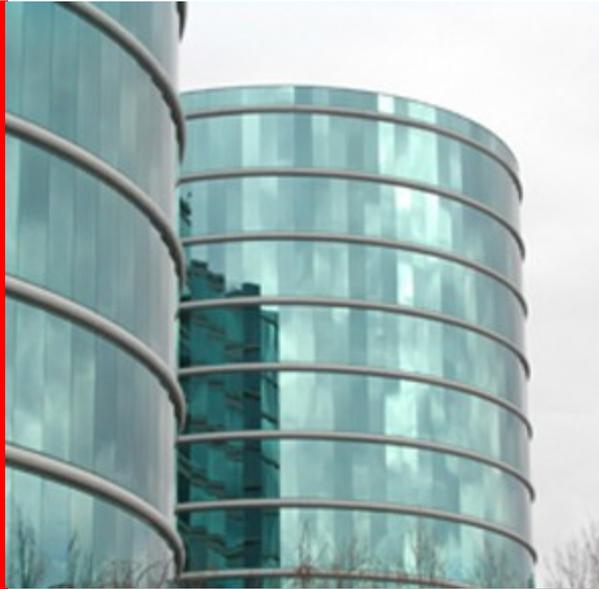


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It's All About ME(Mobile & Embedded)

Roger Brinkley
M&E Community Leader, Java Spotlight Podcast Host

Safe Harbor Statements

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

New Java Podcast

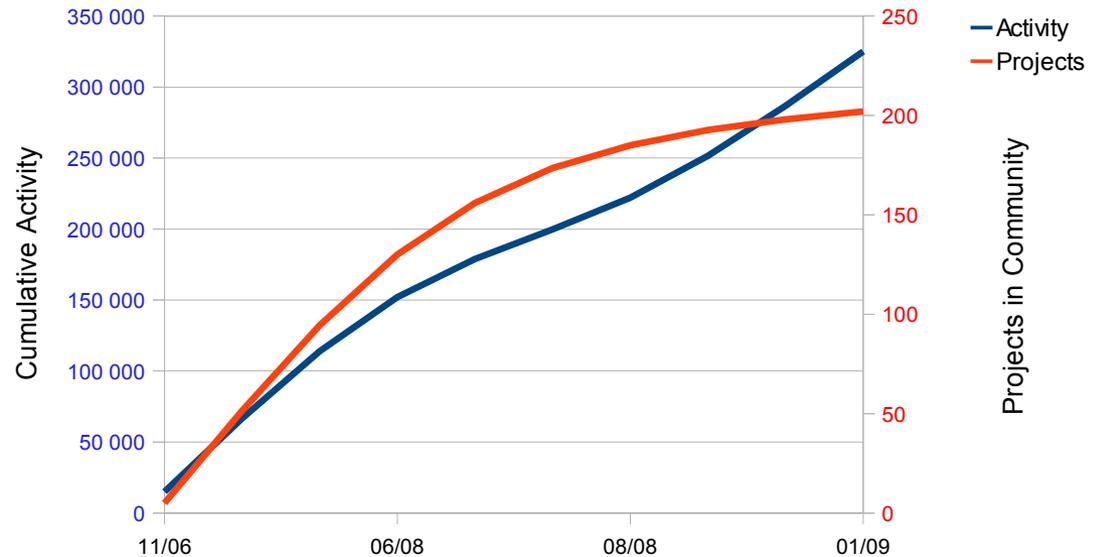
<http://blogs.sun.com/javaspotlight>



Community Snapshot

- > 20,000 activities per month
- News, blogs, podcasts, forums
- Vibrant and friendly community for all things mobile & embedded Java

Java Mobile & Embedded Community Growth



welcome
to the Mobile &
Embedded
Community



Lightweight UI Toolkit (LWUIT)

- Advanced UI library to enable easy creation of compelling applications on TODAYs devices
- Inspired by Swing, familiar APIs
- Portable to MIDP, CDC, Java SE, ...
- Consistent across devices
- Rapid adoption in a number of commercial and open source applications and projects
- GPLv2 + classpath exception
- #15 project on java.net
- <http://lwuit.dev.java.net>



Motivation

- Complex UI requirements on existing devices
- Too much fragmentation
 - Is WORA even possible?
- Strong market need for compelling UI library
- High portability
 - No Java library that spans across mobile & TV (CDC & CLDC)
- Streamlines operations between graphic designer and content developers

