to keep the container empty as long as possible. Points are scored

whenever a row of blocks gets completely filled, which are subsequently emptied. All the blocks above it drop to fill the empty row below. The ultimate aim of the game is to prevent the piling up of blocks one over the other and from reaching the top of the container. Once the top of the container is reached, the game ends.

Microtrix is designed to be instructionally sound for mobile devices. The game has four keys to maneuver. In all devices, the 'Left Arrow' and 'Right Arrow' keys are used to respectively move the blocks left and right. Key '5' has been provided to rotate the blocks or objects. Key '8' is used to drop the block fast.

Microtrix has been provided with four different levels - beginners, intermediate, advanced and professional. The settings can be changed to another level by using the 'Left Arrow' and 'Right Arrow' keys in the menu 'Settings'. Special care has been taken to design the game levels so that a novice, either to mobile phones or gaming, can start with the 'Beginners' level and step up to higher levels with time and increasing interest.

Microtrix is available on R World on all Reliance handsets, both in color as well as black and white. One of the challenging tasks for ZMQ was to bring Microtrix to black and white handsets. The graphics were accordingly redone. But the tricky part was to develop it for Samsung XBS handset. The DADP Tech Team along with ZMQ's Game Design Team did a lot of research before finding an innovative solution of creating the game in a horizontal mode instead of vertical.

In order to keep the excitement level of the game, ZMQ is constantly developing newer versions of Microtrix. Currently ZMQ is coming up with a Microtrix in virtual 3-D mode, named '3D-Trix' for mobile devices. The objective of the game is to fill the rows and columns in 3D structure, and to keep the space empty as long as possible. The falling objects can also be rotated in two directions, both horizontally and vertically. The gaming effects of 3D-Trix are the same as Microtrix, but designed for users who have already played Microtrix like 2D games.





This article is mainly addressed to newcomers in the field of Java 2 Micro Edition (J2ME). It covers the installation and execution of J2ME Wireless Toolkit, followed by development and execution of a simple application on the J2ME Wireless Toolkit. Readers are expected to be familiar with basic Java programming and OOP concepts.

Introduction

Some may think why J2ME when there are many other platforms available? The reason is that J2ME is the most widely accepted environment for small devices and it is deployed by many wireless device manufacturing companies and networks including Reliance Infocomm. J2ME also has some unique in-built features like strong support for web services, which enable downloadable software on wireless devices (the one you see in R World). It even provides with customized configurations for non-general devices. Also, support for multimedia and 3D graphics make J2ME a versatile platform.

In the mobile development phase, one often comes across terms like Profile and Configurations. RIM's JAVA version (on LG RD 5130, RD 6130 Setting>Phone>Version) has CLDC-1.0 and MIDP-1.0. Let us first discuss what these acronyms mean.

CLDC

CLDC is an abbreviation for Connected Limited Device Configuration. Basically, a configuration outlines a set of device requirements like memory, connectivity etc. The configurations define the JAVA platform for a range of devices. J2ME provides two types of configurations, namely CDC (Connected Device Configuration) and CLDC. The CDC is implemented in a minimum of 512KB memory for running a JAVA program, 256KB memory for a runtime memory application, persistent network connection and high bandwidth. CLDC on the other hand can be adopted in 128KB memory for running JAVA programs, and a 32KB memory for runtime memory application, limited user interface and low bandwidth. It does not mean that CLDC becomes a poor man's device. Instead, it means that it is widely applicable and deployable.

MIDP

MIDP is an abbreviation for Mobile Information Device Profile. An MIDP extends CLDC by providing API for user interface components, input, event handling, persistent storage and networking, all within the considerations of device configuration such as screen and memory. Midlets are built on top of CLDC and MIDP.

Set up

The J2ME development environment can be set on various platforms including Windows, Linux and Solaris. One can choose a platform of one's choice. J2ME development environment requires the following essentials:

1. J2SE SDK 1.3 or later
2. J2ME wireless toolkit
3. An IDE (not necessary but adds more productivity and ease) or a Text Editor
4. Visit www.dadp.com to get access to all downloads and to be a part of DADP community member

Download J2SE SDK from <http://java.sun.com/j2se> and install it. Correctly set the path variables. Then download J2ME wireless Toolkit from <http://java.sun.com/products/j2mewtoolkit> and install it by double clicking its setup file. You must have a text editor installed on the computer or you can use notepad on windows platform or write on Linux platforms.

