



Dhirubhai Ambani
Developer Programme



**Reliance
Infocomm**

A New Way Of Life

August 2004

R-EVOLUTION

Newsletter for the Developer Community

For Private Circulation only

From Our Chairman



Dear DADP Members,

India is moving from being a software major to becoming a global information technology player. India can catalyze this transformation by addressing three aspects - enabling connectivity all across India and with the world, developing applications in every conceivable sphere and growing the domestic information technology market.

Reliance Infocomm has addressed the aspect of connectivity by creating next generation, pan-India digital infrastructure for India. We are now well on our way to creating an explosive range of applications, on the strength of our Dhirubhai Ambani Developer Programme (DADP) community, which has grown to over 12500 individuals and 850 Independent Software Vendors / Small and Medium Enterprises. This is an important part of the evolution of mobile data services in India, because without a Developer Ecosystem, the full promise of mobile technology to help people and businesses realize their potential will not be fulfilled.

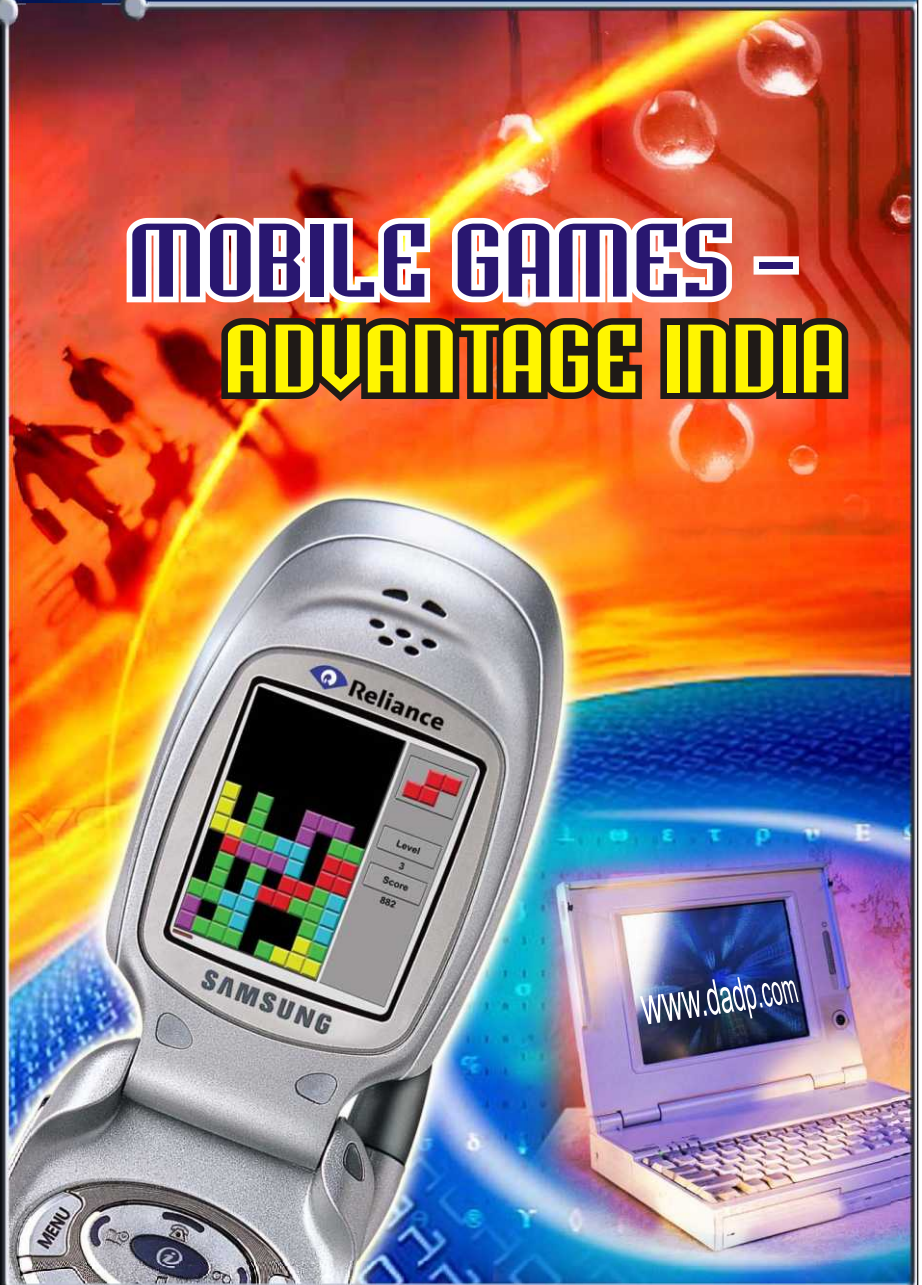
The DADP community has already developed and deployed scores of data applications on the Reliance network. DADP's recent Mobile Applications contest in association with NASSCOM has generated a keen interest for mobile applications amongst Indian developers and has resulted in the creation of very innovative applications.