Key Benefits

- Rapid development
 - Familiar API
 - Clean & Simple
- Easy deployment
 - One JAR – many devices
- Mass market devices
- Consistent
- Extendable
- Filthy Rich UI
- Brand-able

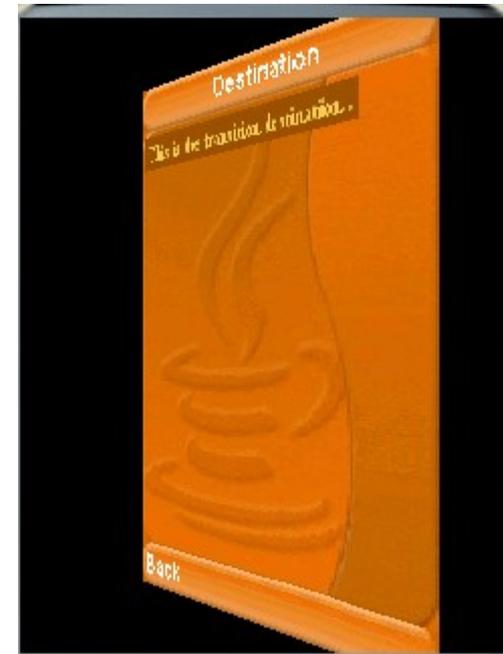


Key Features

- Swing Like MVC
- Layouts
- PLAF & Themes
- Fonts
- Touch Screen
- Animations & Transitions
- Rich widgets
- 3D Integration
- SVG Integration
- Painters
- Modal Dialog
- Synchronous Model
- External Tools
- I18N/L10N

Transitions

- Ready Made common transitions
 - Slide, Fade
 - 3D transitions – Cube , Rotate, Fly in
- Extendable
- Applicable for
 - Forms
 - Dialogs
 - Menu
 - Components



Touch Screen

- Touch devices is the new hype
- All widgets supports touch screen events
- Drag and drop
- Gesture scrolling ('iPhone effect')
- Components can overlap – Z ordering
- GlassPane support

LWUIT Demo



Embedded

Sun has licensed Java over 1 billion cell phones
How do we encourage Sun Technology in whatever comes
next?



