BluetoothPositioning

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1 Indice dei namespace

1.1 Package

Questi sono i package e una loro breve descrizione (se disponibile):

it 6

it.unibo 6

it.unibo.torsello 6

it.unibo.torsello.bluetoothpositioning 6

it.unibo.torsello.bluetoothpositioning.activities 7

it.unibo.torsello.bluetoothpositioning.adapter 7

it.unibo.torsello.bluetoothpositioning.configuration 7

it.unibo.torsello.bluetoothpositioning.constant 7

it.unibo.torsello.bluetoothpositioning.distanceEstimation 7

it.unibo.torsello.bluetoothpositioning.extra 7

it.unibo.torsello.bluetoothpositioning.fragment 7

it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers 8

it.unibo.torsello.bluetoothpositioning.fragment.usbObservers 8

it.unibo.torsello.bluetoothpositioning.kalmanFilter 8

it.unibo.torsello.bluetoothpositioning.model 8

it.unibo.torsello.bluetoothpositioning.observables 8

it.unibo.torsello.bluetoothpositioning.task 8

it.unibo.torsello.bluetoothpositioning.util 9

2 Indice della gerarchia

2.1 Gerarchia delle classi

Questo elenco di ereditarietà è ordinato approssimativamente, ma non completamente, in ordine alfabetico:

Adapter

it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter 38

Behavior

it.unibo.torsello.bluetoothpositioning.extra.FABBehavior 77

Callback

it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil 19

it.unibo.torsello.bluetoothpositioning.model.Device 33

it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants 48

it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation 73

it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter 80

it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder 84

it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants 87
OnNavigationItemSelectedListener

it.unibo.torsello.bluetoothpositioning.activities.MainActivity 89

it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity 9

it.unibo.torsello.bluetoothpositioning.constant.SettingConstants 100

it.unibo.torsello.bluetoothpositioning.util.UsbUtil 115
ViewHolder

it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceViewHolder 69
AppCompatActivity

it.unibo.torsello.bluetoothpositioning.activities.MainActivity 89
AsyncTask

it.unibo.torsello.bluetoothpositioning.task.SaveImageTask 97
BeaconConsumer

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Fragment

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it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment 50

it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment 58

it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment 43

it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1Fragment 54

it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment 62

it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment 102

it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment 109
FragmentPagerAdapter

it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter 106
Observable

it.unibo.torsello.bluetoothpositioning.observables.DeviceObservable 66

it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurementObservable 113
Observer

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it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment 62

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OnChartValueSelectedListener

it.unibo.torsello.bluetoothpositioning.util.ChartUtil 27
RssiFilter

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ViewGroup

it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil 19

3 Indice dei tipi composti

3.1 Elenco dei tipi composti

Queste sono le classi, le struct, le union e le interfacce con una loro breve descrizione:

it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity 9

it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment 15

it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil 19

it.unibo.torsello.bluetoothpositioning.util.ChartUtil 27

it.unibo.torsello.bluetoothpositioning.model.Device 33

it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter 38

it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment 43

it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants 48

it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment 50

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it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter 80

it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder 84

it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants 87

it.unibo.torsello.bluetoothpositioning.activities.MainActivity 89

it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter 94

it.unibo.torsello.bluetoothpositioning.task.SaveImageTask 97

it.unibo.torsello.bluetoothpositioning.constant.SettingConstants 100

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it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurementObservable 113

it.unibo.torsello.bluetoothpositioning.util.UsbUtil 115

4 Indice dei file

4.1 Elenco dei file

Questo è un elenco di tutti i file con una loro breve descrizione:

ApplicationActivity.java 119

CameraFragment.java 120

CameraPreviewUtil.java 120

ChartUtil.java 120

Device.java 120

DeviceCardViewAdapter.java 120

DeviceChartFragment.java 121

DeviceConstants.java 121

DeviceDetailFragment.java 121

DeviceDetailInner1Fragment.java 121

DeviceDetailInner2Fragment.java 122

DeviceListFragment.java 122

DeviceObservable.java 122

Estimation.java 122

FABBehavior.java 122

KFilter.java 123

KFilterBuilder.java 123

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MainActivity.java 123

MyArmaRssiFilter.java 124

SaveImageTask.java 124

SettingConstants.java 124

SettingsFragment.java 124

StatePagerAdapter.java 124

UsbMeasurementFragment.java 125

UsbMeasurementObservable.java 125

UsbUtil.java 125

5 Documentazione dei namespace

5.1 Package it

Package

- package unibo

5.2 Package it.unibo

Package

- package torsello

5.3 Package it.unibo.torsello

Package

- package bluetoothpositioning

5.4 Package it.unibo.torsello.bluetoothpositioning

Package

- package activities
- package adapter
- package configuration
- package constant
- package distanceEstimation
- package extra
- package fragment
- package kalmanFilter
- package model
- package observables
- package task
- package util

5.5 Package it.unibo.torsello.bluetoothpositioning.activities

Composti

- class ApplicationActivity
- class MainActivity

5.6 Package it.unibo.torsello.bluetoothpositioning.adapter

Composti

- class DeviceCardViewAdapter
- class StatePagerAdapter

5.7 Package it.unibo.torsello.bluetoothpositioning.configuration

Composti

- class MyArmaRssiFilter

5.8 Package it.unibo.torsello.bluetoothpositioning.constant

Composti

- class DeviceConstants
- class KFilterConstants
- class SettingConstants

5.9 Package it.unibo.torsello.bluetoothpositioning.distanceEstimation

Composti

- class Estimation

5.10 Package it.unibo.torsello.bluetoothpositioning.extra

Composti

- class FABBehavior

5.11 Package it.unibo.torsello.bluetoothpositioning.fragment

Package

- package devicesObservers
- package usbObservers

Composti

- class CameraFragment
- class DeviceDetailFragment
- class DeviceDetailInner2Fragment
- class SettingsFragment

5.12 Package it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers

Composti

- class DeviceChartFragment
- class DeviceDetailInner1Fragment
- class DeviceListFragment

5.13 Package it.unibo.torsello.bluetoothpositioning.fragment.usbObservers

Composti

- class UsbMeasurementFragment

5.14 Package it.unibo.torsello.bluetoothpositioning.kalmanFilter

Composti

- class KFilter
- class KFilterBuilder

5.15 Package it.unibo.torsello.bluetoothpositioning.model

Composti

- class Device

5.16 Package it.unibo.torsello.bluetoothpositioning.observables

Composti

- class DeviceObservable
- class UsbMeasurementObservable

5.17 Package it.unibo.torsello.bluetoothpositioning.task

Composti

- class SaveImageTask

5.18 Package it.unibo.torsello.bluetoothpositioning.util

Composti

- class CameraPreviewUtil
- class ChartUtil
- class UsbUtil

6 Documentazione delle classi

6.1 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity

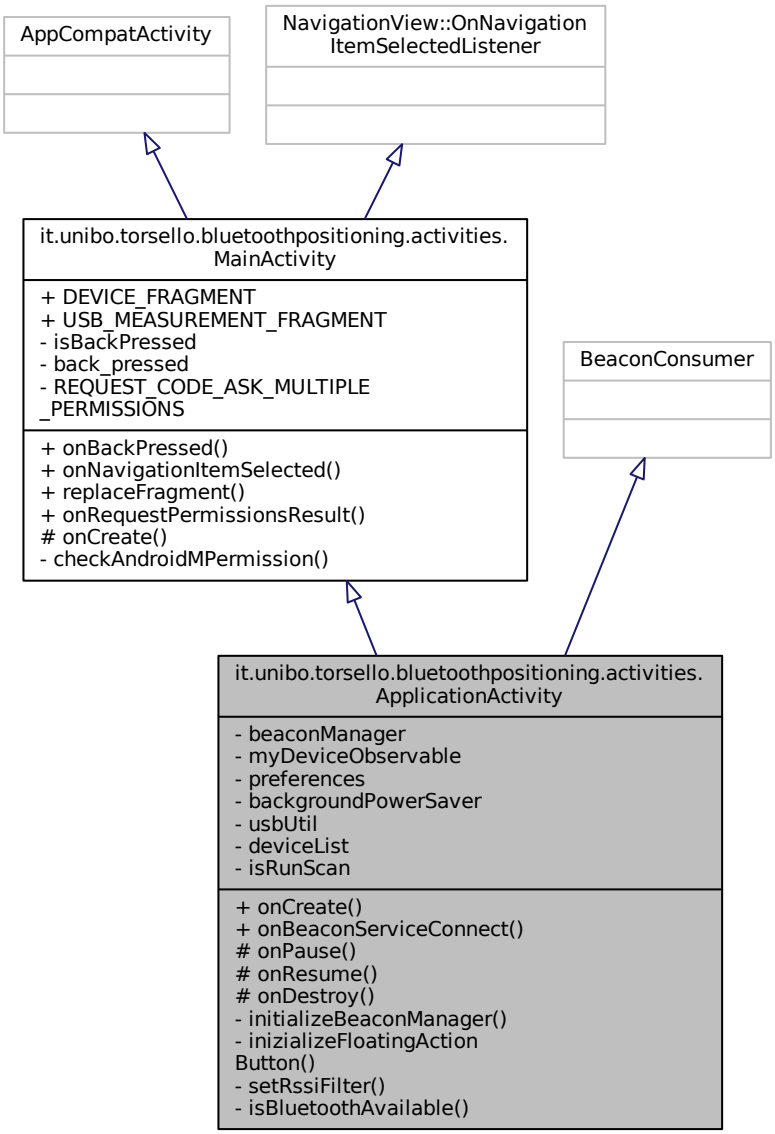
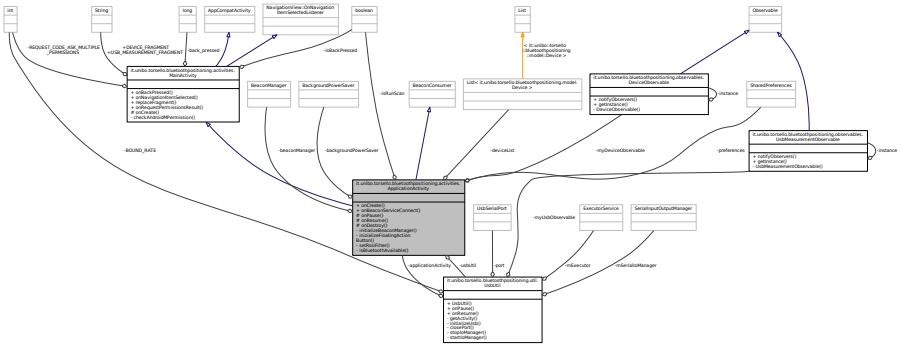


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity:



Membri pubblici

- void onCreate (Bundle savedInstanceState)
- void onBeaconServiceConnect ()

Membri protetti

- void onPause ()
- void onResume ()
- void onDestroy ()

Membri privati

- void initializeBeaconManager ()
- void inizializeFloatingActionButton ()
- void setRssiFilter ()
- boolean isBluetoothAvailable ()

Attributi privati

- BeaconManager beaconManager
- DeviceObservable myDeviceObservable
- SharedPreferences preferences
- BackgroundPowerSaver backgroundPowerSaver
- UsbUtil usbUtil
- List< Device > deviceList
- boolean isRunScan = false

Altri membri ereditati

6.1.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.1.2 Documentazione delle funzioni membro

6.1.2.1 initializeBeaconManager()

void it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.initializeBeacon↩
Manager ( ) [private]

```
70                                          {
71         beaconManager = BeaconManager.getInstanceForApplication(this);
72         beaconManager.bind(this);
73
74         // Save battery whenever the application is not visible.
75         // This reduces bluetooth power usage by about 60%
76         backgroundPowerSaver = new BackgroundPowerSaver(this);
77
78 //        Log.i("AltBeacon filter used:", BeaconManager.getRssiFilterImplClass().getSimpleName());
79
80         // for finding different type of beacon,
81         beaconManager.getBeaconParsers().clear();
82
83         // Alt beacon
84         beaconManager.getBeaconParsers().add(new BeaconParser()
85                 .setBeaconLayout(BeaconParser.ALTBEACON_LAYOUT));
86         // Detect the main identifier (UID) frame:
87         beaconManager.getBeaconParsers().add(new BeaconParser()
88                 .setBeaconLayout(BeaconParser.EDDYSTONE_UID_LAYOUT));
89         // Detect the telemetry (TLM) frame:
90         beaconManager.getBeaconParsers().add(new BeaconParser()
91                 .setBeaconLayout(BeaconParser.EDDYSTONE_TLM_LAYOUT));
92         // Detect the URL frame:
93         beaconManager.getBeaconParsers().add(new BeaconParser()
94                 .setBeaconLayout(BeaconParser.EDDYSTONE_URL_LAYOUT));
95         // Standard Apple iBeacon
96         beaconManager.getBeaconParsers().add(new BeaconParser()
97                 .setBeaconLayout(DeviceConstants.APPLE_BEACON_LAYOUT));
98         // Estimote Nearable
99         beaconManager.getBeaconParsers().add(new BeaconParser()
100                 .setBeaconLayout(DeviceConstants.ESTIMOTE_NEARABLE_LAYOUT));
101
102         beaconManager.setForegroundScanPeriod(250L);
103         beaconManager.setForegroundBetweenScanPeriod(0L);
104         beaconManager.setBackgroundScanPeriod(250L);
105         beaconManager.setBackgroundBetweenScanPeriod(0L);
106
107         beaconManager.setMaxTrackingAge(1000);
108     }
```

6.1.2.2 inizializeFloatingActionButton()

void it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.inizializeFloating↩
ActionButton ( ) [private]

```
110                                                 {
111         final FloatingActionButton fab = (FloatingActionButton) findViewById(R.id.fab);
112         assert fab != null;
113         Snackbar.make(fab, R.string.snackBar_start_scanning, Snackbar.LENGTH_LONG).show();
114         fab.setOnClickListener(new View.OnClickListener() {
115             @Override
116             public void onClick(View view) {
117
118                 if (isBluetoothAvailable()) {
119
120                     isRunScan = !isRunScan;
121                     Region region = new Region("RegionId", null, null, null);
122
123                     if (isRunScan) {
124                         fab.setImageResource(R.drawable.ic_bluetooth_searching_white_24dp);
125                         try {
126                             beaconManager.startRangingBeaconsInRegion(region);
127                         } catch (RemoteException e) {
128                             e.printStackTrace();
129                         }
130                         Snackbar.make(view, R.string.snackBar_scanning_enabled,
131                                 Snackbar.LENGTH_SHORT).show();
132                     } else {
```

```
133                         fab.setImageResource(R.drawable.ic_bluetooth_white_24dp);
134                         try {
135                             beaconManager.stopRangingBeaconsInRegion(region);
136                         } catch (RemoteException e) {
137                             e.printStackTrace();
138                         }
139                         Snackbar.make(view, R.string.snackBar_scanning_disabled,
140                                 Snackbar.LENGTH_INDEFINITE).show();
141                     }
142                 }
143             }
144         });
145     }
```

6.1.2.3 isBluetoothAvailable()

boolean it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.isBluetooth↩
Available ( ) [private]

```
250                                         {
251
252         try {
253             if (!beaconManager.checkAvailability()) {
254
255                 final FloatingActionButton fab = (FloatingActionButton) findViewById(R.id.fab);
256                 assert fab != null;
257
258                 new AlertDialog.Builder(this)
259                         .setTitle(R.string.dialog_bluetooth_title)
260                         .setMessage(R.string.dialog_bluetooth_text)
261                         .setPositiveButton(android.R.string.ok, null)
262                         .setOnDismissListener(new DialogInterface.OnDismissListener() {
263                             @Override
264                             public void onDismiss(DialogInterface dialog) {
265                                 fab.setImageResource(R.drawable.ic_bluetooth_white_24dp);
266                                 BluetoothAdapter.getDefaultAdapter().enable();
267                             }
268                         }).show();
269                 fab.setImageResource(R.drawable.ic_bluetooth_disabled_black_24dp);
270                 return false;
271             }
272         } catch (RuntimeException e) {
273             e.getStackTrace();
274         }
275         return true;
276     }
```

6.1.2.4 onBeaconServiceConnect()

void it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.onBeaconService↩
Connect ( )

```
148                                         {
149
150         try {
151             beaconManager.updateScanPeriods();
152         } catch (RemoteException e) {
153             e.printStackTrace();
154         }
155
156         beaconManager.addRangeNotifier(new RangeNotifier() {
157             @Override
158             public void didRangeBeaconsInRegion(final Collection<Beacon> beacons, Region region) {
159
160                 setRssiFilter();
161
162                 for (Beacon b : beacons) {
163
164                     // take from the list the device
165                     Device device = DeviceConstants.DEVICE_MAP.get(b.getBluetoothAddress());
166
167                     if (device != null) { // useful only if DEVICE_MAP is empty
168                         double processNoise = preferences.getFloat(SettingConstants.
    KALMAN_NOISE_VALUE, 0);
169                         device.setBeacon(b);
```

```
170                         device.updateDistance(processNoise);
171
172                         if (!deviceList.contains(device)) {
173                             deviceList.add(device);
174                         }
175                     }
176                 }
177
178                 new Thread(new Runnable() {
179                     @Override
180                     public void run() {
181                         runOnUiThread(new Runnable() {
182
183                             @Override
184                             public void run() {
185                                 myDeviceObservable.
    notifyObservers(deviceList);
186                             }
187                         });
188                     }
189                 }).start();
190             }
191         });
192     }
```

6.1.2.5 onCreate()

```
void it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.onCreate (
            Bundle savedInstanceState )
```

```
54                                                  {
55         super.onCreate(savedInstanceState);
56
57         deviceList = new ArrayList<>();
58
59         myDeviceObservable = DeviceObservable.getInstance();
60
61         preferences = getSharedPreferences(SettingConstants.SETTINGS_PREFERENCES, 0);
62
63         usbUtil = new UsbUtil(this);
64
65         initializeBeaconManager();
66
67         inizializeFloatingActionButton();
68     }
```

6.1.2.6 onDestroy()

```
void it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.onDestroy ( )  [protected]
```

```
241                                 {
242         if (beaconManager.isBound(this)) {
243             beaconManager.unbind(this);
244             backgroundPowerSaver.onActivityDestroyed(this);
245         }
246
247         super.onDestroy();
248     }
```

6.1.2.7 onPause()

```
void it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.onPause ( )  [protected]
```

```
214                                 {
215         if (beaconManager.isBound(this)) {
216             beaconManager.setBackgroundMode(true);
217             backgroundPowerSaver.onActivityPaused(this);
218         }
219
220         usbUtil.onPause();
221
222         super.onPause();
223     }
```

6.1.2.8 onResume()

```
void it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.onResume ( )  [protected]
```

```
226                                 {
227         super.onResume();
228 
229         if (beaconManager.isBound(this)) {
230             beaconManager.setBackgroundMode(false);
231             backgroundPowerSaver.onActivityResumed(this);
232         }
233 
234         isBluetoothAvailable();
235 
236         usbUtil.onResume();
237 
238     }
```

6.1.2.9 setRssiFilter()

```
void it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.setRssiFilter ( )
[private]
```

```
194                                   {
195 
196         int sorting = preferences.getInt(SettingConstants.FILTER_RSSI, 0);
197         switch (sorting) {
198             case 0:
199             case R.id.radioButton_no_rssi_filtering:
200                 MyArmaRssiFilter.enableArmaFilter(false);
201                 BeaconManager.setRssiFilterImplClass(MyArmaRssiFilter.class);
202                 break;
203             case R.id.radioButton_arma_rssi_filter:
204                 MyArmaRssiFilter.enableArmaFilter(true);
205                 BeaconManager.setRssiFilterImplClass(MyArmaRssiFilter.class);
206                 break;
207             case R.id.radioButton_average_rssi_filter:
208                 BeaconManager.setRssiFilterImplClass(RunningAverageRssiFilter.class);
209                 break;
210         }
211     }
```

6.1.3 Documentazione dei membri dato

6.1.3.1 backgroundPowerSaver

```
BackgroundPowerSaver it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.↩
backgroundPowerSaver  [private]
```

6.1.3.2 beaconManager

```
BeaconManager it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.beacon↩
Manager  [private]
```

6.1.3.3 deviceList

```
List<Device> it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.deviceList
[private]
```

6.1.3.4 isRunScan

```
boolean it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.isRunScan =
false  [private]
```

6.1.3.5 myDeviceObservable

```
DeviceObservable it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.my↩
DeviceObservable  [private]
```

6.1.3.6 preferences

```
SharedPreferences it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.↩
preferences  [private]
```