We at Reliance are fully committed to equip developers with tools, resources and business related information so that developers can focus on creating killer applications. We are pleased to bring this newsletter R-evolution, to share with you value-added information about future trends in mobile data services with respect to both business and technology.

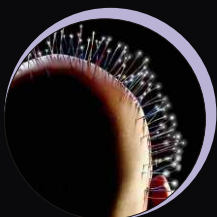
Low cost connectivity and a wide range of data applications from the DADP Community on the Reliance network, will prepare the foundation for proliferation of data services in India. And it would be a matter of immense satisfaction that Reliance Infocomm would have made this happen in its own modest way.

With best wishes,

Mukesh Ambani



MOBILE GAMES - ADVANTAGE INDIA



Tech Tip
Log4j



Application of the Month
Ramson's Quest



New Products & Processes



Interview of the Month
Tinfo Mobile



Quiz

Dear Developer:

As a part of our ongoing endeavor to provide you with valuable insights, we are bringing out R-evolution, a monthly newsletter that will unveil rapid developments taking place in mobile telephony.

Our Lead Story for the inaugural issue is on Mobile Games, which are making waves the world over. Seven million plus customers of RIM form a huge market for mobile games in India vis-à-vis a few data capable phones with other service providers. Naturally, this has attracted the attention of gaming developer community in India to Reliance Infocomm. Read on to get the views of leading developers on how the market will unfold in the coming years and its implications for the gaming community.

We are pleased to introduce innovative and convenient ways of testing Java applications on Reliance phones with a series of OTA tools. For more information on DADP OTA tool, please read our 'New Products and Processes' section. In the Tech Tip section, we are introducing you to a tool - Log4j- for log generation. Read on to find more... Plus we have other interesting features too.

Your feedback on the newsletter is keenly awaited.

- S P Narayanan

MOBILE GAMES - ADVANTAGE INDIA

Lead Story



The popular adage, 'work while you work, play while you play' is now passé. Work while you play and play while you work are the modern mantras for creativity and enhanced productivity, thanks to mobile gaming.

There is a new craze among the millions of mobile users in India today - playing games on mobile phones. You can catch them everywhere around you- in buses, trains, and college campuses and even in workplaces. From cricket to motorbike races, boxing to multiplayer games, mobile gaming is the new buzzword in the mobile industry. Frequent users of these services span a broad spectrum of age groups, ranging from less than 10 years to the late 50s. Emerging wireless technologies such as 3G, sophisticated handsets, color screens and dynamic sound have all contributed to the excitement in the mobile gaming space.

Though mobile gaming is still nascent in India, it is catching up fast. This presents a great opportunity for developers to cash in on the craze, as the future of gaming seems bright in the coming days. One main reason for games becoming a hit with cellphone users is the proliferation of Java-enabled handsets, which are available at affordable prices. Reliance IndiaMobile has a clear headstart in this area compared to the GSM players, as almost all the handsets on Reliance network are Java enabled and support mobile gaming, unlike other players. That gives a real boost for the developers.