Built to Inspire

Designed for flexibility

Make hardware projects
into software projects

Not designed for cost
effective deployment

We want to

Build a community of
developers

Enable new Devices and
services

Engage new customers



Sun Spot Device

Basic device has three layers

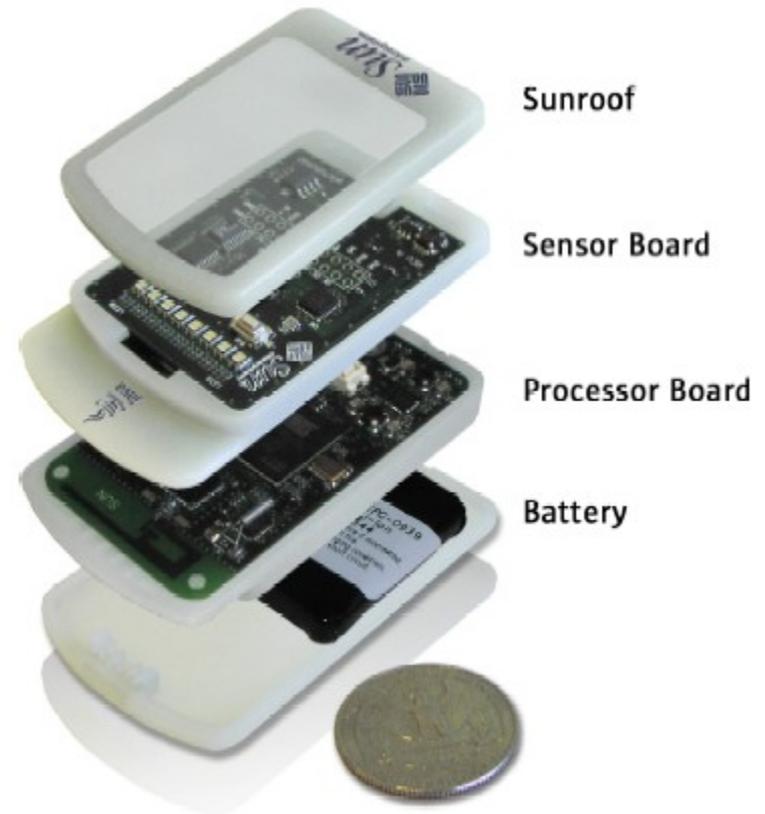
Battery

Processor Board with Radio

Sensor Board

Processor Board alone acts as base-station

User programs the device entirely in Java using std Java tools



Sun SPOT Mainboard

180 Mhz 32 bit ARM920T
core

512K RAM/4M Flash

802.15.4 radio

USB interface – mini b

3.6V rechargeable lithium-
ion battery

36 μ A deep sleep mode

JavaME on the metal



eDemoboard

2G/6G 3-axis accelerometer

Light sensor

Temp sensor

2 push buttons

8 RGB 24 bit LEDs

6 analog inputs

5 general purpose I/O pins
and 4 current output pins

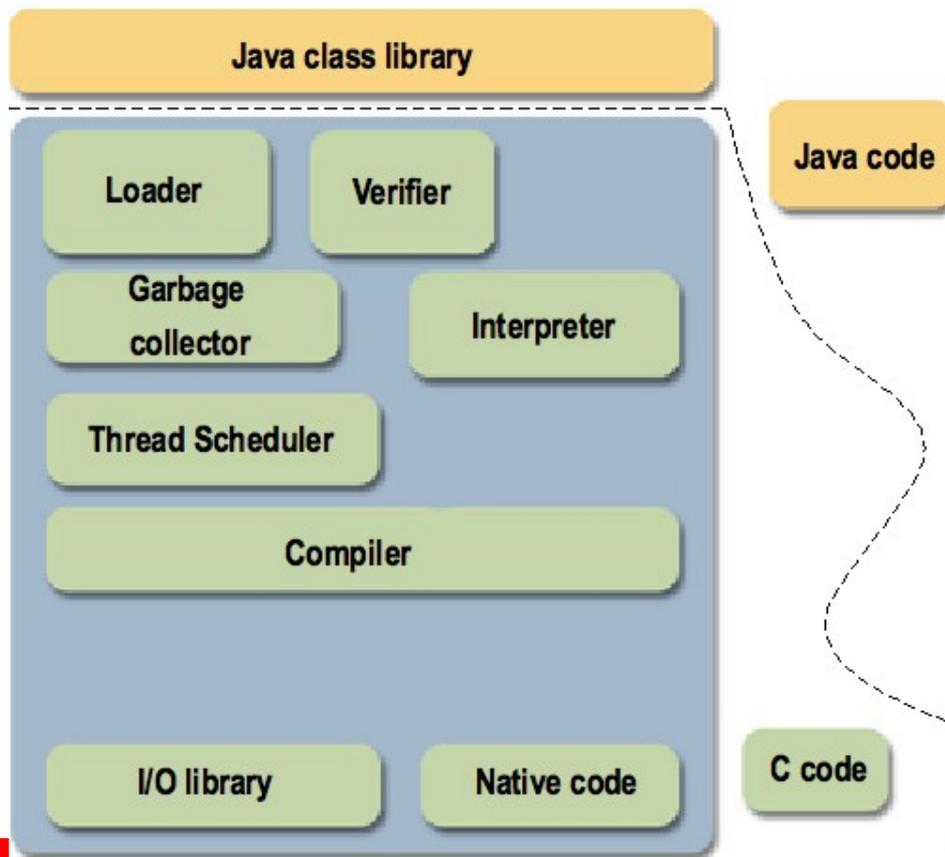


Sun SPOT & Squawk VM

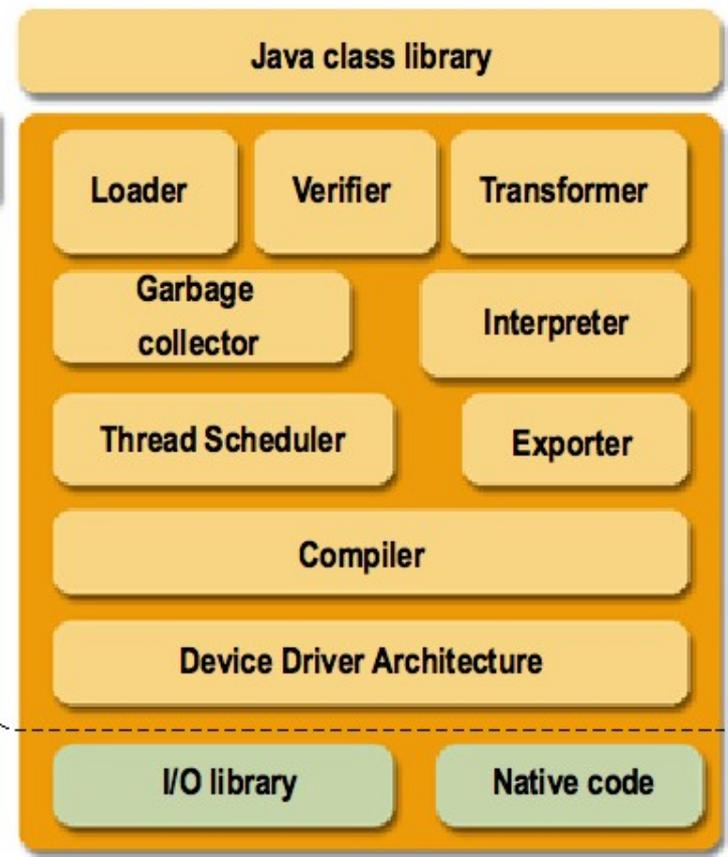
- Sun SPOT
 - Small Programmable Object Technology
 - Micro-controller and sensor hardware
- Squawk