6.1.3.7 usbUtil

```
UsbUtil it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity.usbUtil  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- ApplicationActivity.java

6.2 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment

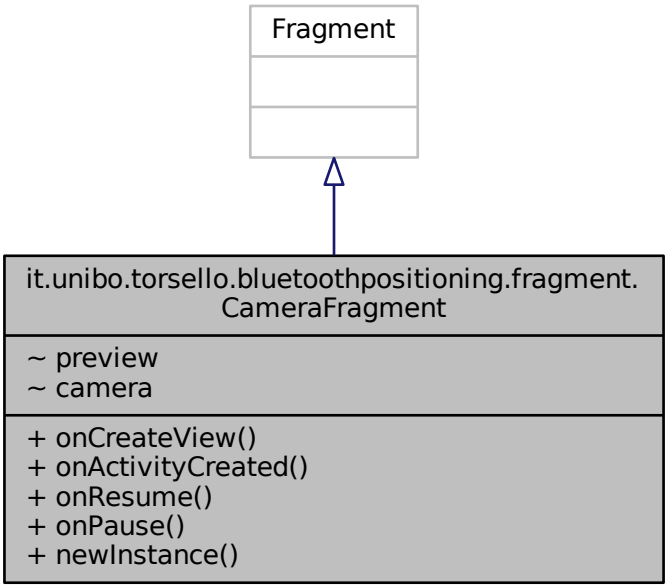
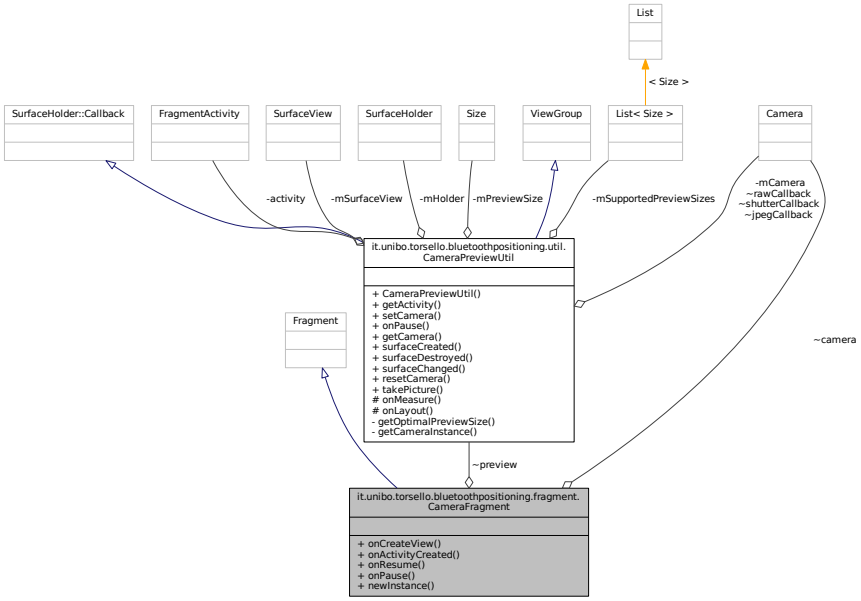


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment:



Membri pubblici

- View onCreateView (LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState)
- void onActivityCreated (@Nullable Bundle savedInstanceState)
- void onResume ()
- void onPause ()

Membri pubblici statici

- static CameraFragment newInstance ()

Attributi con visibilità di package

- CameraPreviewUtil preview
- Camera camera

6.2.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.2.2 Documentazione delle funzioni membro

6.2.2.1 newInstance()

```
static CameraFragment it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment.new↩
Instance ( )  [static]
```

```
25                                          {
26         return new CameraFragment();
27     }
```

6.2.2.2 onActivityCreated()

```
void it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment.onActivityCreated (
            @Nullable Bundle savedInstanceState )
```

```
70                                                                          {
71          super.onActivityCreated(savedInstanceState);
72
73          getActivity().findViewById(R.id.fab_camera).setOnClickListener(new View.OnClickListener() {
74              @Override
75              public void onClick(View v) {
76                  preview.takePicture();
77              }
78          });
79
80      }
```

6.2.2.3 onCreateView()

```
View it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment.onCreateView (
            LayoutInflater inflater,
            ViewGroup container,
            Bundle savedInstanceState )
```

```
30                                                                                                  {
31
32          View root = inflater.inflate(R.layout.fragment_camera, container, false);
33          preview = new CameraPreviewUtil(getContext(), (SurfaceView) root.findViewById(R.id.
        surfaceView));
34          ((FrameLayout) root.findViewById(R.id.layout)).addView(preview);
35          preview.setKeepScreenOn(true);
36          preview.setOnClickListener(new OnClickListener() {
37
38              @Override
39              public void onClick(View arg0) {
40  //                preview.takePicture();
41                  camera.autoFocus(new Camera.AutoFocusCallback() {
42                      @Override
43                      public void onAutoFocus(boolean success, Camera arg1) {
44  //                          if (success) {
45  //                              preview.takePicture();
46  //                          }
47                      }
48                  });
49              }
50          });
51          preview.setOnLongClickListener(new View.OnLongClickListener() {
52              @Override
53              public boolean onLongClick(View arg0) {
54
55                  camera.autoFocus(new Camera.AutoFocusCallback() {
56                      @Override
57                      public void onAutoFocus(boolean success, Camera arg1) {
58  //                          if (success) {
59  //                              preview.takePicture();
60  //                          }
61                      }
62                  });
63                  return true;
64              }
65          });
66          return root;
67      }
```

6.2.2.4 onPause()

```
void it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment.onPause ( )
```

```
90                          {
91          preview.onPause();
92          super.onPause();
93      }
```

6.2.2.5 onResume()

```
void it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment.onResume ( )
```

```
83                          {
84         super.onResume();
85         preview.setCamera(getActivity());
86         camera = preview.getCamera();
87     }
```

6.2.3 Documentazione dei membri dato

6.2.3.1 camera

```
Camera it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment.camera  [package]
```

6.2.3.2 preview

```
CameraPreviewUtil it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment.preview  [package]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- CameraFragment.java

6.3 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil

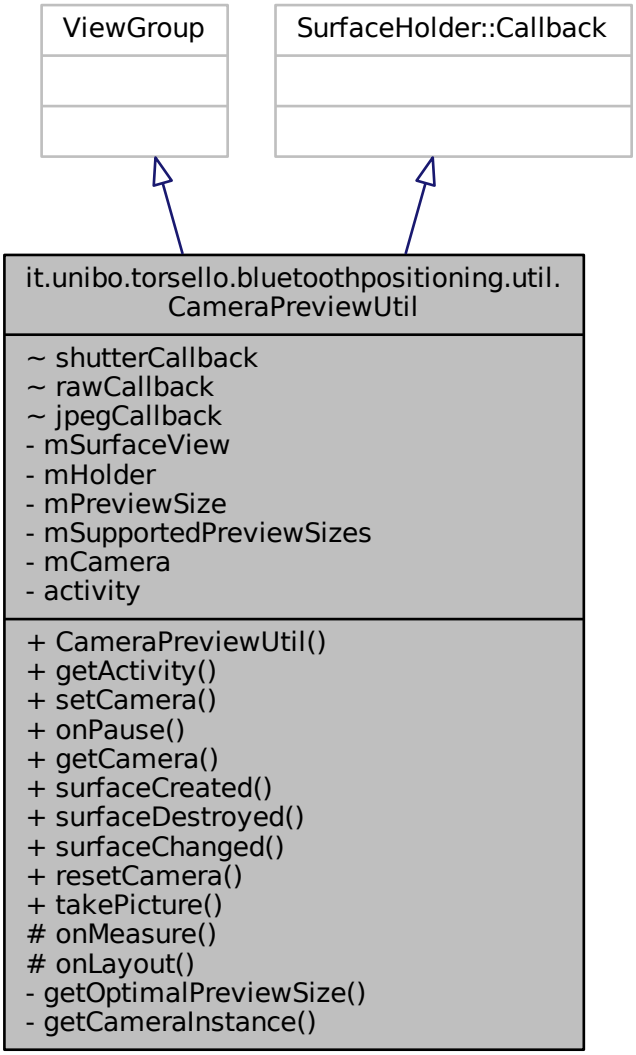
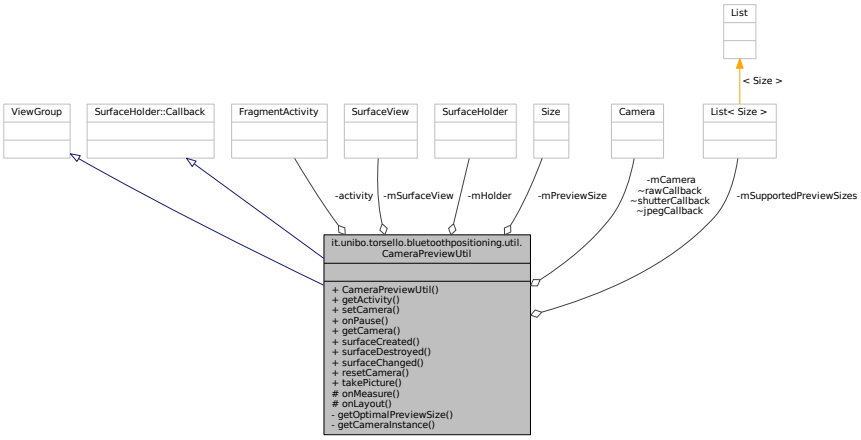


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil:



Membri pubblici

- CameraPreviewUtil (Context context, SurfaceView sv)
- FragmentActivity getActivity ()
- void setCamera (FragmentActivity fragmentActivity)
- void onPause ()
- Camera getCamera ()
- void surfaceCreated (SurfaceHolder holder)
- void surfaceDestroyed (SurfaceHolder holder)
- void surfaceChanged (SurfaceHolder holder, int format, int w, int h)
- void resetCamera ()
- void takePicture ()

Membri protetti

- void onMeasure (int widthMeasureSpec, int heightMeasureSpec)
- void onLayout (boolean changed, int l, int t, int r, int b)

Attributi con visibilità di package

- Camera.ShutterCallback shutterCallback
- Camera.PictureCallback rawCallback
- Camera.PictureCallback jpegCallback

Membri privati

- Size getOptimalPreviewSize (List< Size > sizes, int w, int h)

Membri privati statici

- static Camera getCameraInstance ()

Attributi privati

- SurfaceView mSurfaceView
- SurfaceHolder mHolder
- Size mPreviewSize
- List< Size > mSupportedPreviewSizes
- Camera mCamera
- FragmentActivity activity

6.3.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.3.2 Documentazione dei costruttori e dei distruttori

6.3.2.1 CameraPreviewUtil()

```
it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.CameraPreviewUtil (
            Context context,
            SurfaceView sv )
```

```
32                                                          {
33         super(context);
34         mSurfaceView = sv;
35
36         mHolder = mSurfaceView.getHolder();
37         mHolder.addCallback(this);
38         mHolder.setType(SurfaceHolder.SURFACE_TYPE_PUSH_BUFFERS);
39     }
```

6.3.3 Documentazione delle funzioni membro

6.3.3.1 getActivity()

```
FragmentActivity it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.getActivity ( )
```

```
41                                          {
42         return activity;
43     }
```

6.3.3.2 getCamera()

```
Camera it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.getCamera ( )
```

```
81                              {
82         return mCamera;
83     }
```

6.3.3.3 getCameraInstance()

```
static Camera it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.getCameraInstance
( )  [static], [private]
```

A safe way to get an instance of the CameraUtil object.

```
88                                              {
89
90          Camera c = null;
91
92          try {
93              int numCams = Camera.getNumberOfCameras();
94              if (numCams > 0) {
95                  c = Camera.open(0); // attempt to get a CameraUtil instance
96              }
97          } catch (RuntimeException e) {
98              // CameraUtil is not available (in use or does not exist)
99              e.getStackTrace();
100          }
101
102          return c; // returns null if camera is unavailable
103      }
```

6.3.3.4 getOptimalPreviewSize()

```
Size it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.getOptimalPreviewSize (
              List< Size > sizes,
              int w,
              int h )  [private]
```

```
169                                                                             {
170          final double ASPECT_TOLERANCE = 0.1;
171          double targetRatio = (double) w / h;
172          if (sizes == null) return null;
173
174          Size optimalSize = null;
175          double minDiff = Double.MAX_VALUE;
176
177 //         int targetHeight = h;
178
179          // Try to find an size match aspect ratio and size
180          for (Size size : sizes) {
181              double ratio = (double) size.width / size.height;
182              if (Math.abs(ratio - targetRatio) > ASPECT_TOLERANCE) continue;
183              if (Math.abs(size.height - h) < minDiff) {
184                  optimalSize = size;
185                  minDiff = Math.abs(size.height - h);
186              }
187          }
188
189          // Cannot find the one match the aspect ratio, ignore the requirement
190          if (optimalSize == null) {
191              minDiff = Double.MAX_VALUE;
192              for (Size size : sizes) {
193                  if (Math.abs(size.height - h) < minDiff) {
194                      optimalSize = size;
195                      minDiff = Math.abs(size.height - h);
196                  }
197              }
198          }
199          return optimalSize;
200      }
```

6.3.3.5 onLayout()

```
void it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.onLayout (
            boolean changed,
            int l,
            int t,
            int r,
            int b )  [protected]
```

```
120                                                                         {
121         if (changed && getChildCount() > 0) {
122             final View child = getChildAt(0);
123
124             final int width = r - l;
125             final int height = b - t;
126
127             int previewWidth = width;
128             int previewHeight = height;
129             if (mPreviewSize != null) {
130                 previewWidth = mPreviewSize.width;
131                 previewHeight = mPreviewSize.height;
132             }
133
134             // Center the child SurfaceView within the parent.
135             if (width * previewHeight > height * previewWidth) {
136                 final int scaledChildWidth = previewWidth * height / previewHeight;
137                 child.layout((width - scaledChildWidth) / 2, 0,
138                         (width + scaledChildWidth) / 2, height);
139             } else {
140                 final int scaledChildHeight = previewHeight * width / previewWidth;
141                 child.layout(0, (height - scaledChildHeight) / 2,
142                         width, (height + scaledChildHeight) / 2);
143             }
144         }
145     }
```

6.3.3.6 onMeasure()

```
void it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.onMeasure (
            int widthMeasureSpec,
            int heightMeasureSpec )  [protected]
```

```
106                                                                           {
107         // We purposely disregard child measurements because act as a
108         // wrapper to a SurfaceView that centers the camera preview instead
109         // of stretching it.
110         final int width = resolveSize(getSuggestedMinimumWidth(), widthMeasureSpec);
111         final int height = resolveSize(getSuggestedMinimumHeight(), heightMeasureSpec);
112         setMeasuredDimension(width, height);
113
114         if (mSupportedPreviewSizes != null) {
115             mPreviewSize = getOptimalPreviewSize(
      mSupportedPreviewSizes, width, height);
116         }
117     }
```

6.3.3.7 onPause()

```
void it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.onPause ( )
```

```
73                          {
74         if (mCamera != null) {
75             mCamera.stopPreview();
76             mCamera.release();
77             mCamera = null;
78         }
79     }
```

6.3.3.8 resetCamera()

```
void it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.resetCamera ( )
```

```
215                                 {
216         new Thread(new Runnable() {
217             @Override
218             public void run() {
219                 mCamera.startPreview();
220             }
221         }).start();
222 
223 
224     }
```

6.3.3.9 setCamera()

```
void it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.setCamera (
              FragmentActivity fragmentActivity )
```

```
45                                                                  {
46 
47         this.activity = fragmentActivity;
48         try {
49             mCamera = getCameraInstance();
50         } catch (RuntimeException ex) {
51             Toast.makeText(fragmentActivity, "camera_not_found", Toast.LENGTH_LONG).show();
52         }
53 
54         if (mCamera != null) {
55 
56             mSupportedPreviewSizes = mCamera.getParameters().
    getSupportedPreviewSizes();
57             requestLayout();
58 
59             // get Camera parameters
60             Camera.Parameters params = mCamera.getParameters();
61 
62             List<String> focusModes = params.getSupportedFocusModes();
63             if (focusModes.contains(Camera.Parameters.FOCUS_MODE_AUTO)) {
64                 // set the focus mode
65                 params.setFocusMode(Camera.Parameters.FOCUS_MODE_AUTO);
66                 // set Camera parameters
67                 mCamera.setParameters(params);
68             }
69         }
70 
71     }
```

6.3.3.10 surfaceChanged()

```
void it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.surfaceChanged (
              SurfaceHolder holder,
              int format,
              int w,
              int h )
```

```
203                                                                                 {
204         if (mCamera != null) {
205             Camera.Parameters parameters = mCamera.getParameters();
206             parameters.setPreviewSize(mPreviewSize.width,
    mPreviewSize.height);
207             requestLayout();
208 
209             mCamera.setParameters(parameters);
210 
211             resetCamera();
212         }
213     }
```

6.3.3.11 surfaceCreated()

```
void it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.surfaceCreated (
              SurfaceHolder holder )
```

```
148                                                 {
149         // The Surface has been created, acquire the camera and tell it where
150         // to draw.
151         try {
152             if (mCamera != null) {
153                 mCamera.setDisplayOrientation(90);
154                 mCamera.setPreviewDisplay(holder);
155             }
156         } catch (IOException exception) {
157 //             Log.e(TAG, "IOException caused by setPreviewDisplay()", exception);
158         }
159     }
```

6.3.3.12 surfaceDestroyed()

```
void it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.surfaceDestroyed (
              SurfaceHolder holder )
```

```
162                                                   {
163         // Surface will be destroyed when we return, so stop the preview.
164         if (mCamera != null) {
165             mCamera.stopPreview();
166         }
167     }
```

6.3.3.13 takePicture()

```
void it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.takePicture ( )
```

```
246                               {
247
248         mCamera.takePicture(shutterCallback, rawCallback,
      jpegCallback);
249     }
```

6.3.4 Documentazione dei membri dato

6.3.4.1 activity

```
FragmentActivity it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.activity  [private]
```

6.3.4.2 jpegCallback

```
Camera.PictureCallback it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.jpeg↩
Callback  [package]
```

Valore iniziale:

```
= new Camera.PictureCallback() {
        public void onPictureTaken(byte[] data, final Camera camera) {
            new SaveImageTask(getActivity()).execute(data);

            resetCamera();
        }
    }
```

6.3.4.3 mCamera

```
Camera it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.mCamera  [private]
```

6.3.4.4 mHolder

```
SurfaceHolder it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.mHolder  [private]
```

6.3.4.5 mPreviewSize

```
Size it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.mPreviewSize  [private]
```

6.3.4.6 mSupportedPreviewSizes

```
List<Size> it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.mSupportedPreview↩
Sizes  [private]
```

6.3.4.7 mSurfaceView

```
SurfaceView it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.mSurfaceView  [private]
```

6.3.4.8 rawCallback

```
Camera.PictureCallback it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.raw↩
Callback  [package]
```

Valore iniziale:

```
= new Camera.PictureCallback() {
        public void onPictureTaken(byte[] data, Camera camera) {

        }
    }
```

6.3.4.9 shutterCallback

```
Camera.ShutterCallback it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil.shutter↩
Callback  [package]
```

Valore iniziale:

```
= new Camera.ShutterCallback() {
        public void onShutter() {

        }
    }
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- CameraPreviewUtil.java

6.4 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.util.ChartUtil

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.util.ChartUtil

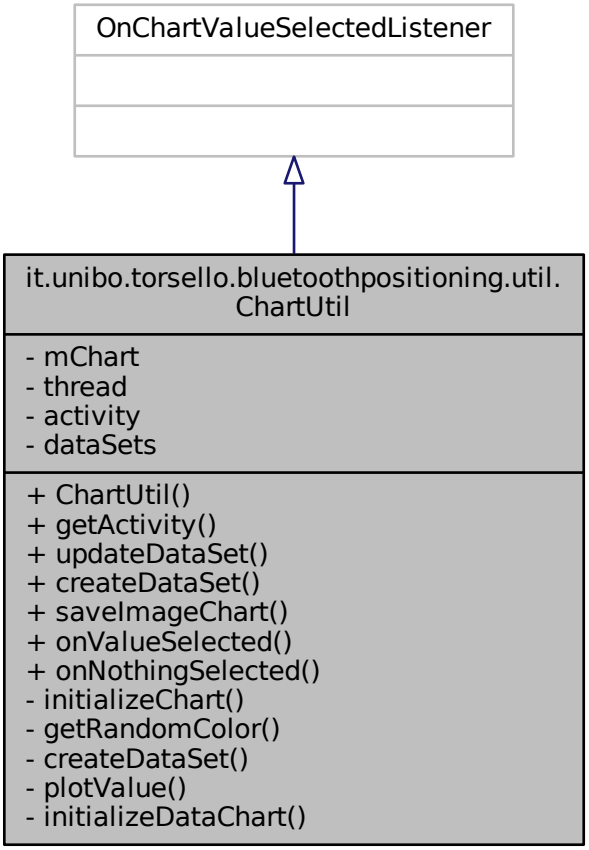
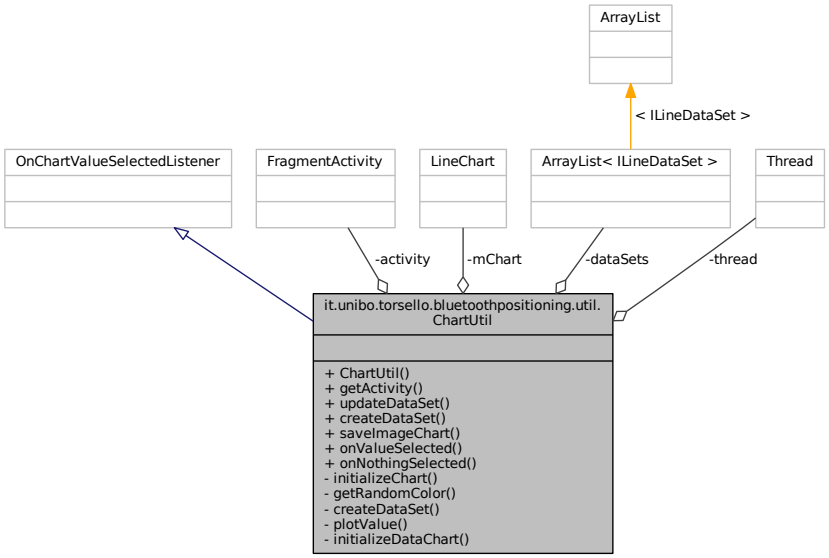


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.util.ChartUtil:



Membri pubblici

- ChartUtil (FragmentActivity fragmentActivity, LineChart chart)
- FragmentActivity getActivity ()
- void updateDataSet (final ArrayList< Double > doubleArrayList)
- ArrayList< ILineDataSet > createDataSet (ArrayList< String > args)
- void saveImageChart ()
- void onValueSelected (Entry e, Highlight h)
- void onNothingSelected ()

Membri privati

- void initializeChart ()
- int getRandomColor ()
- LineDataSet createDataSet (String nameDataSet, int color)
- void plotValue (LineData data, int index, Double value)
- void initializeDataChart (ArrayList< ILineDataSet > dataSets)

Attributi privati

- LineChart mChart
- Thread thread
- FragmentActivity activity
- ArrayList< ILineDataSet > dataSets

6.4.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.4.2 Documentazione dei costruttori e dei distruttori

6.4.2.1 ChartUtil()