Globally, there are 1.3 billion mobile phone subscribers today and the number is expected to cross the 1.52 billion mark by 2006. It is expected that the number of the mobile game players will rise from 231 million to 406 million in the corresponding period, accounting for revenues growing from \$4.7 billion to over \$11 billion.

As per the ARC group, the Asia-Pacific area (including Japan) is currently the largest region in terms of mobile gaming revenues, accounting for half of the worldwide gaming service business. Mobile games are expected to generate over \$1 billion in revenues for Asian operators this year with a potential to touch \$3.2 billion by 2008. Multiplayer, networked games present the greatest revenue potential for operators across Asia. The research firm expects the multiplayer/networked games subscriber to grow from 20.5 million this year to 125.5 million by 2008. Games download will also see major growth during that time, from 45.2 million now to 183.2 million in the next four years.

In Japan, Vodafone offers nearly 2000 multimedia / Java based games through its mobile data offering Vodafone live!, at a monthly fee of upto 300 yen (or under \$3 or Rs. 135) or a one-time charge per game ranging from 50 yen to 500 yen. Japan's top mobile phone operator, NTT DoCoMo also provides a variety of gaming content, downloads and multiplayer game services to its subscribers.



As the craze for mobile games heats up, downloads show an up trend. Reliance IndiaMobile's cricket game launched in November 2003 created a near world record of nearly three lakh downloads on the very first day. Reliance Infocomm recently launched multi-player mobile gaming facility for the first time in the country. The facility allows multiple Reliance IndiaMobile customers to play games with each other, anywhere across the country over their mobile phones

“With almost all users having Java-enabled handsets we already have a potential user base for high-end mobile gaming. Our current set of mobile games are already receiving a phenomenal response, with games enjoying millions of downloads a month. The objective now is to elevate mobile games to the next plateau by engaging multiple users playing a game with each other. We see a huge opportunity in mobile multi-player games that could add a whole new dimension to the wireless entertainment and communication,” says Mahesh Prasad, President, Applications and Solutions Group, Reliance Infocomm.



Mahesh Prasad

This augurs well for game developers in India, some of whom are already developing games not only for domestic carriers but also for the global market. Today, there is a growing and vibrant worldwide content ecosystem for the development of mobile games. On the one hand, there is the game publisher whose role has become distinct from that of the developer, with companies like JAMDAT, Gameloft, Airborne and Mforma taking the lead in aggregating content from third party developers around the world. On the other hand, one can see international independent developers like Blue Lava, Sorrent, Morpheme and Indian game developers like Paradox and Dhruva Interactive carving out a niche for themselves through great game designs. Sensing the demand that games are poised to generate worldwide in the future, PC and console videogame publishers have also entered the mobile market, led by Sega Mobile and THQ Wireless. Electronic Arts, Activision, Microsoft Studios and Atari, who have also licensed their content for mobile games.

Though India is a new market for mobile games, the potential is undoubtedly huge. Gaming companies like Gametrix, Tinfo, Paradox and Dhruva Interactive have already made their mark in India and overseas by collaborating with leading cellular service operators for mobile game development.

One of the reasons why game developers are poised to hit big time in India is the availability of excellent and talented programmers. It is here that cellular service providers like Reliance Infocomm aim to play a major role by providing the developer community with the right platform to showcase their skills and expertise. Scores of these developers have successfully developed and deployed applications on Reliance Infocomm's R-World suite of services. This provides the developers an opportunity for showcasing their games on a world class network like Reliance Infocomm to market their games globally.