You can also use any IDE (Integrated Development Environment), which helps to make development easier. Sun Java Mobility Studio is one such IDE, which is freely available and can be downloaded from Sun's website. It is highly user friendly and has features of all modern IDEs, including code completion, code time error detection online help etc.

Hello J2ME

Now we will try to build our first midlet with classic hello world program. The following steps can help you do that:

1. Open KToolbar from Start > Programs > J2ME Wireless Toolkit > Ktoolbar, as shown in figure 1.
2. Click on New Project button to create new application.
3. Enter the following as shown in the screenshot. Project name HelloRWorld and MIDlet class name HelloRWorld as shown in figure 2.
4. Click create project. Then you will be provided with the required setting window. Fill in as shown in figure 3. Note that we have

changed MIDP from default value to 1.0. This is not necessary but useful in future.

5. Click OK. It will create the following directory structure for your J2ME application:
 - <j2mewtk installation dir>\apps\HelloRWorld\-> Main project dir
 - <j2mewtk installation dir>\apps\HelloRWorld\bin\->Contains compiled midlet (.jar) and its descriptor (.jad file)
 - <j2mewtk installation dir>\apps\HelloRWorld\bin\lib\->Contains additional libs (.jar) files for your apps.
 - <j2mewtk installation dir>\apps\HelloRWorld\bin\res\->Contains resources such as text file or images for your midlets.
 - <j2mewtk installation dir>\apps\HelloRWorld\bin\src-> Here we will save all of our source code.
6. Copy or write the code given in the list below.
7. Save this file as HelloRWorld.java in src directory of your applications folder described in step 5.
8. To build this application, click Project > Build or just click the Build button on the toolkit. If there is any error, it will be notified. Correct errors and build again.
9. On successful build, click on Run button. This will show a new screen having emulator as shown in figure 4.
10. Select 'launch' by clicking on right soft key and you will see output as shown in figure 5.

This is how an application is built and executed in a J2ME Wireless Toolkit. Beginners may find it difficult to follow the complete code. They are requested to refer the J2ME documentation to understand the functionalities of various methods used in the code. This can serve you as a launch pad to develop some of the challenging applications, similar to the ones you see in R World.

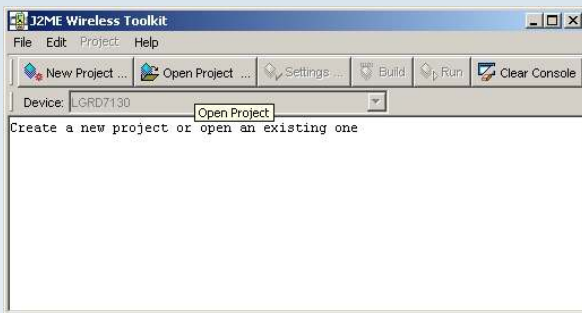


Figure 1

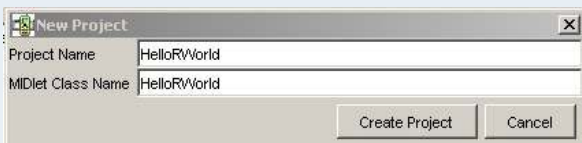


Figure 2

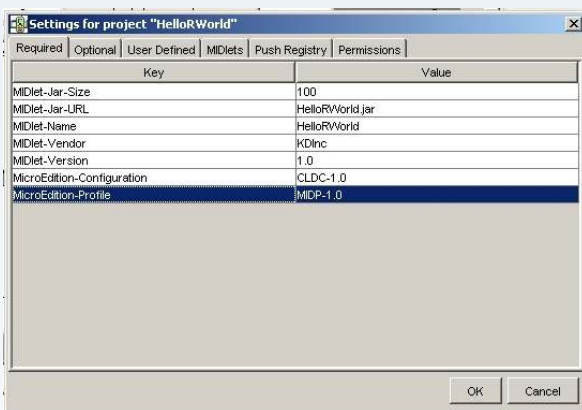


Figure 3

```
import javax.microedition.lcdui.*;
import javax.microedition.midlet.*;
```

```
public class HelloRWorld extends MIDlet implements CommandListener
{
    private Form rForm;

    public HelloRWorld()
    {
        rForm = new Form ("HelloRWorld");
        rForm.append(new StringItem(null, "Welcome RWorld"));
        rForm.addCommand(new Command("Exit", Command.EXIT, 0));
        rForm.setCommandListener(this);
    }
}
```

```
public void startApp()
{
    Display.getDisplay(this).setCurrent(rForm);
}
```

```
public void pauseApp()
{}
public void destroyApp( boolean unconditional)
{}
}
```

```
public void commandAction(Command c, Displayable s)
{
    notifyDestroyed();
}
}
```

List



Figure 5



Figure 4

Post your query on DADP Discussion Forum and win a surprise gift from DADP!