```
it.unibo.torsello.bluetoothpositioning.util.ChartUtil.ChartUtil (
            FragmentActivity fragmentActivity,
            LineChart chart )
```

```
37                                                                          {
38         this.activity = fragmentActivity;
39         this.mChart = chart;
40         initializeChart();
41     }
```

6.4.3 Documentazione delle funzioni membro

6.4.3.1 createDataSet() [1/2]

```
ArrayList<ILineDataSet> it.unibo.torsello.bluetoothpositioning.util.ChartUtil.createDataSet (
            ArrayList< String > args )
```

```
126                                                                         {
127         // create a dataset and give it a type
128
129         for (String s : args) {
130             if (s != null) {
131                 if (s.equals(getActivity().getString(R.string.chart_arduino))) {
132                     dataSets.add(createDataSet(s, Color.RED));
133                 } else {
134                     dataSets.add(createDataSet(s,
    getRandomColor()));
135                 }
136             }
137         }
138
139         return dataSets;
140     }
```

6.4.3.2 createDataSet() [2/2]

```
LineDataSet it.unibo.torsello.bluetoothpositioning.util.ChartUtil.createDataSet (
            String nameDataSet,
            int color )  [private]
```

```
151                                                                     {
152         LineDataSet set = new LineDataSet(null, nameDataSet);
153         set.setColor(color);
154         return set;
155     }
```

6.4.3.3 getActivity()

```
FragmentActivity it.unibo.torsello.bluetoothpositioning.util.ChartUtil.getActivity ( )
```

```
43                                      {
44         return activity;
45     }
```

6.4.3.4 getRandomColor()

```
int it.unibo.torsello.bluetoothpositioning.util.ChartUtil.getRandomColor ( )  [private]
```

```
142                                 {
143         Random rnd = new Random();
144         int color = 0;
145         while (color == 0) {
146             color = Color.argb(255, rnd.nextInt(255), rnd.nextInt(255), rnd.nextInt(255));
147         }
148         return color;
149     }
```

6.4.3.5 initializeChart()

```
void it.unibo.torsello.bluetoothpositioning.util.ChartUtil.initializeChart ( )  [private]
```

```
47                                  {
48         dataSets = new ArrayList<ILineDataSet>();
49 
50         mChart.setOnChartValueSelectedListener(this);
51 
52         // no description text
53         mChart.setDescription("");
54         mChart.setNoDataTextDescription("You need to provide data for the chart.");
55 
56         mChart.setDrawGridBackground(true);
57 
58         // if disabled, scaling can be done on x- and y-axis separately
59         mChart.setPinchZoom(true);
60 
61         // set an alternative background color
62         mChart.setBackgroundColor(Color.LTGRAY);
63 
64         Typeface mTfLight = Typeface.createFromAsset(getActivity().getAssets(), "
      OpenSans-Light.ttf");
65         Typeface mTfBold = Typeface.createFromAsset(getActivity().getAssets(), "
      OpenSans-Bold.ttf");
66 
67         // get the legend (only possible after setting data)
68         Legend l = mChart.getLegend();
69 //         l.setPosition(Legend.LegendPosition.RIGHT_OF_CHART);
70 //         l.setOrientation(Legend.LegendOrientation.VERTICAL);
71         l.setXEntrySpace(7f);
72         l.setYEntrySpace(7f);
73 
74         XAxis xl = mChart.getXAxis();
75         xl.setTypeface(mTfLight);
76         xl.setGridColor(Color.LTGRAY);
77         xl.setTextColor(Color.WHITE);
78 
79         YAxis leftAxis = mChart.getAxisLeft();
80         leftAxis.setTypeface(mTfLight);
81         leftAxis.setTextColor(Color.WHITE);
82 
83         YAxis rightAxis = mChart.getAxisRight();
84         rightAxis.setTypeface(mTfBold);
85 
86     }
```

6.4.3.6 initializeDataChart()

```
void it.unibo.torsello.bluetoothpositioning.util.ChartUtil.initializeDataChart (
             ArrayList< ILineDataSet > dataSets )  [private]
```

```
175                                                                     {
176 
177         // create a data object with the datasets
178         LineData lineData = new LineData(dataSets);
179         lineData.setValueTextColor(Color.RED);
180         lineData.setValueTextSize(9f);
181         lineData.setValueFormatter(new DefaultValueFormatter(2));
182 
183         // set data
184         mChart.setData(lineData);
185     }
```

6.4.3.7 onNothingSelected()

```
void it.unibo.torsello.bluetoothpositioning.util.ChartUtil.onNothingSelected ( )
```

```
197                                     {
198         Log.i("Nothing selected", "Nothing selected.");
199     }
```

6.4.3.8 onValueSelected()

```
void it.unibo.torsello.bluetoothpositioning.util.ChartUtil.onValueSelected (
              Entry e,
              Highlight h )
```

```
192                                                     {
193         Log.i("Entry selected", e.toString());
194     }
```

6.4.3.9 plotValue()

```
void it.unibo.torsello.bluetoothpositioning.util.ChartUtil.plotValue (
              LineData data,
              int index,
              Double value )  [private]
```

```
157                                                                 {
158
159         ILineDataSet set = data.getDataSetByIndex(index);
160
161         set.addEntry(new Entry(set.getEntryCount(), value.floatValue()));
162
163         data.notifyDataChanged();
164
165         // let the chart know it's data has changed
166         mChart.notifyDataSetChanged();
167
168         // limit the number of visible entries
169         mChart.setVisibleXRangeMaximum(10);
170
171         // move to the latest entry
172         mChart.moveViewToX(data.getEntryCount());
173     }
```

6.4.3.10 saveImageChart()

```
void it.unibo.torsello.bluetoothpositioning.util.ChartUtil.saveImageChart ( )
```

```
187                                     {
188         mChart.saveToGallery("prova", 100);
189     }
```

6.4.3.11 updateDataSet()

```
void it.unibo.torsello.bluetoothpositioning.util.ChartUtil.updateDataSet (
            final ArrayList< Double > doubleArrayList )
```

```
88                                                                          {
89         if (thread != null)
90             thread.interrupt();
91
92         thread = new Thread(new Runnable() {
93             @Override
94             public void run() {
95                 if (getActivity() != null) {
96
97                     getActivity().runOnUiThread(new Runnable() {
98                         @Override
99                         public void run() {
100
101                             LineData data = mChart.getData();
102
103                             if (data == null) {
104                                 if (dataSets != null) {
105                                     initializeDataChart(
    dataSets);
106                                 } else {
107                                     throw new Error("Error: dataSet is null!!!");
108                                 }
109                             } else {
110                                 if (data.getDataSetCount() > 0) {
111
112                                     for (int i = 0; i < doubleArrayList.size(); i++) {
113                                         plotValue(data, i, doubleArrayList.get(i));
114                                     }
115                                 }
116                             }
117                         }
118                     });
119                 }
120             }
121         });
122
123         thread.start();
124     }
```

6.4.4 Documentazione dei membri dato

6.4.4.1 activity

```
FragmentActivity it.unibo.torsello.bluetoothpositioning.util.ChartUtil.activity  [private]
```

6.4.4.2 dataSets

```
ArrayList<ILineDataSet> it.unibo.torsello.bluetoothpositioning.util.ChartUtil.dataSets  [private]
```

6.4.4.3 mChart

```
LineChart it.unibo.torsello.bluetoothpositioning.util.ChartUtil.mChart  [private]
```

6.4.4.4 thread

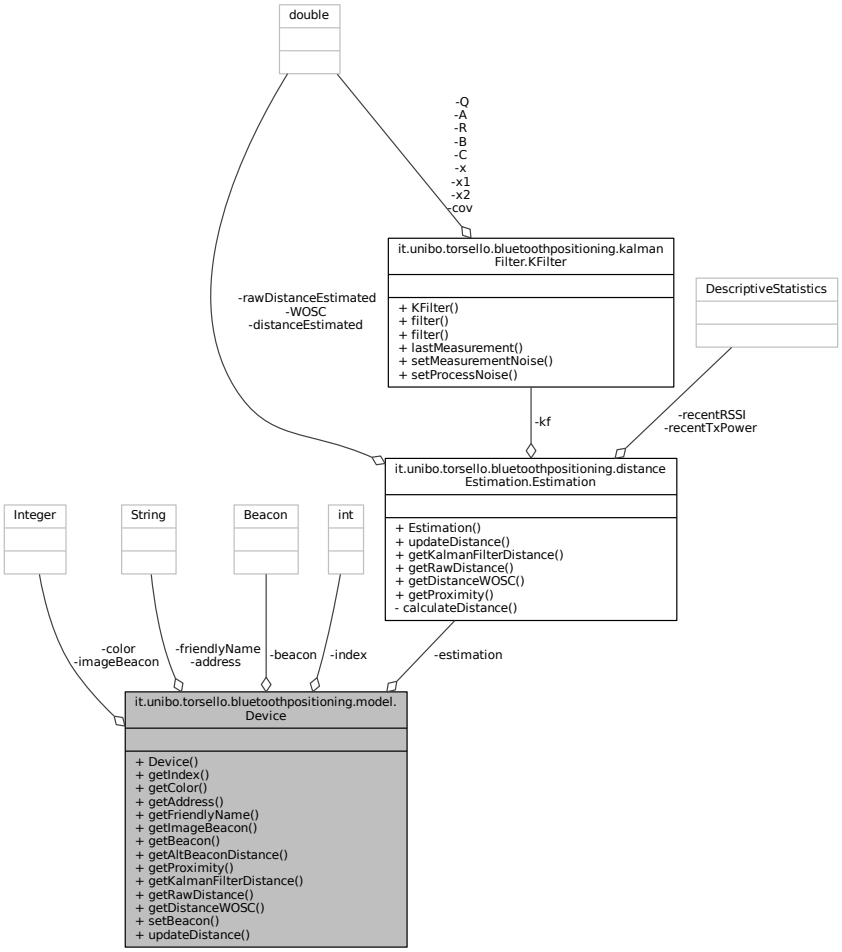
```
Thread it.unibo.torsello.bluetoothpositioning.util.ChartUtil.thread  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- ChartUtil.java

6.5 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.model.Device

Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.model.Device:



Membri pubblici

- Device (int index, String address, String friendlyName, Integer color, Integer imageBeacon)
- int getIndex ()
- Integer getColor ()
- String getAddress ()
- String getFriendlyName ()
- Integer getImageBeacon ()
- Beacon getBeacon ()
- double getAltBeaconDistance ()
- String getProximity ()
- double getKalmanFilterDistance ()
- double getRawDistance ()
- double getDistanceWOSC ()
- void setBeacon (Beacon beacon)
- void updateDistance (double processNoise)

Attributi privati

- Estimation estimation
- String address
- String friendlyName
- Beacon beacon
- Integer imageBeacon
- Integer color
- int index

6.5.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.5.2 Documentazione dei costruttori e dei distruttori

6.5.2.1 Device()

```
it.unibo.torsello.bluetoothpositioning.model.Device.Device (
              int index,
              String address,
              String friendlyName,
              Integer color,
              Integer imageBeacon )
```

```
21                                                                                {
22          this.index = index;
23          this.address = address;
24          this.friendlyName = friendlyName;
25          this.estimation = new Estimation();
26          this.imageBeacon = imageBeacon;
27          this.color = color;
28      }
```

6.5.3 Documentazione delle funzioni membro

6.5.3.1 getAddress()

```
String it.unibo.torsello.bluetoothpositioning.model.Device.getAddress ( )
```

```
38                                {
39          return this.address;
40      }
```

6.5.3.2 getAltBeaconDistance()

```
double it.unibo.torsello.bluetoothpositioning.model.Device.getAltBeaconDistance ( )
```

```
54                                        {
55          return beacon.getDistance();
56      }
```

6.5.3.3 getBeacon()

```
Beacon it.unibo.torsello.bluetoothpositioning.model.Device.getBeacon ( )
```

```
50                              {
51          return beacon;
52      }
```

6.5.3.4 getColor()

```
Integer it.unibo.torsello.bluetoothpositioning.model.Device.getColor ( )
```

```
34                              {
35          return color;
36      }
```

6.5.3.5 getDistanceWOSC()

```
double it.unibo.torsello.bluetoothpositioning.model.Device.getDistanceWOSC ( )
```

```
71                                      {
72          return estimation.getDistanceWOSC();
73      }
```

6.5.3.6 getFriendlyName()

```
String it.unibo.torsello.bluetoothpositioning.model.Device.getFriendlyName ( )
```

```
42                                      {
43          return friendlyName;
44      }
```

6.5.3.7 getImageBeacon()

```
Integer it.unibo.torsello.bluetoothpositioning.model.Device.getImageBeacon ( )
```

```
46                                      {
47          return imageBeacon;
48      }
```

6.5.3.8 getIndex()

```
int it.unibo.torsello.bluetoothpositioning.model.Device.getIndex ( )
```

```
30                          {
31          return index;
32      }
```

6.5.3.9 getKalmanFilterDistance()

```
double it.unibo.torsello.bluetoothpositioning.model.Device.getKalmanFilterDistance ( )
```

```
63                                          {
64         return estimation.getKalmanFilterDistance();
65     }
```

6.5.3.10 getProximity()

```
String it.unibo.torsello.bluetoothpositioning.model.Device.getProximity ( )
```

```
58                                  {
59         return estimation.getProximity();
60     }
```

6.5.3.11 getRawDistance()

```
double it.unibo.torsello.bluetoothpositioning.model.Device.getRawDistance ( )
```

```
67                                      {
68         return estimation.getRawDistance();
69     }
```

6.5.3.12 setBeacon()

```
void it.unibo.torsello.bluetoothpositioning.model.Device.setBeacon (
            Beacon beacon )
```

```
75                                          {
76         this.beacon = beacon;
77     }
```

6.5.3.13 updateDistance()

```
void it.unibo.torsello.bluetoothpositioning.model.Device.updateDistance (
            double processNoise )
```

```
79                                                      {
80         if (beacon != null) {
81             estimation.updateDistance(beacon, processNoise);
82         }
83     }
```

6.5.4 Documentazione dei membri dato

6.5.4.1 address

```
String it.unibo.torsello.bluetoothpositioning.model.Device.address  [private]
```

6.5.4.2 beacon

```
Beacon it.unibo.torsello.bluetoothpositioning.model.Device.beacon  [private]
```

6.5.4.3 color

```
Integer it.unibo.torsello.bluetoothpositioning.model.Device.color  [private]
```

6.5.4.4 estimation

```
Estimation it.unibo.torsello.bluetoothpositioning.model.Device.estimation  [private]
```

6.5.4.5 friendlyName

```
String it.unibo.torsello.bluetoothpositioning.model.Device.friendlyName  [private]
```

6.5.4.6 imageBeacon

```
Integer it.unibo.torsello.bluetoothpositioning.model.Device.imageBeacon  [private]
```

6.5.4.7 index

```
int it.unibo.torsello.bluetoothpositioning.model.Device.index  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- Device.java

6.6 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter

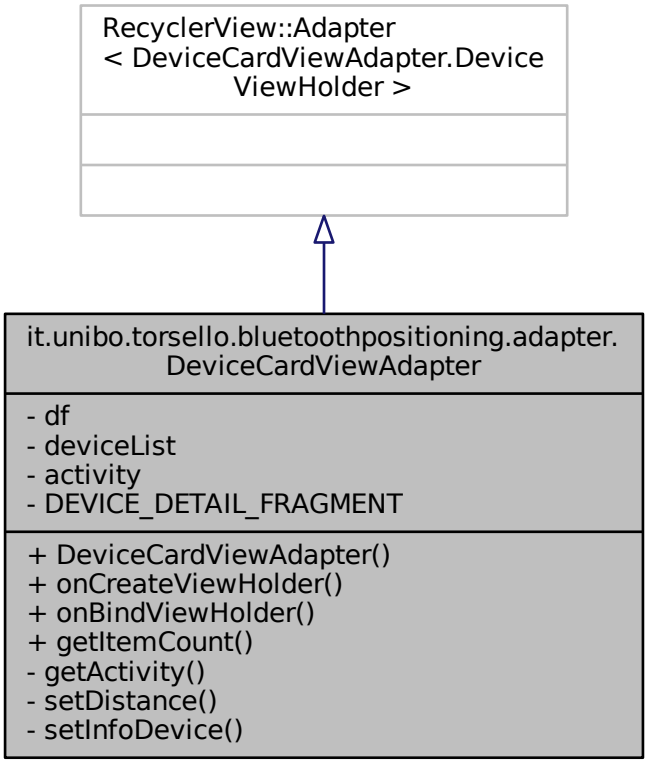
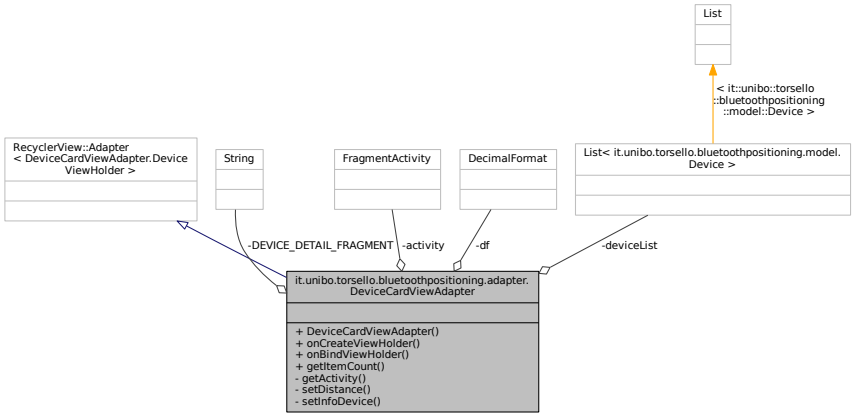


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter:



Composti

- class DeviceViewHolder

Membri pubblici

- DeviceCardViewAdapter (final FragmentActivity fragmentActivity, List< Device > deviceList)
- DeviceViewHolder onCreateViewHolder (ViewGroup parent, int viewType)
- void onBindViewHolder (DeviceViewHolder holder, final int position)
- int getItemCount ()

Membri privati

- FragmentActivity getActivity ()
- void setDistance (DeviceViewHolder holder, Device device)
- void setInfoDevice (DeviceViewHolder holder, Beacon beacon)

Attributi privati

- DecimalFormat df
- List< Device > deviceList
- FragmentActivity activity

Attributi privati statici

- static final String DEVICE_DETAIL_FRAGMENT = "device detail"

6.6.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.6.2 Documentazione dei costruttori e dei distruttori

6.6.2.1 DeviceCardViewAdapter()

```
it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceCardViewAdapter (
            final FragmentActivity fragmentActivity,
            List< Device > deviceList )
```

```
36                                                                                  {
37
38          this.deviceList = new ArrayList<>();
39          this.deviceList = deviceList;
40          this.activity = fragmentActivity;
41
42          df = new DecimalFormat("0.00", DecimalFormatSymbols.getInstance());
43      }
```

6.6.3 Documentazione delle funzioni membro

6.6.3.1 getActivity()

```
FragmentActivity it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.get↩
Activity ( )  [private]
```

```
45                                          {
46          return activity;
47      }
```

6.6.3.2 getItemCount()

```
int it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.getItemCount ( )
```

```
217                                 {
218         return deviceList.size();
219     }
```

6.6.3.3 onBindViewHolder()

```
void it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.onBindViewHolder (
              DeviceViewHolder holder,
              final int position )
```

