VitalJacket® SDK

VitalJacket SDK v1.0.07 – Android BioLib library

LEGAL NOTICE AND DISCLAIMER

ATENTION: Although VitalJacket is a certified medical device, its developer version is NOT certified for diagnosis usage. It is intended for R&D and development purposes only. Users of VJ SDK can submit their final developments to medical certification. All contents of our product are compliant with the European Medical Device directive 93/42/EEC but, being a developer's version, it's not certified.

Biodevices – Sistemas de Engenharia S.A
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

Index

Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

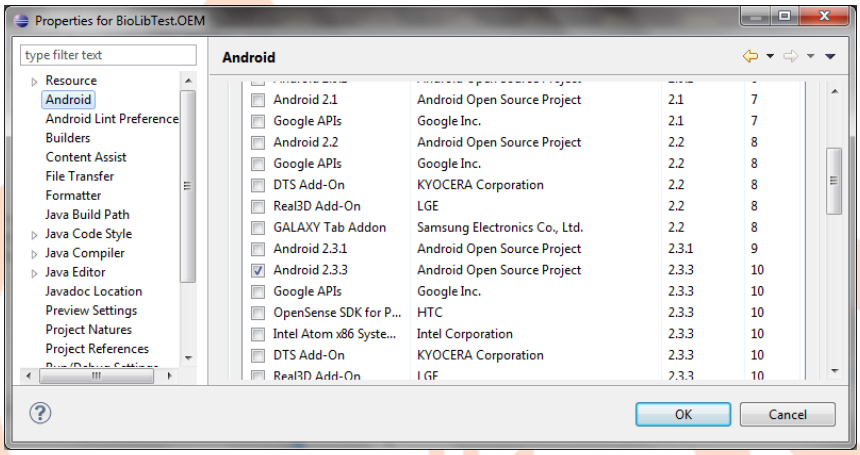
1. Import library:

```
import Bio.Library.namespace.BioLib;
```

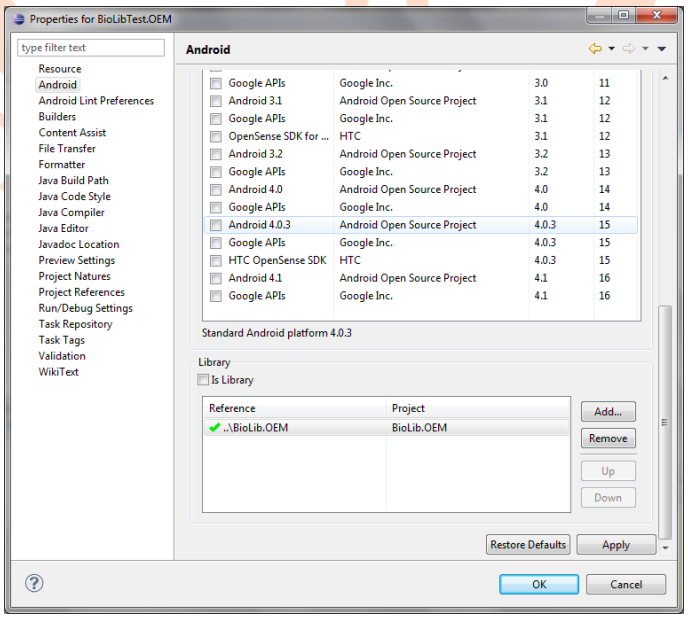
2. Declare the Bluetooth permission(s) in your application manifest file:

```
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN" />
<uses-permission android:name="android.permission.BLUETOOTH" />
```

3. In application properties select Android project build target:



4. Add BioLibSDK.jar to your project:

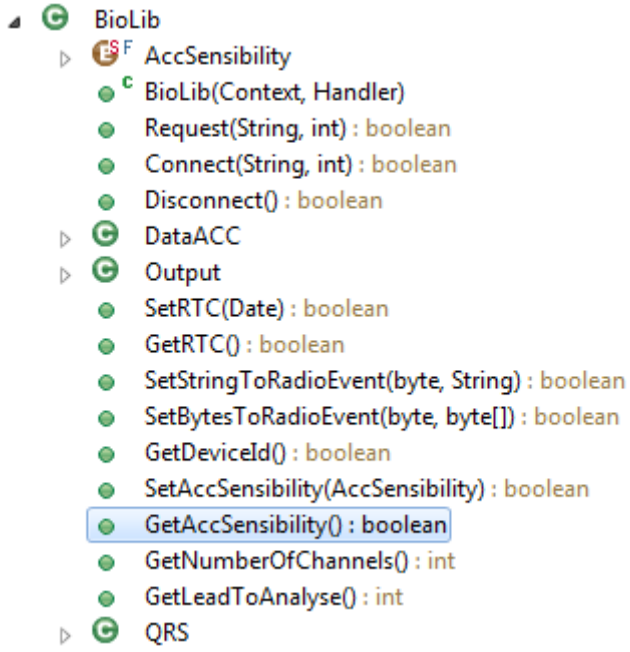


Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

5. In manifest file, insert:

```
<uses-sdk android:minSdkVersion="10" />
```

6. BioLib.SDK.jar



Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

boolean Bio.Library.namespace.BioLib.Connect(String address, int nQRS) throws Exception

Connect to device (continuous mode). QRS detector is based on the algorithm of Pan and Tompkins [1] and was used MIT-BIH database for validate results [2].

Parameters:

address macaddress of device.
nQRS number of QRS to calculate BPM.

Returns:

true, if no errors occurred.

Throws:

Exception

```
BioLib lib = new BioLib(this, mHandler);

String address = "00:23:FE:00:0B:5E";

lib.Connect(address);
```

boolean Bio.Library.namespace.BioLib.Disconnect() throws Exception

Disconnect from device (continuous mode).