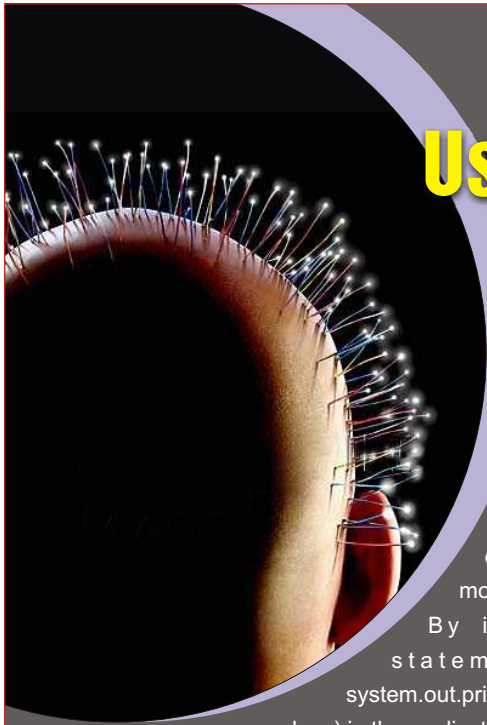


Anurag Khurana

“The real advantage for India comes from her ability to develop games in 2-4 months at a competitive cost of USD 30,000-40,000. Quality-wise we are at par with international game developers but we need to be more aggressive in marketing. If that is done, there is a multi-billion dollar market waiting to be tapped. Good Products, backed by strong marketing efforts, will open up flood gates of opportunities for the Indians,” avers Anurag Khurana , CEO, Paradox Studios Pvt. Ltd.

India is waiting in the wings to claim her lion's share in this burgeoning industry. It is a chance no game developer of any mettle is likely to give a miss.

Using Log4j for generating logs



Logging, or writing the state of a program at various stages of its execution to some repository such as a log file, is an old method used for debugging and monitoring applications.

By inserting output statements (such as `system.out.println` in the case of Java) in the application code that write to a simple text file, console, or any other repository, a reliable monitoring and debugging solution can be achieved. Although low-level, this is the mechanism to fall back upon when sophisticated debugging tools are either unavailable for any reason or are useless, such as in a distributed application scenario.

Some people argue that log statements pollute source code. However, the contrary may be true. In the Java language, where a preprocessor is not available, log statements increase the size of the code and reduce its speed, even when logging is turned off. Given that a reasonably sized application may contain thousands of log statements, speed is of particular importance.

With log4j, it is possible to enable logging at runtime without modifying the application binary. The log4j package is designed in such a way that these statements can remain in shipped code without incurring a heavy performance cost. Editing a configuration file, without touching the application binary, can control logging behavior.

Loggers can be assigned different levels of priorities. The five different priority levels include DEBUG, INFO, WARN, ERROR, and FATAL, in ascending order of priority. As we can see, log4j has corresponding printing methods for each of these priority levels. These printing methods are used to generate log requests of corresponding priority level for log statements. For example, `mylogger.info`

(`logstatement-1`) generates log request of priority level INFO for `logstatement-1`.

After assigning a priority level to a logger, it will enable only those log requests with a priority level equal to or greater than its own. This technique helps prevent log statements of lesser importance from being logged. This concept is the core of log4j functionality. If performance is way too crucial in your code, you can use the parameters of a logging method in the way shown in the parenthesis (if `logger.isDebugEnabled()` {`logger.debug` ("Message") to save the time to construct.

You can put the configuration file outside the EAR file. A sample implementation of log4j ([Version 1.2.8](http://logging.apache.org/site/binindex.cgi) : Download link: <http://logging.apache.org/site/binindex.cgi>) logging mechanism can include the following steps:

- Create a configuration file for log4j.
- Put an entry for LOG4J_CONFIGURATION_FILE in the server side property file pointing to log4j configuration file. Sample is given in Listing-1.
- Configure log4j logger using this property file. The code for configuring log4j using the configuration file is given in listing-2.
- Call `logConfig()`; method in `init` method of the servlet.
- Create logger by writing
- `Static Logger logger = Logger.getLogger(MyClass.class);`
- Write the logs using `logger.debug` ("Message") or `logger.info` ("Message") etc.