```
58                                                                                  {
59
60          final Beacon beacon = deviceList.get(position).getBeacon();
61          final Device device = deviceList.get(position);
62
63          setInfoDevice(holder, beacon);
64
65          setDistance(holder, device);
66
67          final Integer imageBeacon = device.getImageBeacon();
68          if (imageBeacon != null) {
69              holder.imageView.setImageResource(imageBeacon);
70          } else {
71              holder.imageView.setImageResource(R.drawable.beacon_unknown);
72          }
73
74          holder.rssiTextView.setText(String.format("%sdb", beacon.getTxPower()));
75
76          holder.txPowerTextView.setText(String.format("%sdb", beacon.getRssi()));
77
78          final String friendlyName = device.getFriendlyName();
79          if (friendlyName != null) {
80              holder.friendlyNameTextView.setText(friendlyName);
81          } else {
82              holder.friendlyNameTextView.setText(android.R.string.unknownName);
83          }
84
85          final String bluetoothName = beacon.getBluetoothName();
86          if (bluetoothName != null) {
87              holder.defaultNameTextView.setText(bluetoothName);
88          } else {
89              holder.defaultNameTextView.setText(android.R.string.unknownName);
90          }
91
92          final String macAddress = beacon.getBluetoothAddress();
93          if (macAddress != null) {
94              holder.macTextView.setText(macAddress);
95          } else {
96              holder.macTextView.setText(android.R.string.unknownName);
97          }
98
99          final String proximity = device.getProximity();
100          if (proximity != null) {
101              holder.proximityTextView.setText(proximity);
102          } else {
103              holder.proximityTextView.setText(android.R.string.unknownName);
104          }
105
106          final Integer color = device.getColor();
107          if (color != null) {
108              holder.colorTextView.setText(color);
109          } else {
110              holder.colorTextView.setText(android.R.string.unknownName);
111          }
112
113          holder.view.setOnClickListener(new View.OnClickListener() {
114              @Override
115              public void onClick(View v) {
116                  final String deviceDetailName;
117                  if (device.getFriendlyName() != null) {
118                      deviceDetailName = device.getFriendlyName();
119                  } else {
120                      deviceDetailName = device.getAddress();
```

```
121                 }
122
123                 new Thread(new Runnable() {
124                     @Override
125                     public void run() {
126                         getActivity().runOnUiThread(new Runnable() {
127                             @Override
128                             public void run() {
129
130                                 Fragment currentFrag = getActivity().getSupportFragmentManager()
131                                         .findFragmentByTag(
      DEVICE_DETAIL_FRAGMENT);
132
133                                 if (currentFrag == null) {
134                                     getActivity().getSupportFragmentManager().beginTransaction()
135                                             .replace(R.id.contentMainLayout,
136                                                     DeviceDetailFragment.newInstance(deviceDetailName),
137                                                     DEVICE_DETAIL_FRAGMENT)
138                                             .commit();
139                                 }
140                             }
141                         });
142                     }
143                 }).start();
144             }
145         });
146     }
```

6.6.3.4 onCreateViewHolder()

```
DeviceViewHolder it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.on↩
CreateViewHolder (
              ViewGroup parent,
              int viewType )
```

```
50                                                                                  {
51
52         View root = LayoutInflater.from(parent.getContext())
53                 .inflate(R.layout.list_items, parent, false);
54         return new DeviceViewHolder(root);
55     }
```

6.6.3.5 setDistance()

```
void it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.setDistance (
              DeviceViewHolder holder,
              Device device )  [private]
```

```
148                                                                 {
149         holder.altbeaconDistanceTextView.setText(String.format("%sm", df.format(device.
      getAltBeaconDistance())));
150
151         holder.standardRawDistanceTextView.setText(String.format("%sm", df.format(device.getRawDistance()
      )));
152
153         holder.kalmanFilterDistanceTextView.setText(String.format("%s", df.format(device.
      getKalmanFilterDistance())));
154     }
```

6.6.3.6 setInfoDevice()

```
void it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.setInfoDevice (
              DeviceViewHolder holder,
              Beacon beacon )  [private]
```

```
156                                                                     {
157         if (beacon.getServiceUuid() == 0xfeaa) {
158
159             holder.visibilityUUIDLinearLayout.setVisibility(View.GONE);
160             holder.visibilityNameSpaceLinearLayout.setVisibility(View.VISIBLE);
161
162             if (beacon.getBeaconTypeCode() == 0x00) {
163                 // Eddystone-UID
164                 if (beacon.getId1() != null) {
165                     holder.nameSpaceTextView.setText(beacon.getId1().toString());
166                 } else {
167                     holder.nameSpaceTextView.setText(android.R.string.unknownName);
168                 }
169
170                 if (beacon.getId2() != null) {
171                     holder.instanceTextView.setText(beacon.getId2().toString());
172                 } else {
173                     holder.instanceTextView.setText(android.R.string.unknownName);
174                 }
175
176             } else if (beacon.getBeaconTypeCode() == 0x10) {
177                 // Eddystone-URL
178                 // String url = UrlBeaconUrlCompressor.uncompress(beacon.getId1().toByteArray());
179             } else if (beacon.getBeaconTypeCode() == 0x20) {
180                 if (!beacon.getExtraDataFields().isEmpty()) {
181                     // Eddystone-TLM
182                 }
183             }
184         } else if (beacon.getServiceUuid() == 0xbeac) {
185             // AltBeacon
186         } else if (beacon.getBeaconTypeCode() == 0x0215) { //533 in dec)
187
188             holder.visibilityUUIDLinearLayout.setVisibility(View.VISIBLE);
189             holder.visibilityNameSpaceLinearLayout.setVisibility(View.GONE);
190
191             // AppleIBeacon
192             if (beacon.getId1() != null) {
193                 holder.uuidTextView.setText(beacon.getId1().toString());
194             } else {
195                 holder.uuidTextView.setText(android.R.string.unknownName);
196             }
197
198             if (beacon.getId2() != null) {
199                 holder.majorTextView.setText(beacon.getId2().toString());
200             } else {
201                 holder.majorTextView.setText(android.R.string.unknownName);
202             }
203
204             if (beacon.getId3() != null) {
205                 holder.minorTextView.setText(beacon.getId3().toString());
206             } else {
207                 holder.minorTextView.setText(android.R.string.unknownName);
208             }
209
210         } else if (beacon.getBeaconTypeCode() == 0x0101) {
211             // EstimoteNearable
212         }
213
214     }
```

6.6.4 Documentazione dei membri dato

6.6.4.1 activity

```
FragmentActivity it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.activity
[private]
```

6.6.4.2 DEVICE_DETAIL_FRAGMENT

```
final String it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DEVICE_DET↩
AIL_FRAGMENT = "device detail"  [static], [private]
```

6.6.4.3 deviceList

```
List<Device> it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.deviceList
[private]
```

6.6.4.4 df

```
DecimalFormat it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.df  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- DeviceCardViewAdapter.java

6.7 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment

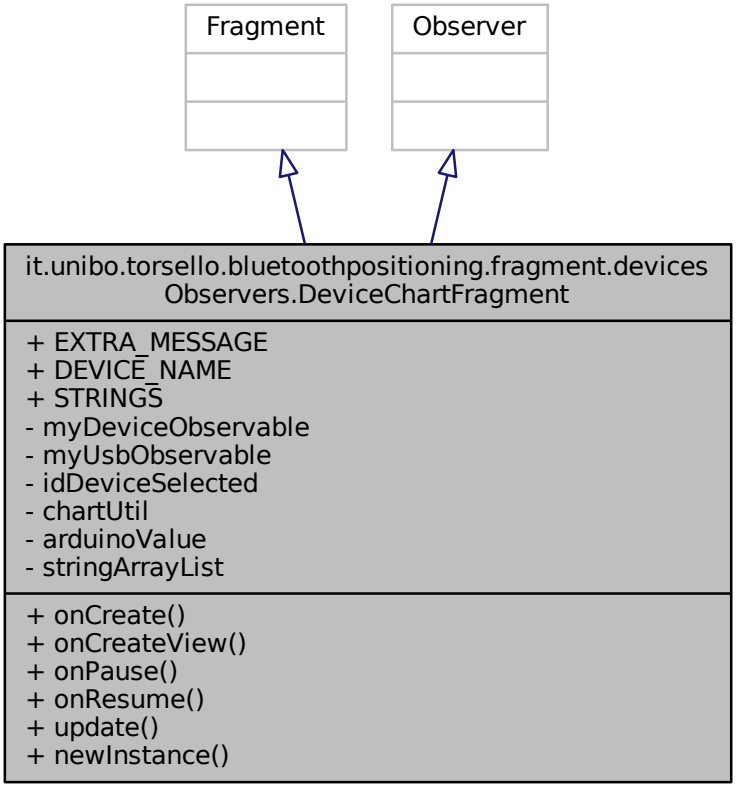
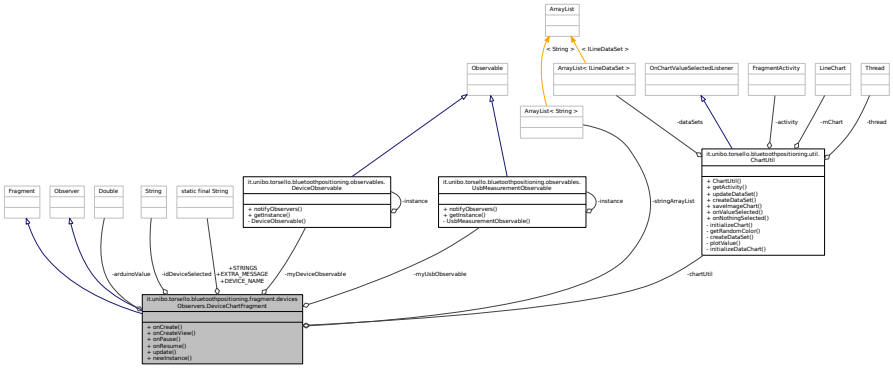


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChart↩
Fragment:



Membri pubblici

- void onCreate (Bundle savedInstanceState)
- View onCreateView (LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState)
- void onPause ()
- void onResume ()
- void update (Observable o, Object arg)

Membri pubblici statici

- static DeviceChartFragment newInstance (String message, String deviceName, ArrayList< String > strings)

Attributi pubblici statici

- static final String EXTRA_MESSAGE = "EXTRA_MESSAGE"
- static final String DEVICE_NAME = "DEVICE_NAME"
- static final String STRINGS = "STRINGS"

Attributi privati

- DeviceObservable myDeviceObservable
- UsbMeasurementObservable myUsbObservable
- String idDeviceSelected
- ChartUtil chartUtil
- Double arduinoValue = 0D
- ArrayList< String > stringArrayList

6.7.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.7.2 Documentazione delle funzioni membro

6.7.2.1 newInstance()

```
static DeviceChartFragment it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.↩
DeviceChartFragment.newInstance (
            String message,
            String deviceName,
            ArrayList< String > strings )  [static]
```

```
44                                                                                  {
45         DeviceChartFragment fragment = new DeviceChartFragment();
46         Bundle args = new Bundle();
47         args.putString(EXTRA_MESSAGE, message);
48         args.putString(DEVICE_NAME, deviceName);
49         args.putStringArrayList(STRINGS, strings);
50         fragment.setArguments(args);
51         return fragment;
52     }
```

6.7.2.2 onCreate()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment.on↩
Create (
            Bundle savedInstanceState )
```

```
55                                                {
56         super.onCreate(savedInstanceState);
57
58         myDeviceObservable = DeviceObservable.getInstance();
59         myUsbObservable = UsbMeasurementObservable.getInstance();
60
61         idDeviceSelected = getArguments().getString(DEVICE_NAME);
62         stringArrayList = getArguments().getStringArrayList(
       STRINGS);
63     }
```

6.7.2.3 onCreateView()

```
View it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment.on↩
CreateView (
            LayoutInflater inflater,
            ViewGroup container,
            Bundle savedInstanceState )
```

```
66                                                                                  {
67
68         View root = inflater.inflate(R.layout.fragment_device_chart, container, false);
69
70         LineChart lineChart = (LineChart) root.findViewById(R.id.chart);
71
72         // add the charts
73         chartUtil = new ChartUtil(getActivity(), lineChart);
74
75         return root;
76     }
```

6.7.2.4 onPause()

void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment.on↩
Pause ( )

```
79                          {
80         myDeviceObservable.deleteObserver(this);
81         myUsbObservable.deleteObserver(this);
82         super.onPause();
83     }
```

6.7.2.5 onResume()

void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment.on↩
Resume ( )

```
86                           {
87         super.onResume();
88         myDeviceObservable.addObserver(this);
89         myUsbObservable.addObserver(this);
90     }
```

6.7.2.6 update()

void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment.↩
update (
Observable *o*,
Object *arg*)

```
93                                                  {
94
95         if (o instanceof UsbMeasurementObservable) {
96             if (arg instanceof Double) {
97                 arduinoValue = (Double) arg;
98             }
99         }
100
101         if (o instanceof DeviceObservable) {
102             if (arg instanceof List) {
103
104                 List<Device> devices = (List<Device>) arg;
105
106                 for (Device deviceSelected : devices) {
107                     if (deviceSelected.getFriendlyName().equals(idDeviceSelected) ||
108                             deviceSelected.getAddress().equals(idDeviceSelected)) {
109
110                         if (chartUtil != null) {
111
112                             chartUtil.createDataSet(
    stringArrayList);
113
114                             ArrayList<Double> doubleArrayList = new ArrayList<>();
115
116                             for (String s : stringArrayList) {
117                                 if (s.equals(getString(R.string.chart_arduino))) {
118                                     doubleArrayList.add(arduinoValue);
119                                 }
120
121                                 if (s.equals(getString(R.string.chart_raw_distance))) {
122                                     doubleArrayList.add(deviceSelected.getRawDistance());
123                                 }
124
125                                 if (s.equals(getString(R.string.chart_altbeacon))) {
126                                     doubleArrayList.add(deviceSelected.getAltBeaconDistance());
127                                 }
128
129                                 if (s.equals(getString(R.string.chart_kalman_filter))) {
130                                     doubleArrayList.add(deviceSelected.getKalmanFilterDistance());
131                                 }
132                             }
133
134                             chartUtil.updateDataSet(doubleArrayList);
135                         }
136                     }
137                 }
138             }
139         }
140     }
```

6.7.3 Documentazione dei membri dato

6.7.3.1 arduinoValue

```
Double it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment.↩
arduinoValue = 0D  [private]
```

6.7.3.2 chartUtil

```
ChartUtil it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment.↩
chartUtil  [private]
```

6.7.3.3 DEVICE_NAME

```
final String it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChart↩
Fragment.DEVICE_NAME = "DEVICE_NAME"  [static]
```

6.7.3.4 EXTRA_MESSAGE

```
final String it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChart↩
Fragment.EXTRA_MESSAGE = "EXTRA_MESSAGE"  [static]
```

6.7.3.5 idDeviceSelected

```
String it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment.↩
idDeviceSelected  [private]
```

6.7.3.6 myDeviceObservable

```
DeviceObservable it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.Device↩
ChartFragment.myDeviceObservable  [private]
```

6.7.3.7 myUsbObservable

```
UsbMeasurementObservable it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.↩
DeviceChartFragment.myUsbObservable  [private]
```

6.7.3.8 stringArrayList

```
ArrayList<String> it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.Device↩
ChartFragment.stringArrayList  [private]
```

6.7.3.9 STRINGS

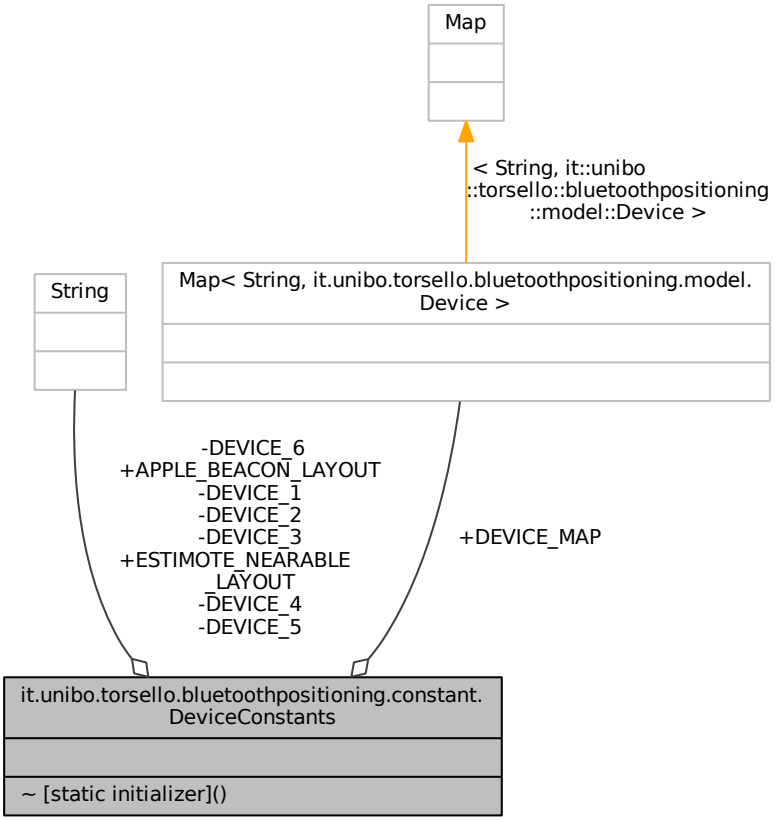
```
final String it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChart↩
Fragment.STRINGS = "STRINGS"  [static]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- DeviceChartFragment.java

6.8 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants

Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants:



Attributi pubblici statici

- static final String APPLE_BEACON_LAYOUT = "m:2-3=0215,i:4-19,i:20-21,i:22-23,p:24-24"
- static final String ESTIMOTE_NEARABLE_LAYOUT
- static final Map< String, Device > DEVICE_MAP

Funzioni statiche con visibilità di package

- [static initializer]

Attributi privati statici

- static final String DEVICE_1 = "C1:9B:B0:B9:01:9E"
- static final String DEVICE_2 = "D1:BE:E2:E9:67:A6"
- static final String DEVICE_3 = "FA:6B:72:1E:EB:46"
- static final String DEVICE_4 = "D9:80:00:B7:16:78"
- static final String DEVICE_5 = "DB:F6:F5:0C:23:BF"
- static final String DEVICE_6 = "E7:E4:0E:F6:79:3F"

6.8.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.8.2 Documentazione delle funzioni membro

6.8.2.1 [static initializer]()

```
it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.[static initializer] ( )  [static],
[package]
```

6.8.3 Documentazione dei membri dato

6.8.3.1 APPLE_BEACON_LAYOUT

```
final String it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.APPLE_BEACON_LA↩
YOUT = "m:2-3=0215,i:4-19,i:20-21,i:22-23,p:24-24"  [static]
```

6.8.3.2 DEVICE_1

```
final String it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.DEVICE_1 = "C1↩
:9B:B0:B9:01:9E"  [static], [private]
```

6.8.3.3 DEVICE_2

```
final String it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.DEVICE_2 = "D1:↩
BE:E2:E9:67:A6"  [static], [private]
```

6.8.3.4 DEVICE_3

```
final String it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.DEVICE_3 = "FA↩
:6B:72:1E:EB:46"  [static], [private]
```

6.8.3.5 DEVICE_4

```
final String it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.DEVICE_4 = "D9↩
:80:00:B7:16:78"  [static], [private]
```

6.8.3.6 DEVICE_5

```
final String it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.DEVICE_5 = "DB:↩
F6:F5:0C:23:BF"  [static], [private]
```

6.8.3.7 DEVICE_6

```
final String it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.DEVICE_6 = "E7:↩
E4:0E:F6:79:3F"  [static], [private]
```

6.8.3.8 DEVICE_MAP

```
final Map<String, Device> it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.DE↩
VICE_MAP  [static]
```

6.8.3.9 ESTIMOTE_NEARABLE_LAYOUT

```
final String it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants.ESTIMOTE_NEARAB↩
LE_LAYOUT  [static]
```

