Best practices in Tizen
Wearable development
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Introduction
Wearable gadgets

- Google Glass
- Bluetooth headset
- Smartwatches
- Fitness bracelet
Tizen Wearable
Tizen Wearable: Gear 2
Tizen Wearable: Gear S
Tizen Wearable: Getting Started
Tizen Wearable: Getting Started

How Can I Develop a Gear Application?

1. **SDK Download**
   - Tizen SDK for Wearable Samsung Accessory SDK
   - **>> Download Links**

2. **Gear App Development**
   - Getting Started with samples & Documents!
   - **>> Technical Resource**

3. **Getting the Gear Certificate**
   - Be secure your app to upload to Samsung Gear Apps
   - **>> Certification Guide**

4. **Testing**
   - If you have no Gear device, Use Gear Emulator & RTL
   - **>> Get Gear Emulator**
   - **>> RTL Service**

5. **Registration through Samsung GALAXY Apps**
   - **>> Gear App Distribution Guide**
   - **>> Samsung GALAXY Apps Seller Office**
Development & Tips
Tizen Wearable: Getting Started

http://developer.samsung.com/samsung-gear

Samsung Gear

Overview FAQ

SAWNSWORERABLES
ARE YOU GEARED UP?

Tizen SDK for Wearable 1.0.0
Oct 6, 2014
Download

Samsung Accessory SDK 2.1.11
Oct 6, 2014
Download

NOTE: For developing Samsung Gear Application, you need both of the Tizen SDK for Wearable and Samsung Accessory SDK. You can find more details on how to develop Gear Application in the ‘Hello Accessory Developer’s Guide’ document below.

Samsung Gear Application consists of the Host-side Application which runs on Android-based Samsung mobile devices, and the Wearable-side Widget which runs on Tizen-based Samsung Gear devices.

The Host-side Application can be developed in the common Android development environment, whereas, the Wearable-side Widget can be developed with Tizen SDK for Wearable.

In addition, Samsung Accessory SDK is the necessary component for communicating between the Host-side Application and Wearable-side Widget. You can find more details below.
Tizen Wearable IDE

```javascript
/**
* Returns correct path for modules.
* @private
* @param {string} data Current path.
* @return {string} New path.
*/

function getPath(data) {
    var index = data.lastIndexOf('/'),
        path = data.substr(0, index + 1);

    return path || './';
}

/**
* Have all requires been sorted already?
* @private
* @param {string[]} requires Requires.
* @param {string[]} sorted Sorted requires.
* @return {boolean} result.
*/

function areSorted(requires, sorted) {
    var i = 0,
        depslen = requires.length,
        result = true;

    for (i = 0; i < depslen; i++) {
        // Has mod been sorted already?
        result = result && (sorted.indexOf(requires[i]) !== -1);
    }

    return result;
}
```
Tizen Wearable IDE

Project components:
### Connecting to Gear...

After connecting to your Gear, you can change its settings and install applications on it via Samsung Gear.

#### Samsung Gear

<table>
<thead>
<tr>
<th>Gear 2 (88D3)</th>
<th>Connected via Bluetooth</th>
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<tbody>
<tr>
<td>Home screen styler</td>
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<td>Logs</td>
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<tr>
<td>Settings</td>
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Tizen Wearable

Diagram:
- **Host**
  - Gear Manager
    - Libraries
    - Clock
    - Music
    - Notification
    - Application Framework
    - Accessory Framework (SAP)
    - Third Party Apps
  - Apps
  - Android Runtime
  - Linux Kernel

- **Wearable**
  - Alarm
  - Clock
  - Music
  - Notification
  - Third Party Apps
  - Web Runtime
  - Wearable Manager Service
  - Libraries
  - Accessory Framework (SAP)
  - Linux Kernel

- **BT/BLE** connection between Host and Wearable
Development Tips

Use specialized Tizen API’s instead of generic JavaScript.
Example:

Instead of:

```javascript
var date = new Date();
```

Use:

```javascript
var date = tizen.time.getCurrentDateTime();
```

Specialized Tizen Wearable API’s synchronize with the connected phone, preventing problems with manual time change and when switching time zones.

Development Tips
Use CPU and wake locks when needed.

After a certain time of inactivity, the device will turn its screen off. To prevent this behaviour, implement a wake and a CPU lock.

```javascript
// Request a screen and CPU lock
const tizenPowerRequestScreen = tizen.power.request("SCREEN", "SCREEN_NORMAL");
const tizenPowerRequestCPU = tizen.power.request('CPU', 'CPU_AWAKE');

// Release the locks when not needed anymore
const tizenPowerReleaseScreen = tizen.power.release("SCREEN");
const tizenPowerReleaseCPU = tizen.power.release('CPU');
```

Remember to release the locks when not needed anymore.

In order to use this, the power privilege must be declared in the config.xml file.

```xml

More info: https://developer.tizen.org/dev-guide/2.2.1/org.tizen.web.device.apireference/tizen/power.html
Development Tips

<div> elements are highlighted in orange.

After touching a clickable <div> element on the device, it gets highlighted in orange for a short period of time. To disable this, in your CSS insert the following:

```
{
  -webkit-tap-highlight-color: rgba(0, 0, 0, 0);
  -webkit-tap-highlight-color: transparent;
}
```

Development Tips

If your app is destined for multiple devices with different resolutions use CSS Media Queries.

Example:

```css
// CSS for screens with max resolution == 320px - Gear, Gear 2, Gear 2 Neo
@media screen and (max-width: 320px) {
  div#main {
    width: 320px;
    height: 320px;
  }
}

// CSS for screens with max resolution == 360px - Gear S
@media screen and (max-width: 360px) {
  div#main {
    width: 360px;
    height: 480px;
  }
}

// Other styles, that are the same for both resolutions
div#container {
  background-color: #000000;
}
```

Remember to add the appropriate line into your config.xml file

```xml
<feature name="http://tizen.org/feature/screen.size.all"/>
```

Development Tips

You can also upload different binaries per resolution (recommended when functionalities vary between devices).

Keep in mind, that not all devices have the same capabilities. For example, the Gear 2 Neo does not have a camera. In this case, you can upload different binaries under the same app name.
Testing and Certification
Emulator
Device List

- RTL (Remote Test Lab) requires a Modern browser with JavaScript and a Java runtime environment (JRE v1.7+).
- Configuration requirements:

  Configuration check result: Pass

  ✓ Once your configuration is OK, Continue to select a device.

RTL (Remote Test Lab) allows users to install and test applications over the web.

<table>
<thead>
<tr>
<th>Hot</th>
<th>Android</th>
<th>Tizen</th>
<th>Wearable</th>
</tr>
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</table>

**Gear S**

Gear S

- OS Version
- Device List
- Reserve for 30 minutes

Start

**Gear 2**

Gear 2

- OS Version
- Device List
- Reserve for 30 minutes

Gear 2 Neo

- OS Version
- Device List
- Reserve for 30 minutes

Start
Certification

http://seller.samsungapps.com/
Certification

Add New Application
Please select a platform to register applications.

- Android
- Samsung Gear
- bada

http://seller.samsungapps.com/
Summary
Q&A
Thank you for your attention.