 - Java Operating Environment for small devices
 - Java ME CLDC 1.1 + IMP 1.0
- Used in a variety of embedded control and sensor applications
- Hardware and software under GPLv2

Standard VM vs Squawk

Standard JVM



Squawk JVM



Open Sourced in M&E Community

squawk – Java Virtual Machine

spots-libraries – libraries used by SunSPOTs

spots-hardware -

spots-applications – demos and apps

spots-curriculum – instructional materials

Trackbot

8 built in sensors modules

Beaconing

obstacle avoidance

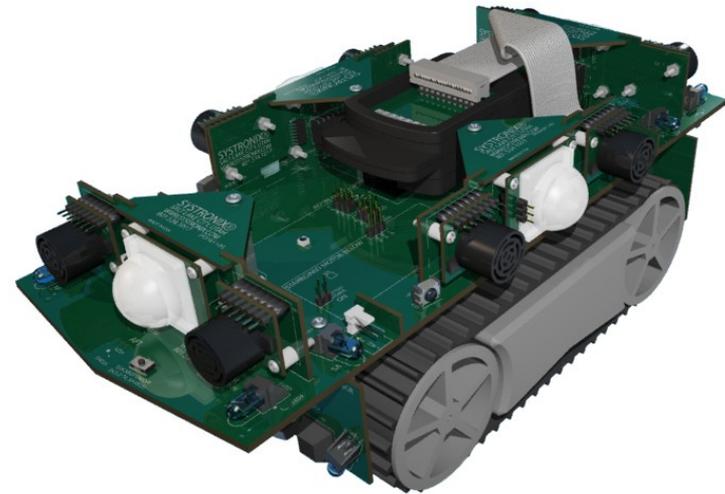
spatial awareness

Communication

Navigation

4 transducer stations for
optional/homebrew sensors

Designed specifically for
university-level education and
research



I Have a Passion

- In 2008-2009 played golf on six continents
- Collected over 350 hickory shafted golf clubs
- Play in National Hickory Tournaments



Golf Swing Analyzer

- Speed of Swing
 - Overall
 - At Impact
 - Point of highest speed
- Club Face Analysis
 - Face Angle at POI
 - Angle of Attack
- Swing Path
 - Backswing and DownSwing
 - Release Point
- Shaft Bending