Sample Server_Log4j.properties file (Configuration File)

```
log4j.rootCategory=DEBUG,R
log4j.appender.R=org.apache.log4j.RollingFileAppender
log4j.appender.R.Append=true
log4j.appender.R.MaxBackupIndex=1
log4j.appender.R.MaxFileSize=1024KB
log4j.appender.R.File=/RAPapps/applogs/ConsApps/log4j/autocabfareserver.log
log4j.appender.R.layout=org.apache.log4j.PatternLayout
log4j.appender.R.layout.ConversionPattern=%-4d %-5r %-5p [%t] %c{2} - %m%n
```

Sample Server.properties file

```
dataSourceName=jdbc/AUTOCABFARE
REFRESH_TIME=15
LOG4J_CONFIGURATION_FILE=/RAPapps/dwnld_files/Apps/Consumer/properties/AutoCabFare/AutoCabFareServer_Log4j.properties
```

Listing-1

Implementation of logConfig function

```
public void logConfig(){
    try{
        String log4jConfFile = props.getString("LOG4J_CONFIGURATION_FILE");
        System.out.println("log4jConfFile: " + log4jConfFile);
        if (log4jConfFile == null || "".equals(log4jConfFile) ||
            (!new File(log4jConfFile).exists())){
                throw new Exception("log4j not confiured");
            }else {
                System.out.println("configurtion accpeted");
                PropertyConfigurator.configure(log4jConfFile);
            }
        }catch (Exception e) {
            e.printStackTrace();
        }
        System.exit(1);
    }
}
```

Listing-2

The quest of Ramson

Platform-based adventure games have always attracted a lot of interest in the console gaming community. However, it is a genre, requiring meticulous design and development planning, skillful implementation and smooth integration of advanced device capabilities like sound and vibration for an 'involving' user experience. Such games take you through an adventure across different levels or stages.

The first of the series of Ramson's Quest (RQ), Five Forests, from Tinfo Mobile is an innovative application on the Reliance Platform, with sound and vibration effects. The exceptionally rich and detailed graphics make the game extremely engaging even for occasional gamers. The game comes with an easy- to - use interface, an in-game tutorial to help you learn the moves, the option to turn off the sounds or vibration or both, the save and resume functionality and a top-five high scores list. It is the first premium game to be launched for Reliance IndiaMobile customers and utilizes the handset capabilities well.

Ramson's Quest - Five Forests is the first in the series of Ramson's thrilling adventures in which Ramson, the protagonist, has to cross five forests, en-route his mission to rescue the princess of Novea.

Tinfo Mobile is consciously working to popularize the series with the Ramson brand by developing other games in the series keeping Ramson as the central character. Every game in the RQ series has a theme, a storyline, new obstacles and opponents, a new environment and a plot taking the adventure forward. The first version of the game introduces the character.

The thrilling storyline recapitulates that long ago, in the kingdom of Novea, lived the beautiful princess, Amana. She was one lady any man of royal birth would have loved to be seen with. All was well in Novea, until Omega, the envious witch decided that she deserved more popularity than Princess Amana. In her frenzy, Omega turned all the people into statues, filled the woods and caves nearby with wild creatures and locked up Amana in a dungeon. No one except the brave prince Ramson dared to help.

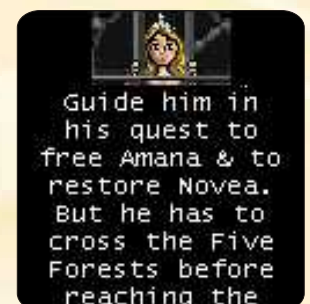
The aim of the game is to guide Ramson, the brave prince, through five forests filled with obstacles and bewitched creatures. The ultimate aim of the series is to save the princess who has been trapped in her palace by the spell of the cruel and envious witch.