Valore iniziale:

```
= "m:1-2=0101,i:3-10,d:11-11,d:12-12," +
            "d:13-14,d:15-15,d:16-16,d:17-17,d:18-18,d:19-19,d:20-20, p:21-21"
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- DeviceConstants.java

6.9 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment

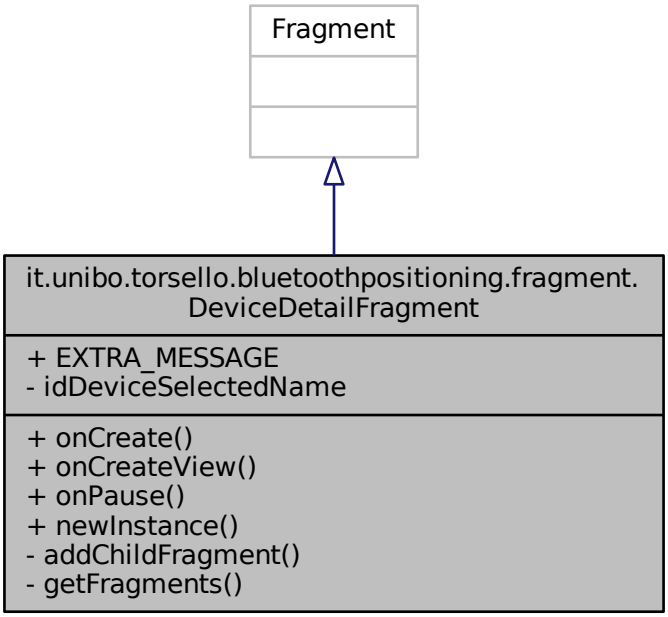
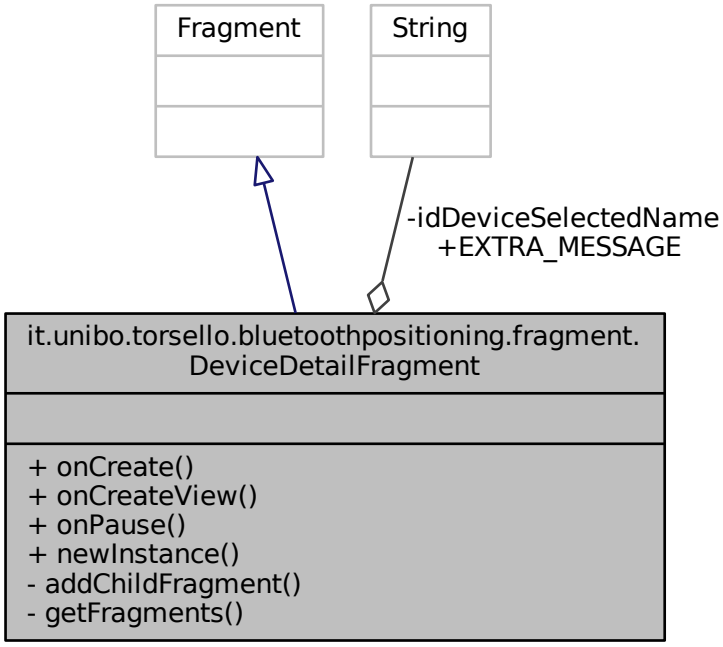


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment:



Membri pubblici

- void onCreate (Bundle savedInstanceState)
- View onCreateView (LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState)
- void onPause ()

Membri pubblici statici

- static DeviceDetailFragment newInstance (String message)

Attributi pubblici statici

- static final String EXTRA_MESSAGE = "EXTRA_MESSAGE"

Membri privati

- void addChildFragment (View root)
- ArrayList< Fragment > getFragments ()

Attributi privati

- String idDeviceSelectedName

6.9.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.9.2 Documentazione delle funzioni membro

6.9.2.1 addChildFragment()

```
void it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment.addChildFragment (
            View root )  [private]
```

```
62                                          {
63
64         ViewPager mViewPager = (ViewPager) root.findViewById(R.id.view_pager);
65         StatePagerAdapter myPageAdapter = new StatePagerAdapter(getChildFragmentManager(),
     getFragments());
66         mViewPager.setAdapter(myPageAdapter);
67
68         TabLayout tabLayout = (TabLayout) root.findViewById(R.id.sliding_tabs);
69         tabLayout.setupWithViewPager(mViewPager);
70     }
```

6.9.2.2 getFragments()

```
ArrayList<Fragment> it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment.get↩
Fragments ( )  [private]
```

```
72                                              {
73         ArrayList<Fragment> fragments = new ArrayList<>();
74         // fragment 0
75         fragments.add(DeviceDetailInner1Fragment.newInstance(
     idDeviceSelectedName));
76
77         // fragment 1
78         fragments.add(DeviceDetailInner2Fragment.newInstance("Details",
     idDeviceSelectedName));
79
80         return fragments;
81     }
```

6.9.2.3 newInstance()

```
static DeviceDetailFragment it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetail↩
Fragment.newInstance (
            String message )  [static]
```

```
28                                                                  {
29         DeviceDetailFragment fragment = new DeviceDetailFragment();
30         Bundle args = new Bundle();
31         args.putString(EXTRA_MESSAGE, message);
32         fragment.setArguments(args);
33         return fragment;
34     }
```

6.9.2.4 onCreate()

```
void it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment.onCreate (
            Bundle savedInstanceState )
```

```
37                                                  {
38         super.onCreate(savedInstanceState);
39
40         idDeviceSelectedName = getArguments().getString(
      EXTRA_MESSAGE);
41     }
```

6.9.2.5 onCreateView()

```
View it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment.onCreateView (
            LayoutInflater inflater,
            ViewGroup container,
            Bundle savedInstanceState )
```

```
44                                                                                                  {
45         View root = inflater.inflate(R.layout.fragment_device_detail, container, false);
46
47         getActivity().findViewById(R.id.toolbar).setVisibility(View.GONE);
48
49         ((CollapsingToolbarLayout) root.findViewById(R.id.collapsing_toolbar)).setTitle(
      idDeviceSelectedName);
50
51         addChildFragment(root);
52
53         return root;
54     }
```

6.9.2.6 onPause()

```
void it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment.onPause ( )
```

```
57                          {
58         getActivity().findViewById(R.id.toolbar).setVisibility(View.VISIBLE);
59         super.onPause();
60     }
```

6.9.3 Documentazione dei membri dato

6.9.3.1 EXTRA_MESSAGE

```
final String it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment.EXTRA_MESS↩
AGE = "EXTRA_MESSAGE"  [static]
```

6.9.3.2 idDeviceSelectedName

```
String it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment.idDeviceSelected↩
Name  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- DeviceDetailFragment.java

6.10 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1Fragment

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1Fragment

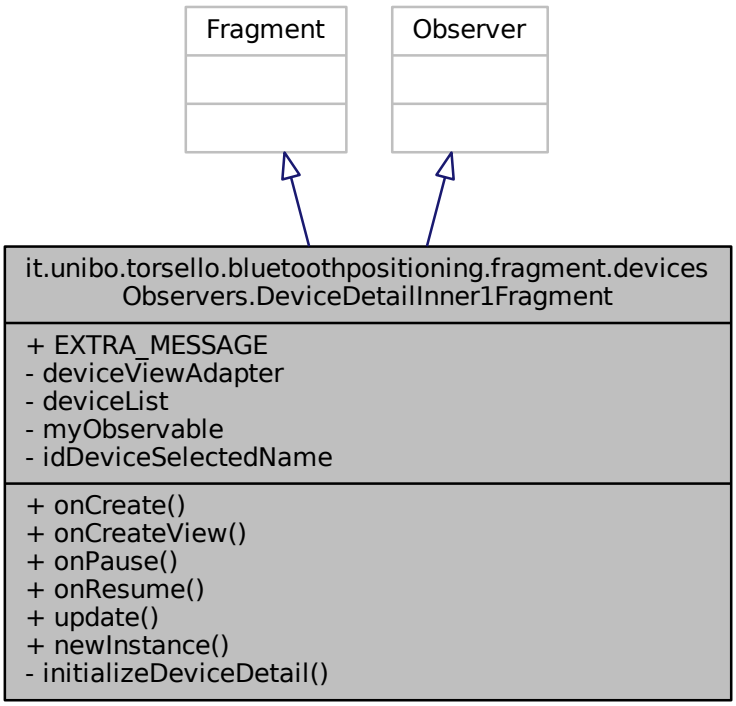
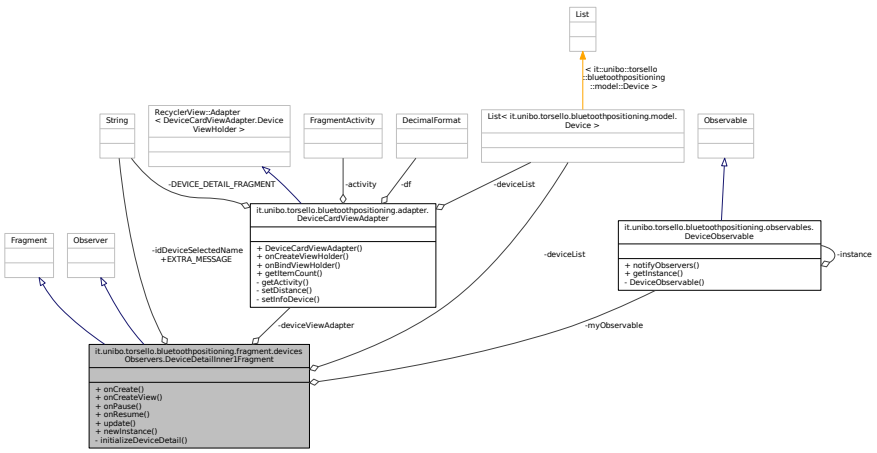


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1Fragment:



Membri pubblici

- void onCreate (@Nullable Bundle savedInstanceState)
- View onCreateView (LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState)
- void onPause ()
- void onResume ()
- void update (Observable o, Object arg)

Membri pubblici statici

- static DeviceDetailInner1Fragment newInstance (String message)

Attributi pubblici statici

- static final String EXTRA_MESSAGE = "EXTRA_MESSAGE"

Membri privati

- void initializeDeviceDetail (View root)

Attributi privati

- DeviceCardViewAdapter deviceViewAdapter
- List< Device > deviceList
- DeviceObservable myObservable
- String idDeviceSelectedName

6.10.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.10.2 Documentazione delle funzioni membro

6.10.2.1 initializeDeviceDetail()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1↩
Fragment.initializeDeviceDetail (
            View root )  [private]
```

```
77                                                  {
78         // add RecyclerView
79         RecyclerView recyclerView = (RecyclerView) root.findViewById(R.id.recycler_view);
80         recyclerView.setLayoutManager(new LinearLayoutManager(getContext()));
81         recyclerView.setAdapter(deviceViewAdapter);
82     }
```

6.10.2.2 newInstance()

```
static DeviceDetailInner1Fragment it.unibo.torsello.bluetoothpositioning.fragment.devices↩
Observers.DeviceDetailInner1Fragment.newInstance (
            String message )  [static]
```

```
36                                                                          {
37         DeviceDetailInner1Fragment fragment = new DeviceDetailInner1Fragment();
38         Bundle args = new Bundle();
39         args.putString(EXTRA_MESSAGE, message);
40         fragment.setArguments(args);
41         return fragment;
42     }
```

6.10.2.3 onCreate()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1↩
Fragment.onCreate (
            @Nullable Bundle savedInstanceState )
```

```
45                                                          {
46         super.onCreate(savedInstanceState);
47
48         myObservable = DeviceObservable.getInstance();
49
50         idDeviceSelectedName = getArguments().getString(
      EXTRA_MESSAGE);
51         deviceList = new ArrayList<>();
52         deviceViewAdapter = new DeviceCardViewAdapter(getActivity(),
      deviceList);
53
54     }
```

6.10.2.4 onCreateView()

```
View it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1↩
Fragment.onCreateView (
            LayoutInflater inflater,
            ViewGroup container,
            Bundle savedInstanceState )
```

```
57                                                                                  {
58         View root = inflater.inflate(R.layout.fragment_device_detail_inner_1, container, false);
59
60         initializeDeviceDetail(root);
61
62         return root;
63     }
```

6.10.2.5 onPause()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1↩
Fragment.onPause ( )
```

```
66                          {
67         myObservable.deleteObserver(this);
68         super.onPause();
69     }
```

6.10.2.6 onResume()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1↩
Fragment.onResume ( )
```

```
72                              {
73         super.onResume();
74         myObservable.addObserver(this);
75     }
```

6.10.2.7 update()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1↩
Fragment.update (
              Observable o,
              Object arg )
```

```
85                                                  {
86
87         if (arg instanceof List) {
88
89             if (!deviceList.isEmpty()) {
90                 deviceList.clear();
91             }
92
93             List<Device> devices = (List<Device>) arg;
94
95             for (Device deviceSelected : devices) {
96                 if (deviceSelected.getFriendlyName().equals(idDeviceSelectedName) ||
97                         deviceSelected.getAddress().equals(idDeviceSelectedName)) {
98                     deviceList.add(deviceSelected);
99                 }
100             }
101
102             deviceViewAdapter.notifyDataSetChanged();
103         }
104     }
```

6.10.3 Documentazione dei membri dato

6.10.3.1 deviceList

```
List<Device> it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetail↩
Inner1Fragment.deviceList  [private]
```

6.10.3.2 deviceViewAdapter

```
DeviceCardViewAdapter it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.↩
DeviceDetailInner1Fragment.deviceViewAdapter  [private]
```

6.10.3.3 EXTRA_MESSAGE

```
final String it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetail↩
Inner1Fragment.EXTRA_MESSAGE = "EXTRA_MESSAGE"  [static]
```

6.10.3.4 idDeviceSelectedName

```
String it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1↩
Fragment.idDeviceSelectedName  [private]
```

6.10.3.5 myObservable

```
DeviceObservable it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.Device↩
DetailInner1Fragment.myObservable  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- DeviceDetailInner1Fragment.java

6.11 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment

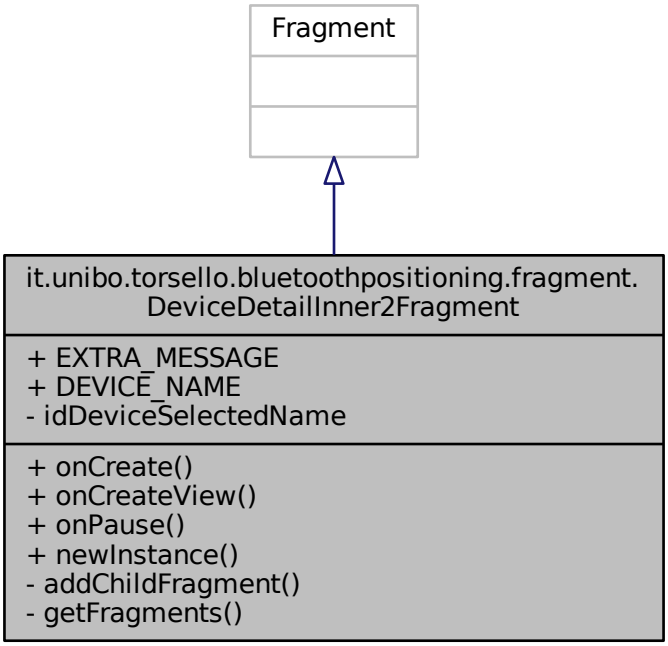
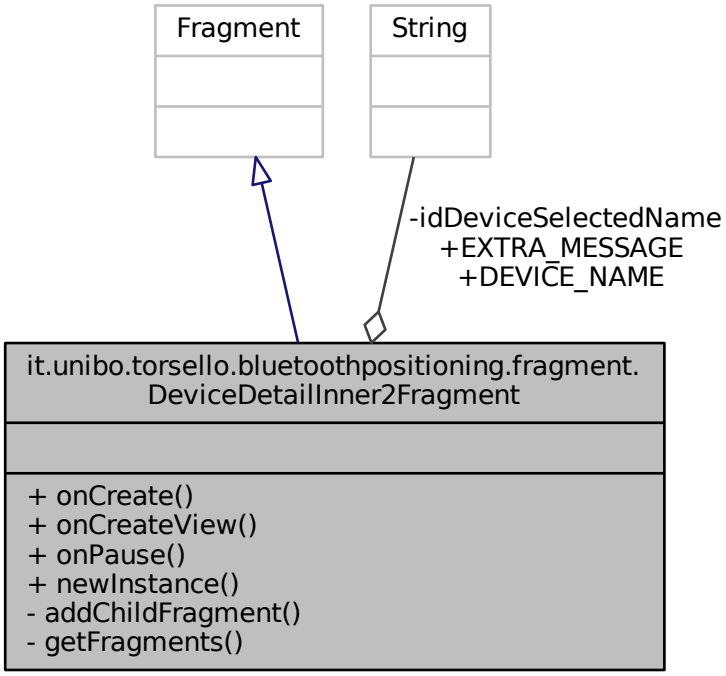


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment:



Membri pubblici

- void onCreate (Bundle savedInstanceState)
- View onCreateView (LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState)
- void onPause ()

Membri pubblici statici

- static DeviceDetailInner2Fragment newInstance (String message, String deviceName)

Attributi pubblici statici

- static final String EXTRA_MESSAGE = "EXTRA_MESSAGE"
- static final String DEVICE_NAME = "DEVICE_NAME"

Membri privati

- void addChildFragment (View root)
- ArrayList< Fragment > getFragments ()

Attributi privati

- String idDeviceSelectedName

6.11.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.11.2 Documentazione delle funzioni membro

6.11.2.1 addChildFragment()

```
void it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment.addChild↩
Fragment (
            View root )  [private]
```

```
58                                          {
59
60          ViewPager mViewPager = (ViewPager) root.findViewById(R.id.view_pager);
61          StatePagerAdapter myPageAdapter = new StatePagerAdapter(getChildFragmentManager(),
    getFragments());
62          mViewPager.setAdapter(myPageAdapter);
63
64          TabLayout tabLayout = (TabLayout) root.findViewById(R.id.sliding_tabs);
65          tabLayout.setupWithViewPager(mViewPager);
66      }
```

6.11.2.2 getFragments()

```
ArrayList<Fragment> it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment.↩
getFragments ( )  [private]
```

```
68                                              {
69          ArrayList<Fragment> fragments = new ArrayList<>();
70
71          // inner fragment 0
72          ArrayList<String> params1 = new ArrayList<>();
73          params1.add(getString(R.string.chart_arduino));
74          params1.add(getString(R.string.chart_raw_distance));
75          params1.add(getString(R.string.chart_altbeacon));
76          params1.add(getString(R.string.chart_kalman_filter));
77
78          fragments.add(DeviceChartFragment.newInstance("chart1",
    idDeviceSelectedName, params1));
79
80          // inner fragment 1
81          ArrayList<String> params2 = new ArrayList<>();
82          params2.add(getString(R.string.chart_arduino));
83          params2.add(getString(R.string.chart_raw_distance));
84          params2.add(getString(R.string.chart_kalman_filter));
85
86          fragments.add(DeviceChartFragment.newInstance("chart2",
    idDeviceSelectedName, params2));
87
88          // inner fragment 2
89          ArrayList<String> params3 = new ArrayList<>();
90          params3.add(getString(R.string.chart_arduino));
91          params3.add(getString(R.string.chart_altbeacon));
92          params3.add(getString(R.string.chart_kalman_filter));
93
94          fragments.add(DeviceChartFragment.newInstance("chart3",
    idDeviceSelectedName, params3));
95
96          return fragments;
97      }
```

6.11.2.3 newInstance()

```
static DeviceDetailInner2Fragment it.unibo.torsello.bluetoothpositioning.fragment.Device↩
DetailInner2Fragment.newInstance (
            String message,
            String deviceName )  [static]
```

```
28                                                                                  {
29         DeviceDetailInner2Fragment fragment = new DeviceDetailInner2Fragment();
30         Bundle args = new Bundle();
31         args.putString(EXTRA_MESSAGE, message);
32         args.putString(DEVICE_NAME, deviceName);
33         fragment.setArguments(args);
34         return fragment;
35     }
```

6.11.2.4 onCreate()

```
void it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment.onCreate (
            Bundle savedInstanceState )
```

```
38                                              {
39         super.onCreate(savedInstanceState);
40
41         idDeviceSelectedName = getArguments().getString(
      DEVICE_NAME);
42     }
```

6.11.2.5 onCreateView()

```
View it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment.onCreateView (
            LayoutInflater inflater,
            ViewGroup container,
            Bundle savedInstanceState )
```

```
45                                                                                  {
46         View root = inflater.inflate(R.layout.fragment_device_detail_inner_2, container, false);
47
48         addChildFragment(root);
49
50         return root;
51     }
```

6.11.2.6 onPause()

```
void it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment.onPause ( )
```

```
54                          {
55         super.onPause();
56     }
```

6.11.3 Documentazione dei membri dato

6.11.3.1 DEVICE_NAME

```
final String it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment.DEVI↩
CE_NAME = "DEVICE_NAME"  [static]
```

6.11.3.2 EXTRA_MESSAGE

```
final String it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment.EXTR↩
A_MESSAGE = "EXTRA_MESSAGE"  [static]
```