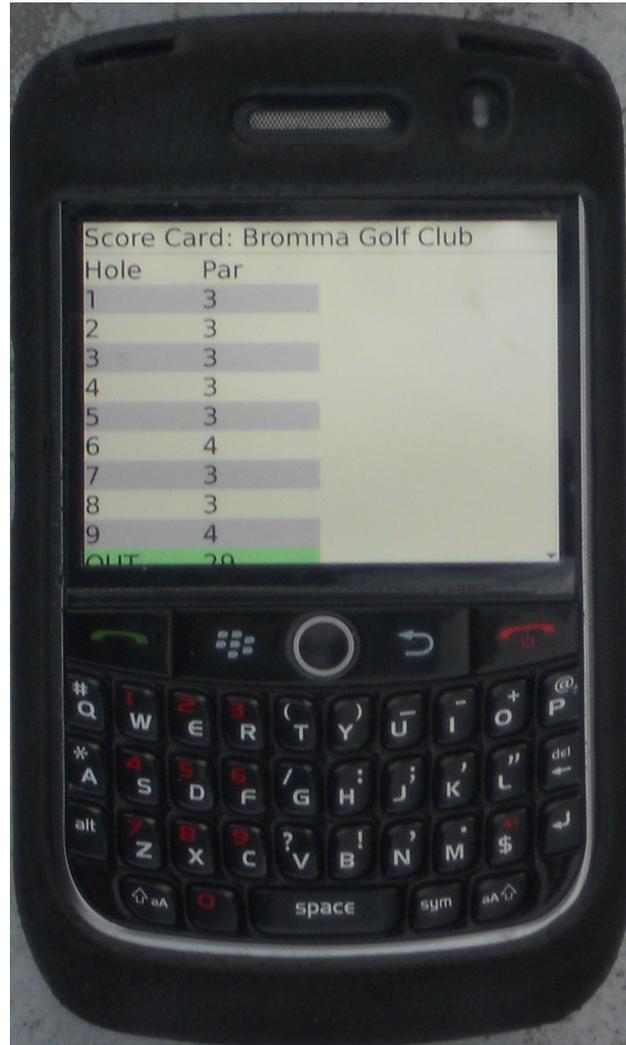
Golf Swing Analyzer

- Speed of Swing
 - Overall
 - At Impact
 - Point of highest speed
- ~~Club Face Analysis~~
 - ~~Face Angle at POI~~
 - ~~Angle of Attack~~
- ~~Swing Path~~
 - ~~Backswing and DownSwing~~
 - ~~Release Point~~
- ~~Shaft Bending Point~~

Caddie

- How far I hit a club
- How far away I am from...
 - Green
 - Hazards
- Scoring Analysis
 - Score
 - Fairways hit
 - Greens in Regulation
 - Putts
 - Greenside Saves
 - Penalties

Caddie



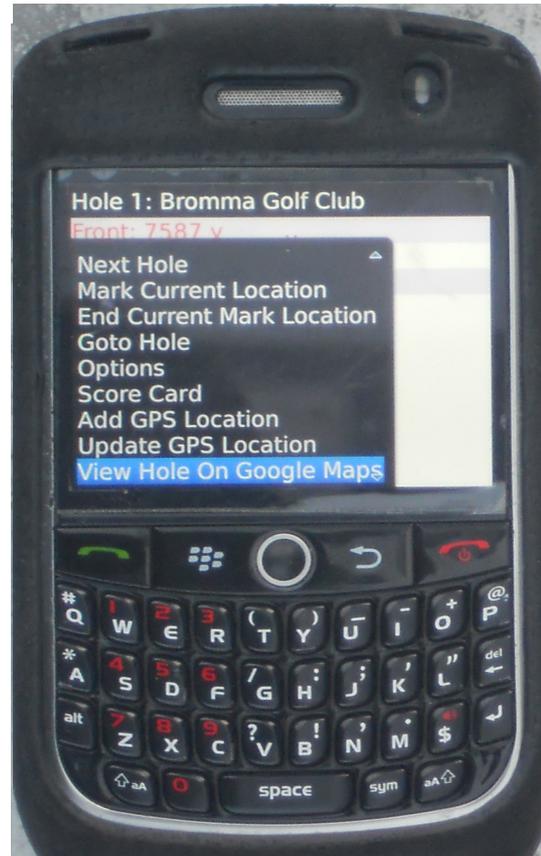
Course Layout



Course Storage

```
-  
<PineCreekGolfClub>  
-  
<Hole1>  
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<Frontlon>-104.779796666667</Frontlon>  
<Middlelat>38.970256666667</Middlelat>  
<Middlelon>-104.779916666667</Middlelon>  
<Backlat>38.970204</Backlat>  
<Backlon>-104.780018</Backlon>  
<Other1Dis>Left Green</Other1Dis>  
<Other1lat>38.9703</Other1lat>  
<Other1lon>-104.779908333333</Other1lon>  
<tlat>38.972236</tlat>  
<tlon>-104.776682</tlon>  
<par>4</par>  
<Handicap>3</Handicap>  
<ID>95200</ID>  
</Hole1>
```

Course Layout



Summary

SunSPOTs:

<http://sunspotworld.com/>

Java Embedded home:

oracle.com/technetwork/java/javame/overview/index.html

LWUIT:

<http://lwuit.dev.java.net/>



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