Ramson, the hero, can either throw daggers to kill the bewitched wild creatures, pick fruits (to increase score), pick

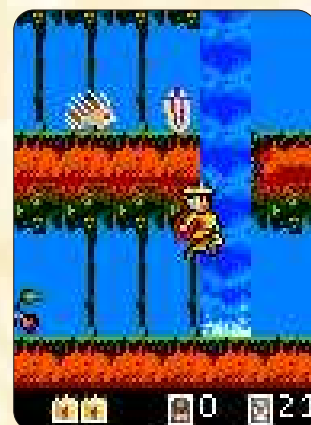
magical crystals (to increase game time), pick life-pots to become invincible for a while (also to increase the score), change statues back to normal people by just touching them (every fourth statue touched gives the player extra life subject to a maximum of three), avoid waterfalls and jungle fires (as they are fatal and take the player to the start of the level) and move away or kill wild creatures when they come near.

The aim is to cross all the five levels within the given time limit and preserve Ramson's life. Helping Ramson cross all the five levels brings the player to the entrance of the six caves and one can see Ramson do a special Novean dance (The national dance in the kingdom of Novea)!

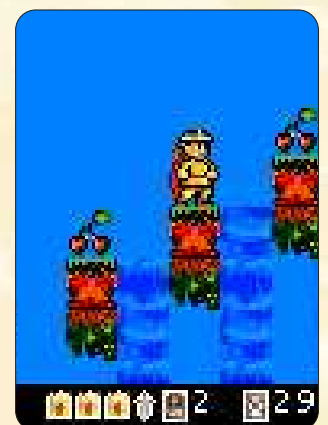
Go ahead and enjoy the game.



**RAMSON'S
QUEST-FIVE FORESTS**



Registering Nickname



High Score

The DADP OTA Tool

Mobile application developers often find that applications do not work the same way on the device as they work on the emulator. This leads to a lot of rework and development effort and time. The primary reason behind this is that emulators do not exactly replicate the behavior of the device. In order to reduce the effort and time, some mechanism was needed to test Applications on the actual device. Developed by the DADP team, the DADP OTA Tool helps developers to test their applications on Reliance handsets without actually deploying them on Reliance environment. Both client-only and client-server applications can be tested using the DADP OTA Tool.

In order to avail this facility, the developer needs to get in touch with the DADP Team by sending an email request at dadp.query@relianceinfo.com. DADP will provide access to serious developers having relevant applications that can be launched on Reliance Network.

Client-Only Applications:

The application .jad and .jar files need to be submitted to Reliance by sending an email at dadp.query@relianceinfo.com. The testing of the same can be conducted as per the instructions provided by the DADP team as an email response.

Client-Server Applications:

In order to test client server applications through DADP OTA Tool, the developer must make the following changes.

1. Deploy the Server side application (.ear file) on the public domain or IP on Port No: 80. Outbound access for the following port has been opened at the Reliance end.
2. Add DADP.zip (dadp gateway component) to your applications lib folder. For example, if your application name is MyApp then typically it will look like: C:\wtk104\apps\MyApp\lib\DADP.zip.
3. Changes need to be done in the client generating the request. Sample code to implement is given in Listing-1.
4. The sample JAD file for application testing using DADP OTA Tool is given in Listing-2
5. Submit the .jad and .jar files through an email as mentioned above in Client-only Applications
6. Once the application testing is completed, remove the DADP Request.class from the MyApp.jar and implementation of the DADP Request in the application instead of passing the DADPURL in the RAPRequest. Pass _rapurl in the RAP Request as shown in Listing-3