6.11.3.3 idDeviceSelectedName

```
String it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment.idDevice↩
SelectedName  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- DeviceDetailInner2Fragment.java

6.12 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment

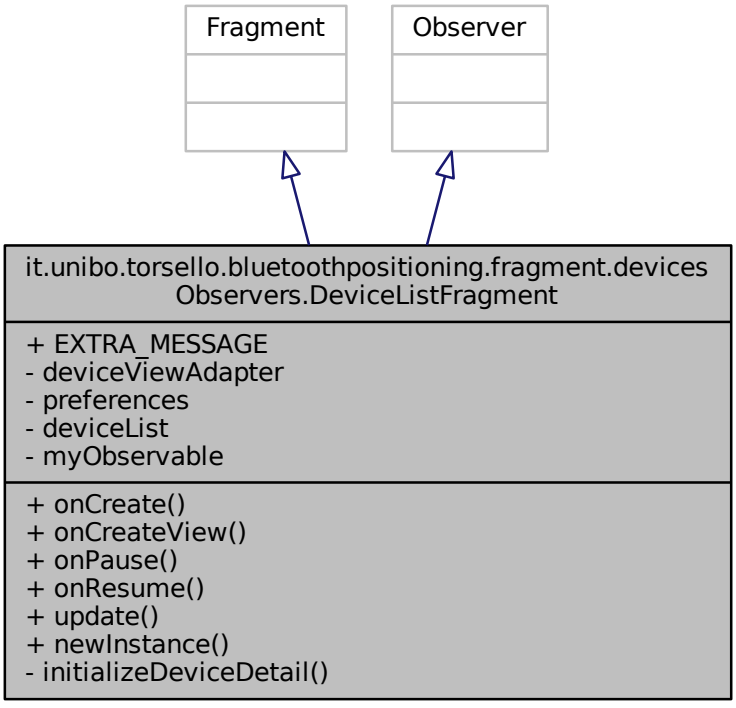
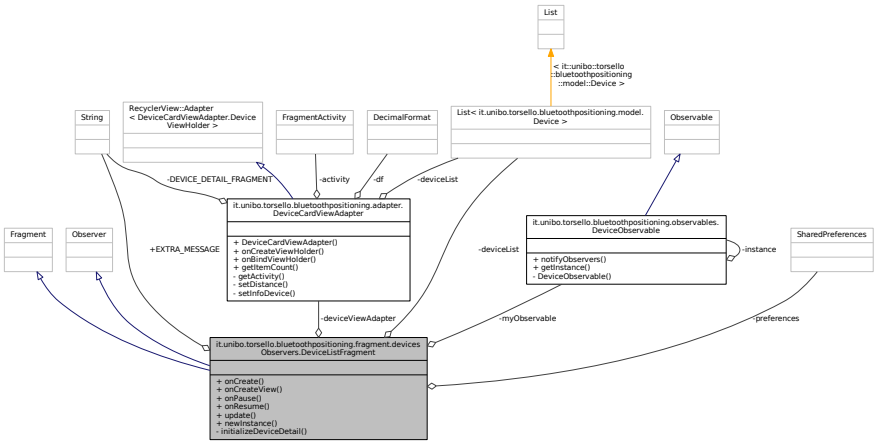


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceList↩
Fragment:



Membri pubblici

- void onCreate (@Nullable Bundle savedInstanceState)
- View onCreateView (LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState)
- void onPause ()
- void onResume ()
- void update (Observable o, Object arg)

Membri pubblici statici

- static DeviceListFragment newInstance ()

Attributi pubblici statici

- static final String EXTRA_MESSAGE = "EXTRA_MESSAGE"

Membri privati

- void initializeDeviceDetail (View root)

Attributi privati

- DeviceCardViewAdapter deviceViewAdapter
- SharedPreferences preferences
- List< Device > deviceList
- DeviceObservable myObservable

6.12.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.12.2 Documentazione delle funzioni membro

6.12.2.1 initializeDeviceDetail()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment.↩
initializeDeviceDetail (
            View root )  [private]
```

```
84                                                  {
85         // add RecyclerView
86         RecyclerView recyclerView = (RecyclerView) root.findViewById(R.id.recycler_view);
87         recyclerView.setLayoutManager(new LinearLayoutManager(getContext()));
88         deviceViewAdapter = new DeviceCardViewAdapter(getActivity(),
     deviceList);
89         recyclerView.setAdapter(deviceViewAdapter);
90     }
```

6.12.2.2 newInstance()

```
static DeviceListFragment it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.↩
DeviceListFragment.newInstance ( )  [static]
```

```
56                                                  {
57         DeviceListFragment fragment = new DeviceListFragment();
58         Bundle args = new Bundle();
59         args.putString(EXTRA_MESSAGE, "Scan Device");
60         fragment.setArguments(args);
61         return fragment;
62     }
```

6.12.2.3 onCreate()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment.on↩
Create (
            @Nullable Bundle savedInstanceState )
```

```
65                                                          {
66         super.onCreate(savedInstanceState);
67
68         myObservable = DeviceObservable.getInstance();
69
70         deviceList = new ArrayList<>();
71         preferences = getActivity().getSharedPreferences(SettingConstants.SETTINGS_PREFERENCES,
     0);
72     }
```

6.12.2.4 onCreateView()

```
View it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment.on↩
CreateView (
            LayoutInflater inflater,
            ViewGroup container,
            Bundle savedInstanceState )
```

```
75                                                                                          {
76
77         View root = inflater.inflate(R.layout.fragment_device_list, container, false);
78
79         initializeDeviceDetail(root);
80
81         return root;
82     }
```

6.12.2.5 onPause()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment.on↩
Pause ( )
```

```
93                          {
94         myObservable.deleteObserver(this);
95         super.onPause();
96     }
```

6.12.2.6 onResume()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment.on↩
Resume ( )
```

```
99                           {
100         super.onResume();
101         myObservable.addObserver(this);
102     }
```

6.12.2.7 update()

```
void it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment.↩
update (
             Observable o,
             Object arg )
```

```
105                                                 {
106
107         if (arg instanceof List) {
108
109             if (!deviceList.isEmpty()) {
110                 deviceList.clear();
111             }
112
113             List<Device> devices = (List<Device>) arg;
114
115             // optional sorting
116             Collections.sort(devices, new Comparator<Device>() {
117                 public int compare(Device b1, Device b2) {
118                     int sorting = preferences.getInt(SettingConstants.DISTANCE_SORTING, 0);
119                     switch (sorting) {
120                         case 0:
121                         case R.id.radioButton_default_sorting:
122                             return Double.compare(b1.getIndex(), b2.getIndex());
123                         case R.id.radioButton_color_sorting:
124                             return Double.compare(b1.getColor(), b2.getColor());
125                         case R.id.radioButton_distance_sorting:
126                             return Double.compare(b1.getKalmanFilterDistance(), b2.getKalmanFilterDistance(
      ));
127                     } // default sorting (a good basic ordering for the other options)
128                     return Double.compare(b1.getIndex(), b2.getIndex());
129                 }
130             });
131
132             deviceList.addAll(devices);
133             deviceViewAdapter.notifyDataSetChanged();
134         }
135     }
```

6.12.3 Documentazione dei membri dato

6.12.3.1 deviceList

```
List<Device> it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceList↩
Fragment.deviceList  [private]
```

6.12.3.2 deviceViewAdapter

```
DeviceCardViewAdapter it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.↩
DeviceListFragment.deviceViewAdapter  [private]
```

6.12.3.3 EXTRA_MESSAGE

```
final String it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceList↩
Fragment.EXTRA_MESSAGE = "EXTRA_MESSAGE"  [static]
```

6.12.3.4 myObservable

```
DeviceObservable it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceList↩
Fragment.myObservable  [private]
```

6.12.3.5 preferences

```
SharedPreferences it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.Device↩
ListFragment.preferences  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- DeviceListFragment.java

6.13 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.observables.DeviceObservable

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.observables.DeviceObservable

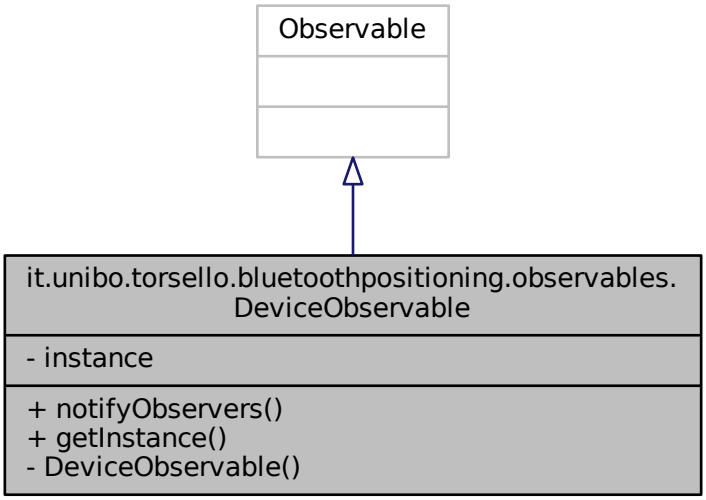
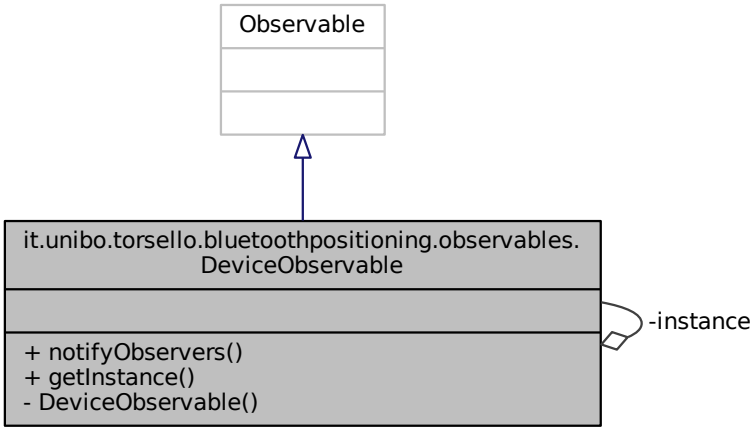


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.observables.DeviceObservable:



Membri pubblici

- void notifyObservers (Object data)

Membri pubblici statici

- static DeviceObservable getInstance ()

Membri privati

- DeviceObservable ()

Attributi privati statici

- static DeviceObservable instance = new DeviceObservable()

6.13.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.13.2 Documentazione dei costruttori e dei distruttori

6.13.2.1 DeviceObservable()

```
it.unibo.torsello.bluetoothpositioning.observables.DeviceObservable.DeviceObservable ( )  [private]
```

```
17                                  {
18          super();
19      }
```

6.13.3 Documentazione delle funzioni membro

6.13.3.1 getInstance()

```
static DeviceObservable it.unibo.torsello.bluetoothpositioning.observables.DeviceObservable.↩
getInstance ( )  [static]
```

```
13                                              {
14         return instance;
15     }
```

6.13.3.2 notifyObservers()

```
void it.unibo.torsello.bluetoothpositioning.observables.DeviceObservable.notifyObservers (
              Object data )
```

```
22                                             {
23         setChanged();
24         super.notifyObservers(data);
25     }
```

6.13.4 Documentazione dei membri dato

6.13.4.1 instance

```
DeviceObservable it.unibo.torsello.bluetoothpositioning.observables.DeviceObservable.instance
= new DeviceObservable()  [static], [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- DeviceObservable.java

6.14 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.↩ DeviceViewHolder

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩ Holder

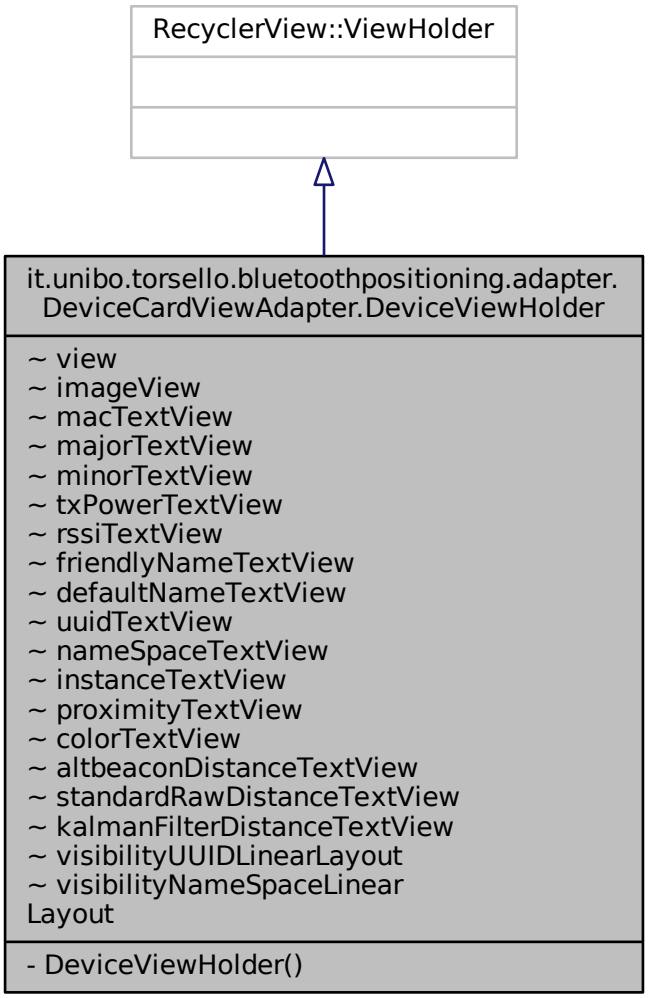
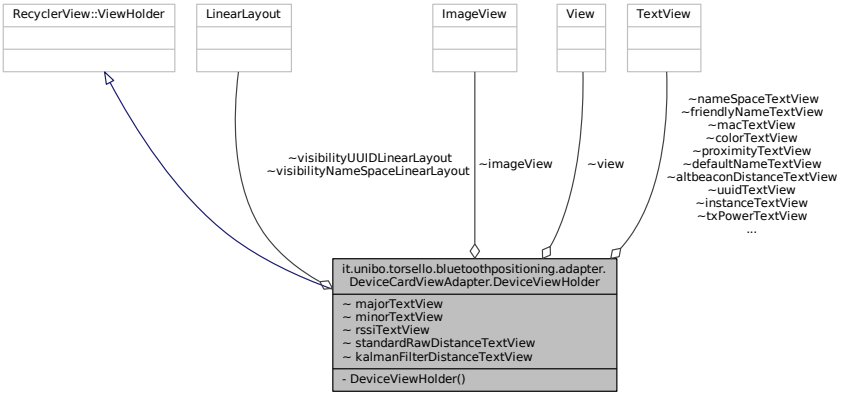


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.Device↩

ViewHolder:



Attributi con visibilità di package

- View view
- ImageView imageView
- TextView macTextView
- TextView majorTextView
- TextView minorTextView
- TextView txPowerTextView
- TextView rssiTextView
- TextView friendlyNameTextView
- TextView defaultNameTextView
- TextView uuidTextView
- TextView nameSpaceTextView
- TextView instanceTextView
- TextView proximityTextView
- TextView colorTextView
- TextView altbeaconDistanceTextView
- TextView standardRawDistanceTextView
- TextView kalmanFilterDistanceTextView
- LinearLayout visibilityUUIDLinearLayout
- LinearLayout visibilityNameSpaceLinearLayout

Membri privati

- DeviceViewHolder (View view)

6.14.1 Documentazione dei costruttori e dei distruttori

6.14.1.1 DeviceViewHolder()

```
it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceViewHolder.Device↩
ViewHolder (
            View view )  [private]
```

```
244                                         {
245
246             super(view);
247             this.view = view;
248             imageView = (ImageView) view.findViewById(R.id.imageBeacon);
249             defaultNameTextView = (TextView) view.findViewById(R.id.
    value_default_name);
250             friendlyNameTextView = (TextView) view.findViewById(R.id.
    value_friendly_name);
251             macTextView = (TextView) view.findViewById(R.id.value_mac_address);
252             majorTextView = (TextView) view.findViewById(R.id.value_major);
253             minorTextView = (TextView) view.findViewById(R.id.value_minor);
254             txPowerTextView = (TextView) view.findViewById(R.id.value_power);
255             rssiTextView = (TextView) view.findViewById(R.id.value_rssi);
256             uuidTextView = (TextView) view.findViewById(R.id.value_uuid);
257             nameSpaceTextView = (TextView) view.findViewById(R.id.value_name_space);
258             proximityTextView = (TextView) view.findViewById(R.id.value_proximity);
259             instanceTextView = (TextView) view.findViewById(R.id.value_instance);
260             colorTextView = (TextView) view.findViewById(R.id.value_color);
261
262             altbeaconDistanceTextView = (TextView) view.findViewById(R.id.
    value_altbeacon_distance);
263             kalmanFilterDistanceTextView = (TextView)
    view.findViewById(R.id.value_kalman_filter_distance);
264             standardRawDistanceTextView = (TextView)
    view.findViewById(R.id.value_standard_raw_distance);
265
266             visibilityUUIDLinearLayout = (LinearLayout)
    view.findViewById(R.id.visibility_uuid_minor_major_nmb);
267             visibilityNameSpaceLinearLayout = (LinearLayout)
    view.findViewById(R.id.visibilityNameSpace_Instance);
268         }
```

6.14.2 Documentazione dei membri dato

6.14.2.1 altbeaconDistanceTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.altbeaconDistanceTextView  [package]
```

6.14.2.2 colorTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.colorTextView  [package]
```

6.14.2.3 defaultNameTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.defaultNameTextView  [package]
```

6.14.2.4 friendlyNameTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.friendlyNameTextView  [package]
```

6.14.2.5 imageView

```
ImageView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.imageView  [package]
```

6.14.2.6 instanceTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.instanceTextView  [package]
```

6.14.2.7 kalmanFilterDistanceTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.kalmanFilterDistanceTextView [package]
```

6.14.2.8 macTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.macTextView [package]
```

6.14.2.9 majorTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.majorTextView [package]
```

6.14.2.10 minorTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.minorTextView [package]
```

6.14.2.11 nameSpaceTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.nameSpaceTextView [package]
```

6.14.2.12 proximityTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.proximityTextView [package]
```

6.14.2.13 rssiTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.rssiTextView [package]
```

6.14.2.14 standardRawDistanceTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.standardRawDistanceTextView [package]
```

6.14.2.15 txPowerTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.txPowerTextView [package]
```

6.14.2.16 uuidTextView

```
TextView it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.uuidTextView [package]
```

6.14.2.17 view

```
View it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceViewHolder.↩
view  [package]
```

6.14.2.18 visibilityNameSpaceLinearLayout

```
LinearLayout it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.visibilityNameSpaceLinearLayout  [package]
```

6.14.2.19 visibilityUUIDLinearLayout

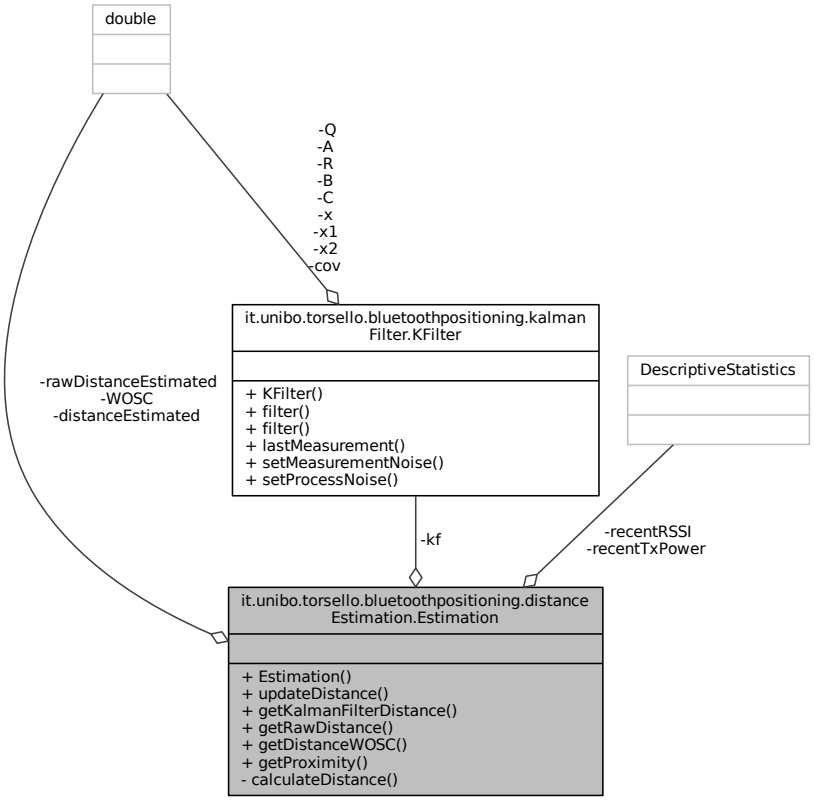
```
LinearLayout it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceView↩
Holder.visibilityUUIDLinearLayout  [package]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- DeviceCardViewAdapter.java

6.15 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation

Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation:



Membri pubblici

- Estimation ()
- void updateDistance (Beacon b, double processNoise)
- double getKalmanFilterDistance ()
- double getRawDistance ()
- double getDistanceWOSC ()
- String getProximity ()

Membri privati

- double calculateDistance (double txPower, double rssi)

Attributi privati

- DescriptiveStatistics recentRSSI
- DescriptiveStatistics recentTxPower
- KFilter kf
- double distanceEstimated
- double rawDistanceEstimated
- double WOSC

6.15.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.15.2 Documentazione dei costruttori e dei distruttori

6.15.2.1 Estimation()

`it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.Estimation ( )`

```
23                          {
24
25          // limit on the number of values that can be stored in the dataset
26          recentRSSI = new DescriptiveStatistics();
27          recentRSSI.setWindowSize(KFilterConstants.WINDOW);
28          recentTxPower = new DescriptiveStatistics();
29          recentTxPower.setWindowSize(KFilterConstants.WINDOW);
30
31          distanceEstimated = 0;
32          rawDistanceEstimated = 0;
33          WOSC = 0;
34
35          kf = new KFilterBuilder()
36                  // filter for RSSI
37                  .R(KFilterConstants.INITIAL_PROCESS_NOISE) // Initial process noise
38                  .Q(KFilterConstants.INITIAL_MEASUREMENT_NOISE) // Initial measurement noise
39                  .build();
40      }
```