Returns:

true, if no errors occurred.

Throws:

Exception

```
lib.Disconnect();
```

boolean Bio.Library.namespace.BioLib.Request(String address, int time) throws Exception

Connect to device (request mode).

Parameters:

address macaddress of device.
time duration of acquisition data.

Returns:

true, if no errors occurred.

Throws:

Exception

Note: Request for information to the device (heart-rate, push-button and battery level). Establishes a Bluetooth RFCOMM with the device, at the end of the preset time the connection is terminated.

```
lib.Request(address, 30);
```


Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

boolean Bio.Library.namespace.BioLib.SetRTC(Date date) throws Exception

Set device RTC timecode.

Parameters:

date: date to update RTC.

Returns:

true, if no errors occurred.

Throws:

Exception

```
    Date date = new Date();
   lib.SetRTC(date);
```

boolean Bio.Library.namespace.BioLib.GetRTC() throws Exception

Get RTC timecode from device.

Returns:

true, if no errors occurred.

Throws:

Exception

int Bio.Library.namespace.BioLib.GetNumberOfChannels()

Get number of ECG channel(s).

Returns:

number of channel(s).

boolean Bio.Library.namespace.BioLib.GetDeviceId() throws Exception

Get device Id from device.

Returns:

true, if no errors occurred.

Throws:

Exception

Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

boolean Bio.Library.namespace.BioLib.GetFirmwareVersion() throws Exception

Get firmware version from device VitalJacket.

Returns:

true, if no errors occurred.

Throws:

Exception

boolean Bio.Library.namespace.BioLib.SetBytesToRadioEvent(byte type, byte[] info) throws Exception

Set radio event mark in ECG data.

Parameters:

type of radio event.

info data of radio event (10bytes maximum).

Returns:

true, if no errors occurred.

Throws:

Exception

```
// Sample of radio event
byte type = 1;
// Maximum 10 bytes to send device [Optional]
byte[] info = new byte[4];
info[0] = 0x31; // '1' ascii table
info[1] = 0x32; // '2' ascii table
info[2] = 0x33; // '3' ascii table
info[3] = 0x34; // '4' ascii table
lib.SetBytesToRadioEvent(type, info);
```

boolean Bio.Library.namespace.BioLib.SetStringToRadioEvent(byte type, string info) throws Exception

Set radio event mark in ECG data.

Parameters:

type of radio event.

info data of radio event (10 chars maximum).

Returns:

true, if no errors occurred.

Throws:

Exception

Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

```
// Sample of radio event
byte type = 2;
// Maximum 10 characters to send device [Optional]
String info = "5678";
lib.SetStringToRadioEvent(type, info);
```

boolean Bio.Library.namespace.BioLib.SetAccSensibility(AccSensibility sensibility) throws Exception

Set accelerometer sensibility (electronic device).

Parameters:

sensibility of accelerometer

Returns:

true, if no errors occurred.

Throws:

Exception

boolean Bio.Library.namespace.BioLib.GetAccSensibility() throws Exception

Get accelerometer sensibility (electronic device).

Returns:

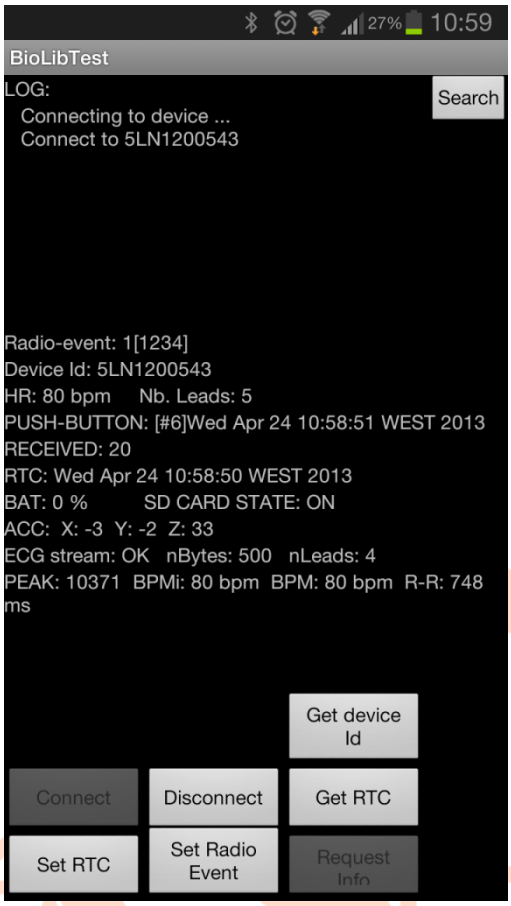
true, if no errors occurred.

Throws:

Exception

Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

7. Print screens of Android application:



Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

8. References

[1] Pan J and Tompkins WJ. A Real-Time QRS Detection Algorithm. IEEE Transactions on Biomedical Engineering 32(3):230-236, 1985

[2] MIT-BIH Arrhythmia Database: http://www.physionet.org/physiobank/database/mitdb/

Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com

9. Control versions

Version	Date	Change log
1.0.02	30-04-2013	*Get device ID*
		Send radio event to device
1.0.03	19-07-2013	*New method to send radio-event to device*
		A new too l(InfoExporter.exe) for export data to Excel and Matlab
1.0.04	01-05-2014	*Set / Get accelerometer sensibility*
1.0.07	18-03-2015	*Get firmware version from device VitalJacket.*

Biodevices – Sistemas de Engenharia S.A.
Edifício Olympus II
Avenida D. Afonso Henriques, 1462, R/C Sala L
4450-013 Matosinhos, Portugal
T: +351 220 902 540 Email: info@biodevices.pt
www.sdk.vitaljacket.com