We strongly urge the developer community to use this facility for testing their applications and submission to DADP.

```
try{
    originalURL4RAP=this.getAppProperty("_rapurl");
    DADPURL=this.getAppProperty("DADPURL");
    DADPRequest dadpReq=new DADPRequest(originalURL4RAP,originalMethod4RAP);
    pscreen = new ProgressScrn(display);
    pscreen.start();
    display.setCurrent(pscreen);
    RAPRequest req = new RAPRequest(DADPURL,1);
    dadpReq.addParam("reqID",reqID4RAP);
    dadpReq.bundle();
    req.addParam("originalURL",dadpReq.getOriginalURL());
    req.addParam("originalMethod",dadpReq.getOriginalMethod());
    if (!originalMethod4RAP.equals("GET")){
        req.addParam("paramString",dadpReq.getParamString());
    }
    RAPAsyncConn conn = RAPSystem.getConn();
    conn.send(req,this,true);
} catch(Exception e){
    showErr("Unable to connect. Try again.");
}

System.gc();
}
```

Listing-1

```
DADPURL: http://dadp.wdsap.ricinfo.com/dadpgateway/DADPServlet
MIDlet-1: MyApp, MyApp.png, com.reliance.myapp.MyApp
MIDlet-Jar-Size: 26240
MIDlet-Jar-URL: MyApp.jar
MIDlet-Name: MyApp
MIDlet-Vendor: Reliance
MIDlet-Version: 1.0
_rapsvc: 4.41
_rapurl: http:// Domain Name or IP
address/myappcontext/MyAppServlet
```

Listing-2

```
RAPRequest. Pass _rapurl in the RAPRequest
DADPURL=this.getAppProperty("DADPURL");
RAPRequest req = new RAPRequest(DADPURL,1); insteadof
_rapurl = this.getAppProperty("_rapurl");
RAPRequest req = new RAPRequest(DADPURL,1);
RAPRequest req = new RAPRequest(_rapurl,reqId);
```

Listing-3

'We believe in developing products based on unique insights, rather than making a run-of-the-mill me-too'

Jayadev Gopalakrishnan, 24 an MBA graduate, is the Chief Executive Officer of Tinfo Mobile and the Tandem Group, a conglomerate based in Kerala with interests in education, IT, communication and reprographic services. Jayadev identified mobile space as a core growth area in 2002 and established an exclusive division to solely focus on this segment. Jayadev pursues his passion for music as the lead vocalist of a western music band and has composed and released original music in English and in Malayalam.

Anupam Varghese, 24 years, an engineering graduate, heads Technology for mobile games and applications development at Tinfo Mobile. Anupam joined his schoolmate Jayadev, heading their Technology division at Tinfo. He is the creative brain behind many innovations, including Ramson's Quest and 'All Minder' (which won a special prize in the DADP Mobile Applications Contest-2003)

In a freewheeling interview with the R-evolution, the duo spoke on several issues related to the Developer Community:

Please give us a brief background, the core people and the aims and ambitions of your organization?

Tinfo Mobile (www.tinfomobile.com) is a focused mobile games and applications development company based in

Trivandrum, Kerala. In a short span of one year, we

have developed over sixteen mobile game titles and aim at becoming a formidable

player in the global mobile applications market to take Indian

content to the global wireless arena. Apart from games, we

also develop innovative mobile products of social

relevance that leverage mass popularity and reach of

mobile devices. Our forte also includes contract

development for global clients. We are a small group of young,

dynamic people with a mission to set new paradigms

in the mobile space.

What makes Tinfo Mobile special among the gaming companies in India?

I would say that there are a lot of points that makes Tinfo

Mobile really special. If I were to highlight some of them, I would say innovation is built into every thread of our ideation process. We focus on being thought leaders in the mobile space for developing games and applications based on what we call 'unique insights' rather than making a run-of-the-mill 'me-too' products. Our core strengths lie in a balanced blending of youthful enthusiasm and matured professionalism. We have well-defined processes that ensure high quality standards and on-time delivery of projects.

About three years ago, we started working in the mobile space and finally spun it off into a separate division a year ago.

This makes us one of the earliest players in this field from India. We consider far-sightedness and the ability to develop applications that address insightful consumer needs on a large scale, as key ingredients to succeed in this industry.