If your query is selected by the DADP technical team, as the most innovative and challenging of all postings in a month, you will win a surprise gift. And yes, your query along with your photograph will be published in 'R-evolution' as well! So visit www.dadp.com, register (if not registered already) and start sending in your queries.

'India will be a good arena for mobile games in the future with its penetration of mobile connections'

A qualified engineer and a mobile game developer, Surya Pulagam is the Managing Director of JAMDAT Mobile (India) Pvt. Ltd, a global wireless publisher and provider of entertainment applications and technologies that supports multiple wireless handset platforms in markets around the world. JAMDAT publishes a diverse slate of original entertainment for wireless platforms including mobile phones. Surya is highly passionate about developing quality mobile games for R World. His hobbies include spending time with his kids, reading and watching television and movies.



Surya Pulagam

JAMDAT Mobile

Please tell us something about your organization?

JAMDAT provides platform technologies to support development and distribution of wireless entertainment applications for its studio and carrier partners, including subscription services and infrastructure support. JAMDAT's technologies ensure delivery of rich entertainment experiences taking advantage of today's advanced handsets, 3G wireless networks, multiplayer capabilities and tomorrow's 3D graphics, location-based services and other technical enhancements. Offering a combination of creative and technological expertise, JAMDAT is a preferred mobile entertainment partner for wireless carriers, handset manufacturers, major media companies, and independent content developers. In its role as publisher, JAMDAT acts as the intermediary between brand licensors, game developers, handset manufacturers and wireless carriers to deliver wireless entertainment to customers.

Can you tell us something about the association of JAMDAT with Reliance Infocomm?

We are currently working with Reliance Infocomm in the area of mobile content by offering our games, which are now under testing. We are planning to offer our rich mobile content to Reliance customers through the R World service. With this opportunity, we feel that the Indian users will have access to our huge bouquet of high quality games. We are also looking toward creating more localized content in the future for the Indian users and are closely working with the Reliance team in this regard.

What applications/games are you developing for R World? How are these unique? What are the special features?

We are likely to launch most of the existing games in our portfolio through R World. Our games are of very high quality and have great user interfaces, which differentiates us from our competitors. We own a lot of top brand licenses and publishing relations with leading titles. JAMDAT's slate of wireless games features well-known brands and original titles that include JAMDAT Bowling, Hasbro's Scrabble®, Activision's Tony Hawk's Pro Skater®, MLB.COM (Major

League Baseball), The National Basketball Association (NBA), The National Hockey League (NHL), The National Football League (NFL) and New Line Cinema's The Lord of the Rings™ franchise. We also own a lot of intellectual property on JAMDAT Bowling, Bejewelled and Lemonade Tycoon etc, which we think the Indian users will like. We are currently developing a slate of games on the 3D platform, which will give the user great playing experience. With our in-house expertise, we have also built network features into our games, which make for compelling interactive experience for our users. JAMDAT publishes a diverse slate of original entertainment for wireless platforms including mobile phones, PDAs and Pocket PCs. JAMDAT's vision is to be recognized as the leading global publisher of games and other entertainment applications for wireless devices.

Any interesting learning or any memorable event related to mobile games development that you would like to share with the readers?

It is very interesting to see how the mobile platform is changing from the old WAP days to the current J2ME/BREW technologies to the future 3D and multiplayer technologies. It is always a great platform to develop content for. With such a rapid pace of change in technologies, it is always a great challenge to develop content that is accepted by the users. It was a great experience to observe the first multiplayer game when we launched it. People were playing with each other and were able to see the opponent's game board on their handset.

What are your views on the mobile gaming business in India/ abroad and the future trend of gaming applications and customer behavior?

We think that the mobile gaming business is very encouraging. It is picking up in the United States, as well as in the UK and other countries. We believe India will be a good arena for mobile games in the future with its penetration of mobile connections and a billion people.