6.15.3 Documentazione delle funzioni membro

6.15.3.1 calculateDistance()

```
double it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.calculateDistance
(
              double txPower,
              double rssi )  [private]
```

```
63                                                                      {
64
65          if (rssi == 0.0D) {
66              return -1.0D; // if we cannot determine accuracy, return -1.
67          }
68
69          double ratio = (rssi * 1.0D) / txPower;
70          if (ratio < 1.0D) {
71              return Math.pow(ratio, 10.0D);
72          }
73
74 //         return (0.89976D * Math.pow(ratio, 7.7095D)) + 0.125D;
75          return (0.89976D * Math.pow(ratio, 7.7095D)) + 0.111D;
76
77      /*
78       * RSSI = TxPower - 10 * n * lg(d)
79       * n = 2 (in free space)
80       * d = 10 ^ ((TxPower - RSSI) / (10 * n))
81       */
82          // return Math.pow(10D, (txPower - rssi) / (10 * 2));
83      }
```

6.15.3.2 getDistanceWOSC()

```
double it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.getDistanceWOSC (
)
```

```
93                                      {
94          return WOSC;
95      }
```

6.15.3.3 getKalmanFilterDistance()

```
double it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.getKalmanFilter↩
Distance ( )
```

```
85                                          {
86          return distanceEstimated;
87      }
```

6.15.3.4 getProximity()

```
String it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.getProximity ( )
```

```
97                                      {
98          double proximity = distanceEstimated;
99          String accuracy;
100
101          if (proximity <= 0) {
102              accuracy = "unknown";
103          } else if (proximity <= 0.5) {
104              accuracy = "immediate";
105          } else if (proximity <= 4.0) {
106              accuracy = "near";
107          } else {
108              accuracy = "far";
109          }
110          return accuracy;
111      }
```

6.15.3.5 getRawDistance()

```
double it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.getRawDistance ( )
```

```
89                                  {
90         return rawDistanceEstimated;
91     }
```

6.15.3.6 updateDistance()

```
void it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.updateDistance (
              Beacon b,
              double processNoise )
```

```
42                                                              {
43
44         recentRSSI.addValue(b.getRssi());
45         recentTxPower.addValue(b.getTxPower());
46
47         // Update measurement noise continually
48         double mNoise = Math.sqrt((100 * 9 / Math.log(10)) *
49                 Math.log(1 + Math.pow(recentRSSI.getMean() /
      recentRSSI.getStandardDeviation(), 2)));
50
51         if (!Double.isInfinite(mNoise) && !Double.isNaN(mNoise)) {
52             kf.setMeasurementNoise(mNoise);
53         }
54
55         kf.setProcessNoise(processNoise);
56         double lastFilteredReading = kf.filter(recentRSSI.getPercentile(50));
57         distanceEstimated = calculateDistance(
      recentTxPower.getPercentile(50), lastFilteredReading);
58         rawDistanceEstimated = calculateDistance(b.getTxPower(), b.
      getRssi());
59         WOSC = calculateDistance(b.getTxPower(), lastFilteredReading);
60     }
```

6.15.4 Documentazione dei membri dato

6.15.4.1 distanceEstimated

```
double it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.distanceEstimated
[private]
```

6.15.4.2 kf

```
KFilter it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.kf  [private]
```

6.15.4.3 rawDistanceEstimated

```
double it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.rawDistance↩
Estimated  [private]
```

6.15.4.4 recentRSSI

```
DescriptiveStatistics it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.↩
recentRSSI  [private]
```

6.15.4.5 recentTxPower

```
DescriptiveStatistics it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.↩
recentTxPower  [private]
```

6.15.4.6 WOSC

```
double it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation.WOSC  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- Estimation.java

6.16 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.extra.FABBehavior

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.extra.FABBehavior

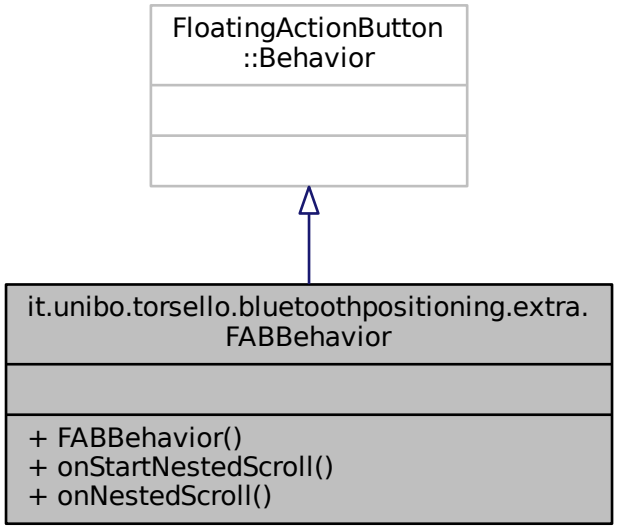
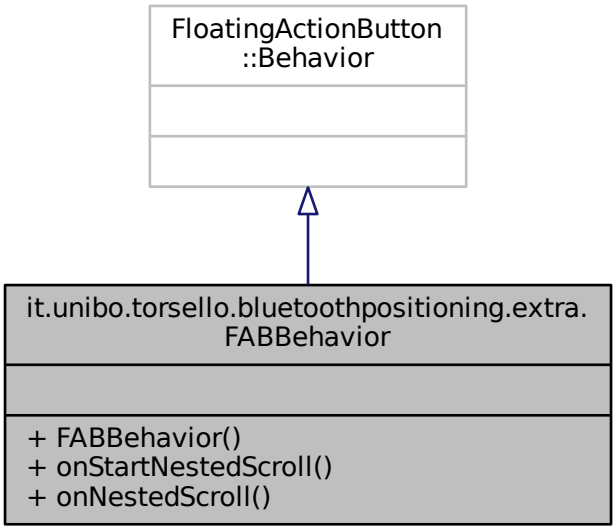


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.extra.FABBehavior:



Membri pubblici

- FABBehavior (Context context, AttributeSet attrs)
- boolean onStartNestedScroll (CoordinatorLayout coordinatorLayout, final FloatingActionButton child, View directTargetChild, View target, int nestedScrollAxes)
- void onNestedScroll (CoordinatorLayout coordinatorLayout, final FloatingActionButton child, View target, int dxConsumed, int dyConsumed, int dxUnconsumed, int dyUnconsumed)

6.16.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.16.2 Documentazione dei costruttori e dei distruttori

6.16.2.1 FABBehavior()

```
it.unibo.torsello.bluetoothpositioning.extra.FABBehavior.FABBehavior (
            Context context,
            AttributeSet attrs )
```

```
17                                                      {
18         super();
19     }
```

6.16.3 Documentazione delle funzioni membro

6.16.3.1 onNestedScroll()

```
void it.unibo.torsello.bluetoothpositioning.extra.FABBehavior.onNestedScroll (
            CoordinatorLayout coordinatorLayout,
            final FloatingActionButton child,
            View target,
            int dxConsumed,
            int dyConsumed,
            int dxUnconsumed,
            int dyUnconsumed )
```

```
32
        {
33      super.onNestedScroll(coordinatorLayout, child, target, dxConsumed, dyConsumed, dxUnconsumed,
34              dyUnconsumed);
35
36      if ((dyConsumed > 0 || dyUnconsumed == 0) && child.getVisibility() == View.VISIBLE) {
37          child.hide();
38          new Handler().postDelayed(new Runnable() {
39              @Override
40              public void run() {
41                  child.show();
42              }
43          }, 1000);
44      }
45  }
```

6.16.3.2 onStartNestedScroll()

```
boolean it.unibo.torsello.bluetoothpositioning.extra.FABBehavior.onStartNestedScroll (
            CoordinatorLayout coordinatorLayout,
            final FloatingActionButton child,
            View directTargetChild,
            View target,
            int nestedScrollAxes )
```

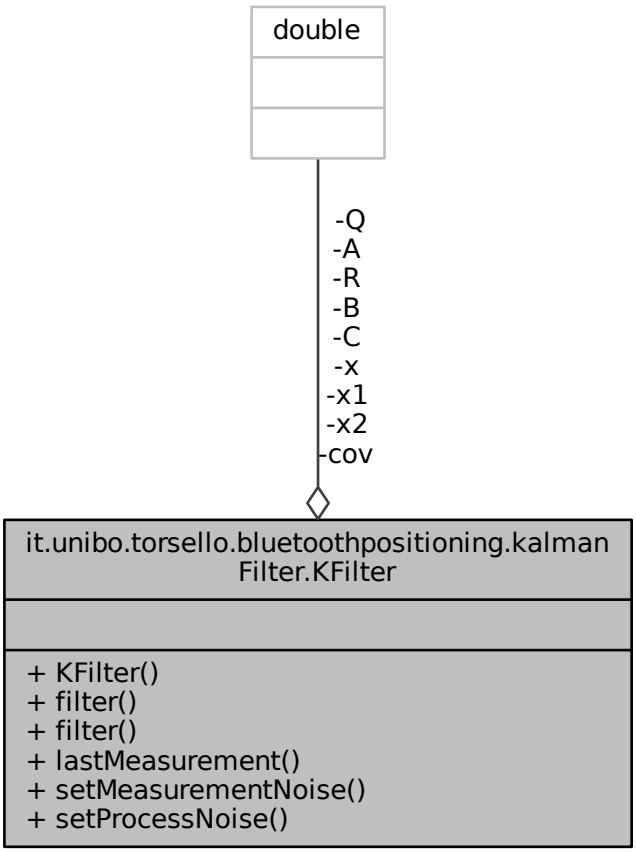
```
23                                                                                                  {
24
25      return nestedScrollAxes == ViewCompat.SCROLL_AXIS_VERTICAL ||
26              super.onStartNestedScroll(coordinatorLayout, child, directTargetChild, target,
27                      nestedScrollAxes);
28  }
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- FABBehavior.java

6.17 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter

Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter:



Membri pubblici

- KFilter (double R, double Q, double A, double B, double C)
- double filter (double z)
- double filter (double z, double u)
- double lastMeasurement ()
- void setMeasurementNoise (double noise)
- void setProcessNoise (double noise)

Attributi privati

- double R
- double Q
- double A
- double B
- double C

- double cov
- double x
- double x1
- double x2

6.17.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.17.2 Documentazione dei costruttori e dei distruttori

6.17.2.1 KFilter()

```
it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.KFilter (
              double R,
              double Q,
              double A,
              double B,
              double C )
```

Create 1-dimensional kalman filter

Parametri

R	Process noise
Q	Measurement noise
A	State vector
B	Control vector
C	Measurement vector

```
28                                                                  {
29
30          this.R = R;
31          this.Q = Q;
32          this.A = A;
33          this.B = B;
34          this.C = C;
35
36          cov = Double.NaN;
37          x = Double.NaN;
38      }
```

6.17.3 Documentazione delle funzioni membro

6.17.3.1 filter() [1/2]

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.filter (
              double z )
```

```
41                                  {
42          return filter(z, 0);
43      }
```

6.17.3.2 filter() [2/2]

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.filter (
            double z,
            double u )
```

Filter a new value

Parametri

z	Measurement
u	Control

Restituisce

x

```
52                                          {
53
54          if (Double.isNaN(x)) {
55              x = (1 / C) * z;
56              x1 = x;
57              x2 = x1;
58              cov = (1 / C) * Q * (1 / C);
59          } else {
60
61              // Calculate previous update step
62              B = (x - x1) / 2;
63
64              // Compute prediction
65              double predX = (A * x) + (B * u);
66              double predCov = ((A * cov) * A) + R;
67
68              // Kalman gain
69              double K = predCov * C * (1 / ((C * predCov * C) + Q));
70
71              // Correction
72              x1 = x;
73              x = predX + K * (z - (C * predX));
74              cov = predCov - (K * C * predCov);
75          }
76
77          return x;
78      }
```

6.17.3.3 lastMeasurement()

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.lastMeasurement ( )
```

Return the last filtered measurement

Restituisce

x Estimated signal without noise

```
85                                      {
86          return x;
87      }
```

6.17.3.4 setMeasurementNoise()

```
void it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.setMeasurementNoise (
            double noise )
```

Set measurement noise INITIAL_MEASUREMENT_NOISE

Parametri

noise	Measurement noise

```
94                                                  {
95          Q = noise;
96      }
```

6.17.3.5 setProcessNoise()

```
void it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.setProcessNoise (
              double noise )
```

Set the process noise INITIAL_PROCESS_NOISE

Parametri

noise	Process noise

```
103                                                 {
104         R = noise;
105     }
```

6.17.4 Documentazione dei membri dato

6.17.4.1 A

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.A  [private]
```

6.17.4.2 B

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.B  [private]
```

6.17.4.3 C

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.C  [private]
```

6.17.4.4 cov

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.cov  [private]
```

6.17.4.5 Q

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.Q  [private]
```

6.17.4.6 R

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.R  [private]
```

6.17.4.7 x

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.x  [private]
```

6.17.4.8 x1

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.x1  [private]
```

6.17.4.9 x2

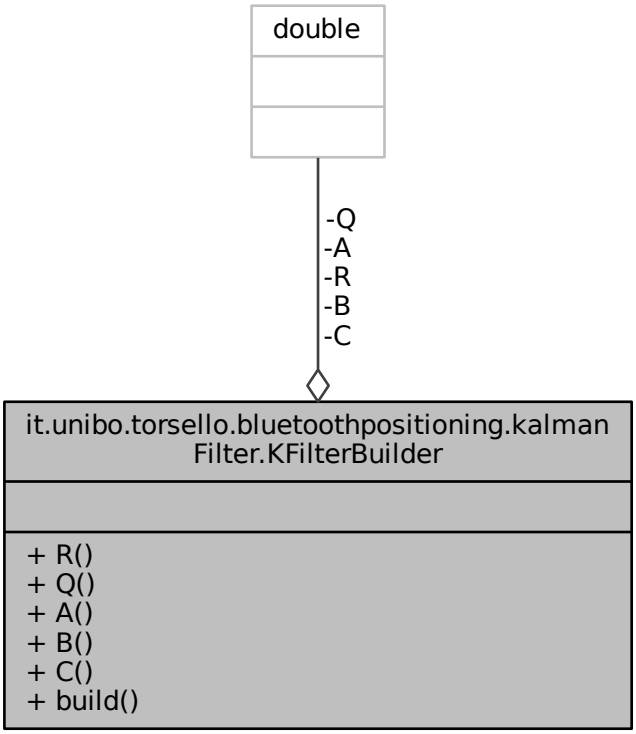
```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter.x2  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- KFilter.java

6.18 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder

Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder:



Membri pubblici

- KFilterBuilder R (double R)
- KFilterBuilder Q (double Q)
- KFilterBuilder A (double A)
- KFilterBuilder B (double B)
- KFilterBuilder C (double C)
- KFilter build ()

Attributi privati

- double R = 1
- double Q = 1
- double A = 1
- double B = 0
- double C = 1

6.18.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

Simple builder class for 1-dimensional Kalman filter with predefined

6.18.2 Documentazione delle funzioni membro

6.18.2.1 A()

```
KFilterBuilder it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.A (
              double A )
```

```
27                                      {
28         this.A = A;
29         return this;
30     }
```

6.18.2.2 B()

```
KFilterBuilder it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.B (
              double B )
```

```
32                                      {
33         this.B = B;
34         return this;
35     }
```

6.18.2.3 build()

```
KFilter it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.build ( )
```

```
42                              {
43         return new KFilter(R, Q, A, B, C);
44     }
```

6.18.2.4 C()

```
KFilterBuilder it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.C (
            double C )
```

```
37                                      {
38         this.C = C;
39         return this;
40     }
```

6.18.2.5 Q()

```
KFilterBuilder it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.Q (
            double Q )
```

```
22                                      {
23         this.Q = Q;
24         return this;
25     }
```

6.18.2.6 R()

```
KFilterBuilder it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.R (
            double R )
```

```
17                                      {
18         this.R = R;
19         return this;
20     }
```

6.18.3 Documentazione dei membri dato

6.18.3.1 A

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.A = 1  [private]
```

6.18.3.2 B

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.B = 0  [private]
```

6.18.3.3 C

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.C = 1  [private]
```

6.18.3.4 Q

```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.Q = 1  [private]
```

6.18.3.5 R

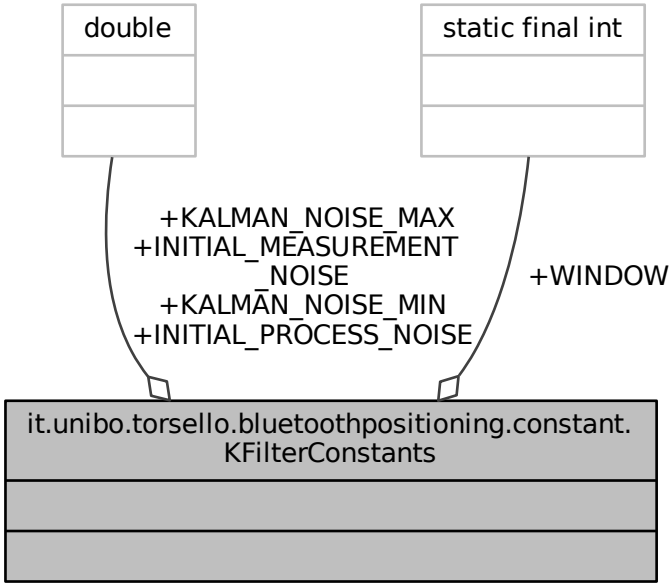
```
double it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder.R = 1  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- KFilterBuilder.java

6.19 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants

Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants:



Attributi pubblici statici

- static final double KALMAN_NOISE_MIN = 0D
- static final double KALMAN_NOISE_MAX = 5D
- static final double INITIAL_PROCESS_NOISE = 5D
- static final double INITIAL_MEASUREMENT_NOISE = 5D
- static final int WINDOW = 5

6.19.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.19.2 Documentazione dei membri dato

6.19.2.1 INITIAL_MEASUREMENT_NOISE

```
final double it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants.INITIAL_MEASUR↩
EMENT_NOISE = 5D  [static]
```

6.19.2.2 INITIAL_PROCESS_NOISE

```
final double it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants.INITIAL_PROCES↩
S_NOISE = 5D  [static]
```

6.19.2.3 KALMAN_NOISE_MAX

```
final double it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants.KALMAN_NOISE_MAX
= 5D  [static]
```

6.19.2.4 KALMAN_NOISE_MIN

```
final double it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants.KALMAN_NOISE_MIN
= 0D  [static]
```

6.19.2.5 WINDOW

```
final int it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants.WINDOW = 5  [static]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- KFilterConstants.java

6.20 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.activities.MainActivity

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.activities.MainActivity

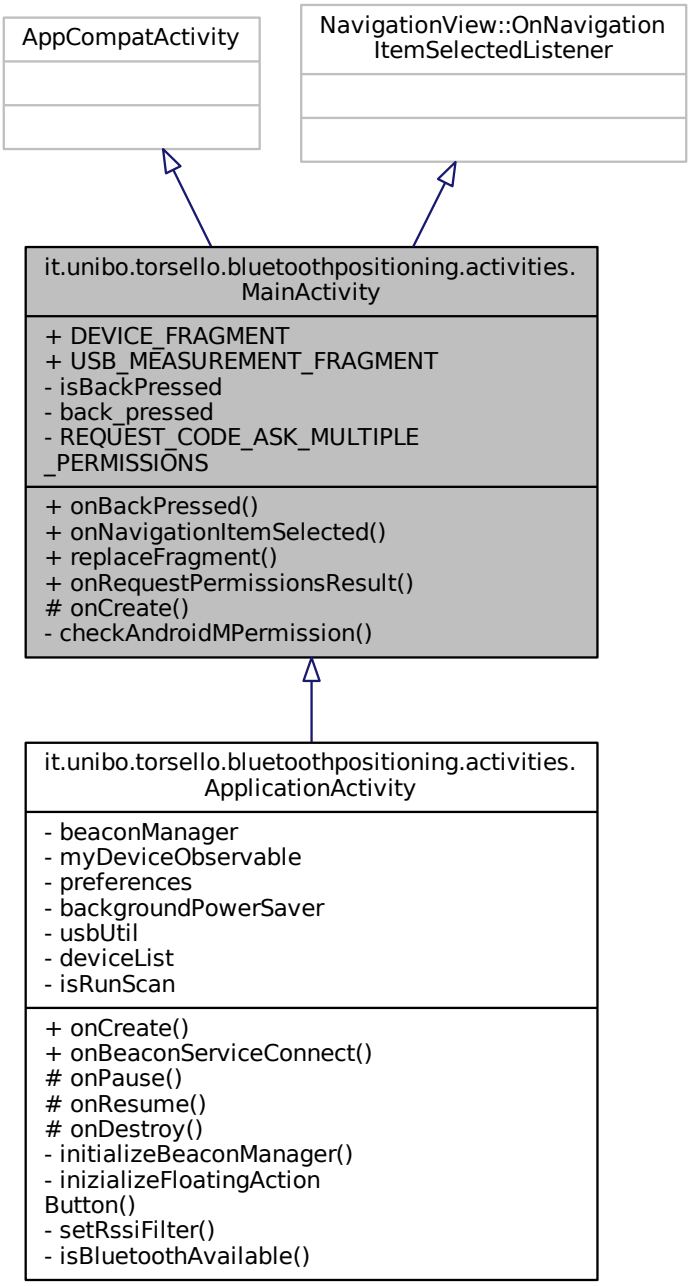
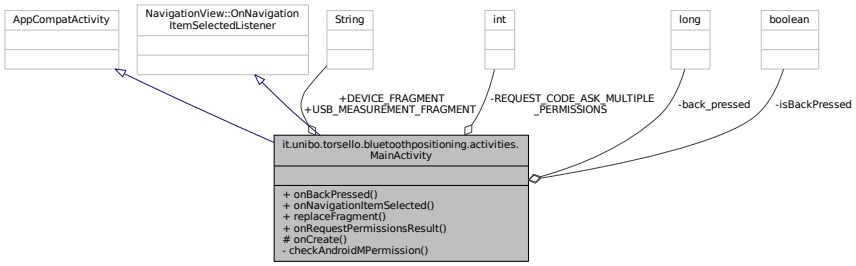


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.activities.MainActivity:



Membri pubblici

- void onBackPressed ()
- boolean onNavigationItemSelected (MenuItem item)
- void replaceFragment (String fragTag)
- void onRequestPermissionsResult (int requestCode, @NonNull String permissions[ ], @NonNull int[ ] grant↩ Results)

Attributi pubblici statici

- static final String DEVICE_FRAGMENT = "device"
- static final String USB_MEASUREMENT_FRAGMENT = "usb measurement"

Membri protetti

- void onCreate (Bundle savedInstanceState)

Membri privati

- void checkAndroidMPermission ()

Attributi privati

- boolean isBackPressed = false
- long back_pressed
- final int REQUEST_CODE_ASK_MULTIPLE_PERMISSIONS = 124

6.20.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.20.2 Documentazione delle funzioni membro

6.20.2.1 checkAndroidMPermission()