Can you list out some of the games developed by your team?

Ramson's Quest (Five Forests and Six Caves), Jungle Rescue, Rob'S'cape, Tenali Raman, Mr. Desktop and Elmira Escape are some of the highly popular games developed by us.

Any special achievements since you started your organization?

Yes, the one we would like to mention is winning the special prize in the Reliance DADP National Application Development Contest in association with NASSCOM for 'All Minder', an SMS/Missed calls reader application for the blind, an idea that was dear to all of us at Tinfo Mobile.

What is your current client list?

Besides Reliance, which is one of the important operators in India, we also have other operators in India and globally. We also have global aggregators and publishers as our clients.



Jayadev Gopalakrishnan



Anupam Varghese

Tell us about your association with Reliance. How fruitful has it been to work in the DADP program?

Reliance has paved the way for other Developer programs in India. To our knowledge, DADP is one of the first-of-its-kind programs in India focused on the Developer community and we have found our association with them very valuable. The relationship has helped our team to get great experience on its handsets. Added to that, the DADP team is very responsive and patient in understanding our needs as developers, which has helped us to develop cutting-edge applications for Reliance phones. Working closely with Reliance has helped us in positioning our games in the top slots, being the first set of titles that fully utilize the handset capabilities. This has also helped us in our brand building exercise.

How does DADP make sense for developers like Tinfo Mobile?

We view the benefits offered by DADP from a broader and a long-term perspective. DADP gives us access to a very large customer base and access to their handsets and comprehensive testing. It is exciting to know that we are working on developing applications and games for a network that is 100 per cent data-enabled, coupled with the distinction

of having almost 100 per cent Java enabled handsets. Another important factor is the availability of advance features and a uniform set of Applications Programming Interface (APIs) that help us deliver killer applications, which may not be possible on the handsets of other networks.

What is the future plan for Tinfo Mobile?

We will continue developing mobile games and applications that are different, innovative, involving, enjoyable, useful, and socially relevant.

How do you see Gaming as a business in India? What are the future trends?

What we see now is just the tip of the iceberg. The Indian market is going to explode in the coming months, particularly by 2005 considering the importance given to data services by operators, particularly Reliance, coupled with the advent of more color and Java enabled handsets at the entry level itself. The Indian mobile gaming industry will be one closely watched market in the days ahead. Focused and dedicated marketing efforts by operators are required to push this service and this could spur the market by attracting new users and creating excellent opportunities for the developer community.

1. Which classic screen actress co-invented spread-spectrum wireless technology?

- Greta Garbo
- Hedy Lamarr
- Mata Hari
- Ingrid Bergman

2. Which company is behind creating and maintaining Java?

- Oracle
- Microsoft
- Borland
- Sun Microsystems

3. What is the name of the inventor (or father) of Java?

- James Gosling
- Bjarne Stroustrup
- Bill Gates
- Dennis Ritchie

4. What is the current total number of developers registered under the DADP?

- Below 5000
- Between 5001 & 10,000
- Between 10,001 & 15,000
- Above 15,000

5. Which of the following luminaries was the Chief Guest at the inaugural DADP Contest prize distribution event held in March 2004?

- Azim Premji
- Kiran Karnik
- N R Narayan Murthy
- Vijay Mukhi

Answers: 1. Hedy Lamarr 2. Sun Microsystems 3. James Gosling 4. Between 10,001 & 15,000 5. Kiran Karnik

Quiz



Monthly Poser

Which version of MIDP is compatible with Reliance phones?

- 1.0
- 2.0
- Both
- None

Answers to the Monthly Poser should be sent to dadp.newsletter@relianceinfo.com mentioning Monthly Poser - August 2004 as the subject. The winner will be decided on the basis of a lucky draw and walk away with a prize from DADP.

You can contribute ideas and information to R-evolution at the following e-mail address: dadp.newsletter@relianceinfo.com.

Please note that contributions may be edited for clarity, style or length.

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