```
void it.unibo.torsello.bluetoothpositioning.activities.MainActivity.checkAndroidMPermission (
) [private]
```

```
166                                         {
167
168         if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
169             final List<String> permissions = new ArrayList<>();
170
171             if (checkSelfPermission(Manifest.permission.ACCESS_FINE_LOCATION)
172                     != PackageManager.PERMISSION_GRANTED) {
173                 permissions.add(Manifest.permission.ACCESS_FINE_LOCATION);
174             }
175
176             if (checkSelfPermission(Manifest.permission.ACCESS_COARSE_LOCATION)
177                     != PackageManager.PERMISSION_GRANTED) {
178                 permissions.add(Manifest.permission.ACCESS_COARSE_LOCATION);
179             }
180
181             if (!permissions.isEmpty()) {
182                 new AlertDialog.Builder(this)
183                         .setTitle(R.string.dialog_location_access_title)
184                         .setMessage(R.string.dialog_bluetooth_text)
185                         .setPositiveButton(android.R.string.ok, null)
186                         .setOnDismissListener(new DialogInterface.OnDismissListener() {
187                             @TargetApi(23)
188                             @Override
189                             public void onDismiss(DialogInterface dialog) {
190                                 requestPermissions(permissions.toArray(new String[permissions.size()]),
191                                         REQUEST_CODE_ASK_MULTIPLE_PERMISSIONS
    );
192                             }
193
194                         }).show();
195             }
196         }
197     }
```

6.20.2.2 onBackPressed()

```
void it.unibo.torsello.bluetoothpositioning.activities.MainActivity.onBackPressed ( )
```

```
69                                  {
70
71         DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
72         if (drawer.isDrawerOpen(GravityCompat.START)) {
73             drawer.closeDrawer(GravityCompat.START);
74         } else if (drawer.isDrawerOpen(GravityCompat.END)) {
75             drawer.closeDrawer(GravityCompat.END);
76         } else {
77
78             replaceFragment(DEVICE_FRAGMENT);
79
80             final long DOUBLE_PRESS_INTERVAL = 1500L;
81             if (!isBackPressed || back_pressed + DOUBLE_PRESS_INTERVAL <= System.
    currentTimeMillis()) {
82                 isBackPressed = true;
83                 FloatingActionButton fab = (FloatingActionButton) findViewById(R.id.fab);
84                 assert fab != null;
85                 Snackbar.make(fab, R.string.snackBar_exit, Snackbar.LENGTH_SHORT).show();
86             } else {
87                 super.finish();
88             }
89             back_pressed = System.currentTimeMillis();
90         }
91     }
```

6.20.2.3 onCreate()

```
void it.unibo.torsello.bluetoothpositioning.activities.MainActivity.onCreate (
            Bundle savedInstanceState )  [protected]
```

```
46                                                  {
47         super.onCreate(savedInstanceState);
48         setContentView(R.layout.activity_main);
49
50         Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
51         setSupportActionBar(toolbar);
52
53         DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
54         ActionBarDrawerToggle toggle = new ActionBarDrawerToggle(
55                 this, drawer, toolbar, R.string.navigation_drawer_open, R.string.navigation_drawer_close);
56         drawer.addDrawerListener(toggle);
57         toggle.syncState();
58
59         ((NavigationView) findViewById(R.id.nav_view)).setNavigationItemSelectedListener(this);
60
61         ((NavigationView) findViewById(R.id.nav_view2)).setNavigationItemSelectedListener(this);
62
63         replaceFragment(DEVICE_FRAGMENT);
64
65         checkAndroidMPermission();
66     }
```

6.20.2.4 onNavigationItemSelected()

```
boolean it.unibo.torsello.bluetoothpositioning.activities.MainActivity.onNavigationItem↩
Selected (
            MenuItem item )
```

```
95                                                      {
96
97         DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
98
99         // Handle navigation view item clicks here.
100         switch (item.getItemId()) {
101             case R.id.nav_home:
102                 replaceFragment(DEVICE_FRAGMENT);
103                 break;
104             case R.id.nav_settings:
105                 drawer.openDrawer(GravityCompat.END);
106                 break;
107             case R.id.nav_measurement:
108                 replaceFragment(USB_MEASUREMENT_FRAGMENT);
109                 break;
110         }
111
112         if (drawer.isDrawerOpen(GravityCompat.START)) {
113             drawer.closeDrawer(GravityCompat.START);
114         }
115
116         return true;
117     }
```

6.20.2.5 onRequestPermissionsResult()

```
void it.unibo.torsello.bluetoothpositioning.activities.MainActivity.onRequestPermissionsResult
(
            int requestCode,
            @NonNull String permissions[],
            @NonNull int [] grantResults )
```

```
139                                                                         {
140         switch (requestCode) {
141             case REQUEST_CODE_ASK_MULTIPLE_PERMISSIONS:
142                 for (int i = 0; i < permissions.length; i++) {
143                     if (grantResults[i] == PackageManager.PERMISSION_GRANTED) {
144 //                      Log.d(TAG_CLASS, "Permission Granted: " + permissions[i]);
145                     } else if (grantResults[i] == PackageManager.PERMISSION_DENIED) {
146 //                      Log.d(TAG_CLASS, "Permission Denied: " + permissions[i]);
147                         new AlertDialog.Builder(this)
148                                 .setTitle(R.string.dialog_permissions_location_access_title)
149                                 .setMessage(R.string.dialog_permissions_location_access_text)
150                                 .setPositiveButton(android.R.string.ok, null)
151                                 .setOnDismissListener(new DialogInterface.OnDismissListener() {
152
153                                     @Override
154                                     public void onDismiss(DialogInterface dialog) {
155                                     }
156
157                                 }).show();
158                     }
159                 }
160                 break;
161             default:
162                 super.onRequestPermissionsResult(requestCode, permissions, grantResults);
163         }
164     }
```

6.20.2.6 replaceFragment()

```
void it.unibo.torsello.bluetoothpositioning.activities.MainActivity.replaceFragment (
             String fragTag )
```

```
119                                                 {
120         Fragment currentFragment = getSupportFragmentManager().findFragmentByTag(fragTag);
121         switch (fragTag) {
122             case DEVICE_FRAGMENT:
123                 currentFragment = DeviceListFragment.newInstance();
124                 break;
125             case USB_MEASUREMENT_FRAGMENT:
126                 currentFragment = UsbMeasurementFragment.newInstance();
127                 break;
128         }
129
130         if (currentFragment != null) {
131             getSupportFragmentManager().beginTransaction()
132                     .replace(R.id.contentMainLayout, currentFragment, fragTag)
133                     .commit();
134         }
135     }
```

6.20.3 Documentazione dei membri dato

6.20.3.1 back_pressed

```
long it.unibo.torsello.bluetoothpositioning.activities.MainActivity.back_pressed  [private]
```

6.20.3.2 DEVICE_FRAGMENT

```
final String it.unibo.torsello.bluetoothpositioning.activities.MainActivity.DEVICE_FRAGMENT =
"device"  [static]
```

6.20.3.3 isBackPressed

```
boolean it.unibo.torsello.bluetoothpositioning.activities.MainActivity.isBackPressed = false
[private]
```

6.20.3.4 REQUEST_CODE_ASK_MULTIPLE_PERMISSIONS

```
final int it.unibo.torsello.bluetoothpositioning.activities.MainActivity.REQUEST_CODE_ASK_MU↩
LTIPLE_PERMISSIONS = 124  [private]
```

6.20.3.5 USB_MEASUREMENT_FRAGMENT

```
final String it.unibo.torsello.bluetoothpositioning.activities.MainActivity.USB_MEASUREMENT_↩
FRAGMENT = "usb measurement"  [static]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- MainActivity.java

6.21 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter

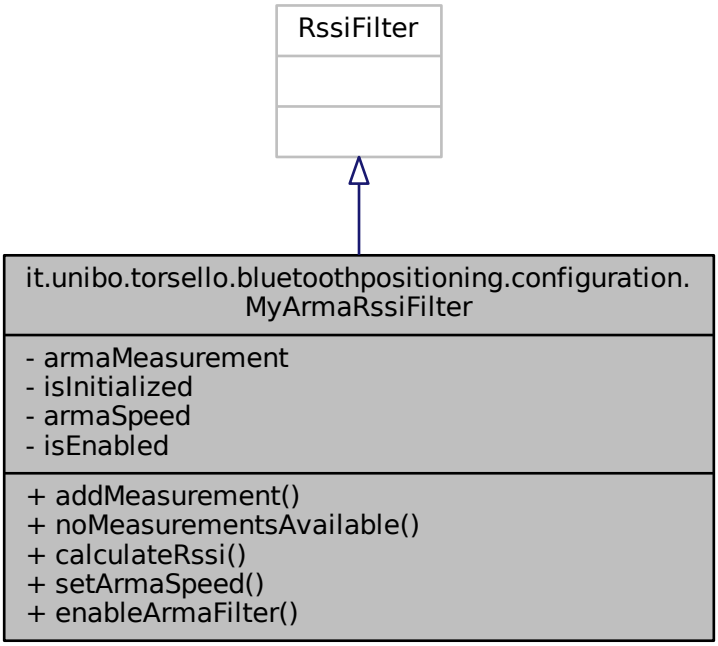
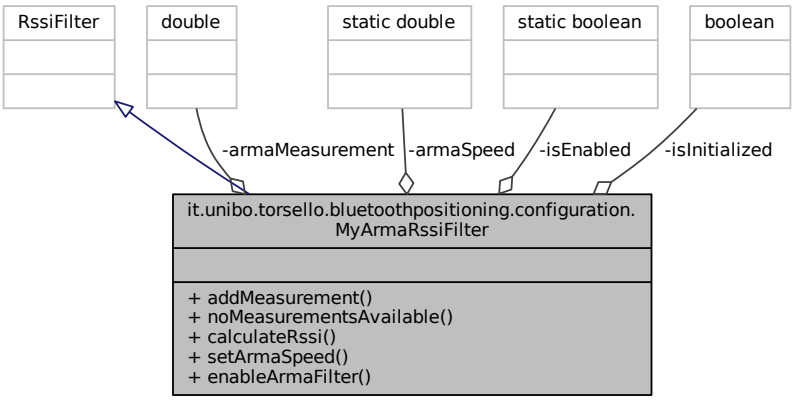


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter:



Membri pubblici

- void addMeasurement (Integer rssi)
- boolean noMeasurementsAvailable ()
- double calculateRssi ()

Membri pubblici statici

- static void setArmaSpeed (double arma_speed)
- static void enableArmaFilter (boolean set)

Attributi privati

- double armaMeasurement
- boolean isInitialized = false

Attributi privati statici

- static double armaSpeed = 0.08D
- static boolean isEnabled = true

6.21.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.21.2 Documentazione delle funzioni membro

6.21.2.1 addMeasurement()

```
void it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter.addMeasurement (
            Integer rssi )
```

```
24                                          {
25
26         if (isEnabled) {
27             if (!isInitialized) {
28                 armaMeasurement = rssi;
29                 isInitialized = true;
30             }
31
32             armaMeasurement = (armaMeasurement -
      armaSpeed * (armaMeasurement - rssi));
33         } else {
34             armaMeasurement = rssi;
35         }
36
37     }
```

6.21.2.2 calculateRssi()

```
double it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter.calculateRssi ( )
```

```
45                                  {
46         return armaMeasurement;
47     }
```

6.21.2.3 enableArmaFilter()

```
static void it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter.enableArma↩
Filter (
            boolean set )  [static]
```

```
19                                                  {
20         isEnabled = set;
21     }
```

6.21.2.4 noMeasurementsAvailable()

```
boolean it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter.noMeasurements↩
Available ( )
```

```
40                                          {
41         return false;
42     }
```

6.21.2.5 setArmaSpeed()

```
static void it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter.setArmaSpeed
(
            double arma_speed )  [static]
```

```
15                                                  {
16         armaSpeed = arma_speed;
17     }
```

6.21.3 Documentazione dei membri dato

6.21.3.1 armaMeasurement

```
double it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter.armaMeasurement
[private]
```

6.21.3.2 armaSpeed

```
double it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter.armaSpeed = 0.08D
[static], [private]
```

6.21.3.3 isEnabled

```
boolean it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter.isEnabled = true
[static], [private]
```

6.21.3.4 isInitialized

```
boolean it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter.isInitialized =
false  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- MyArmaRssiFilter.java

6.22 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.task.SaveImageTask

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.task.SaveImageTask

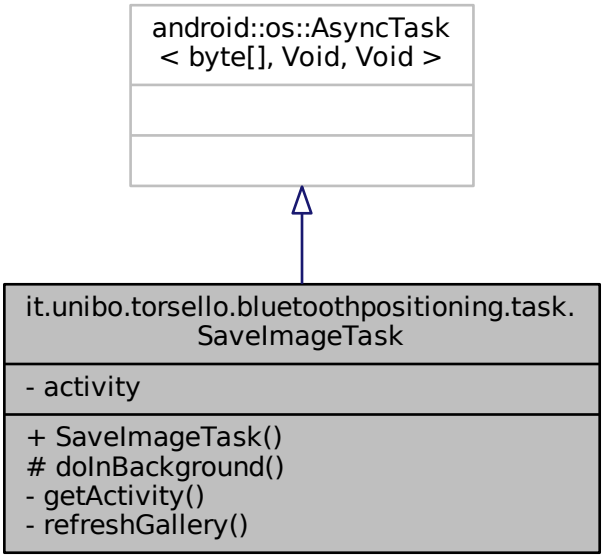
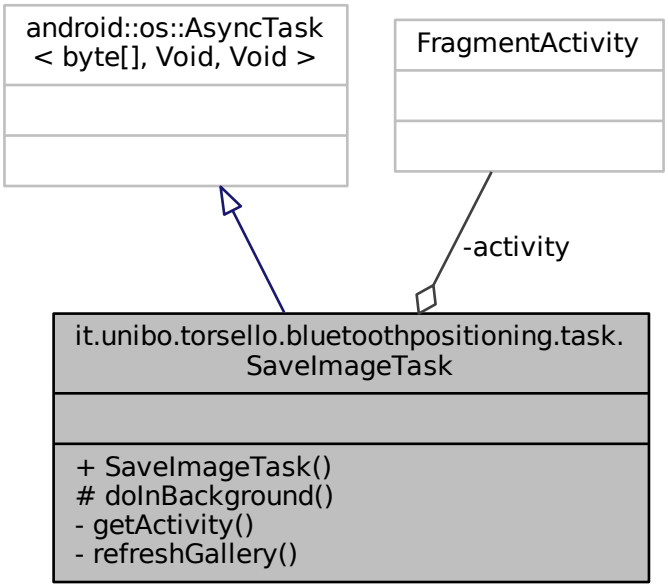


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.task.SaveImageTask:



Membri pubblici

- SaveImageTask (FragmentActivity fragmentActivity)

Membri protetti

- Void doInBackground (byte[ ]... data)

Membri privati

- FragmentActivity getActivity ()
- void refreshGallery (File file)

Attributi privati

- FragmentActivity activity

6.22.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.22.2 Documentazione dei costruttori e dei distruttori

6.22.2.1 SaveImageTask()

```
it.unibo.torsello.bluetoothpositioning.task.SaveImageTask.SaveImageTask (
            FragmentActivity fragmentActivity )
```

```
26                                                          {
27         this.activity = fragmentActivity;
28     }
```

6.22.3 Documentazione delle funzioni membro

6.22.3.1 doInBackground()

```
Void it.unibo.torsello.bluetoothpositioning.task.SaveImageTask.doInBackground (
            byte...  [] data )  [protected]
```

```
35                                                  {
36
37         // Write to SD Card
38         try {
39             File sdCard = Environment.getExternalStorageDirectory();
40             File dir = new File(sdCard.getAbsolutePath() + "/" + getActivity().getString(R.
      string.app_name));
41             dir.mkdirs();
42
43             String fileName = String.format(Locale.getDefault(), "%d.jpg", System.currentTimeMillis());
44             File outFile = new File(dir, fileName);
45
46             FileOutputStream outStream = new FileOutputStream(outFile);
47             outStream.write(data[0]);
48             outStream.flush();
49             outStream.close();
50
51             refreshGallery(outFile);
52         } catch (IOException e) {
53             e.printStackTrace();
54         }
55         return null;
56     }
```

6.22.3.2 getActivity()

```
FragmentActivity it.unibo.torsello.bluetoothpositioning.task.SaveImageTask.getActivity ( )
[private]
```

```
30                                          {
31         return activity;
32     }
```

6.22.3.3 refreshGallery()

```
void it.unibo.torsello.bluetoothpositioning.task.SaveImageTask.refreshGallery (
            File file )  [private]
```

```
58                                          {
59         if (file != null){
60             Intent mediaScanIntent = new Intent(Intent.ACTION_MEDIA_SCANNER_SCAN_FILE);
61             mediaScanIntent.setData(Uri.fromFile(file));
62             getActivity().sendBroadcast(mediaScanIntent);
63
64             Snackbar.make(getActivity().findViewById(R.id.fab),
65                     "Your picture has been saved", Snackbar.LENGTH_SHORT).show();
66         } else {
67             Snackbar.make(getActivity().findViewById(R.id.fab),
68                         "Image retrieval failed", Snackbar.LENGTH_SHORT).show();
69         }
70     }
```

6.22.4 Documentazione dei membri dato

6.22.4.1 activity

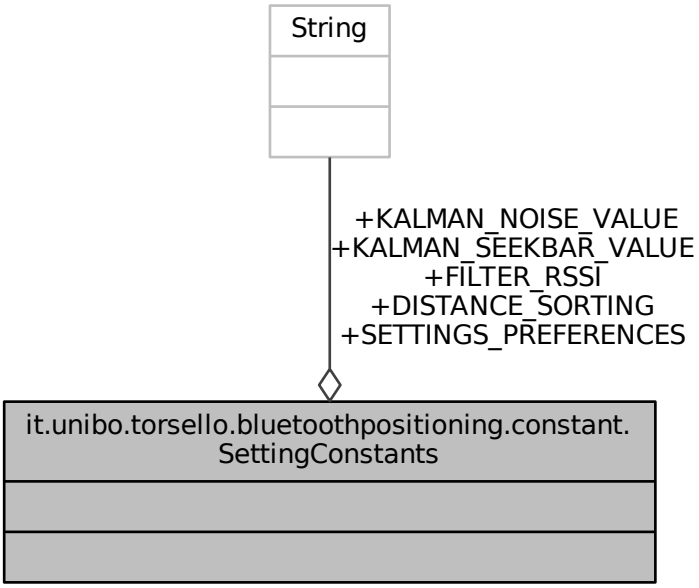
```
FragmentActivity it.unibo.torsello.bluetoothpositioning.task.SaveImageTask.activity  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- SaveImageTask.java

6.23 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.constant.SettingConstants

Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.constant.SettingConstants:



Attributi pubblici statici

- static final String SETTINGS_PREFERENCES = "settings_preferences"
- static final String FILTER_RSSI = "filter_rssi"
- static final String KALMAN_SEEKBAR_VALUE = "kalman_filter_seek_value"
- static final String KALMAN_NOISE_VALUE = "kalman_filter_noise_value"
- static final String DISTANCE_SORTING = "distance_sorting_selected"

6.23.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

A class containing constants for the SharedPreference objects.

6.23.2 Documentazione dei membri dato

6.23.2.1 DISTANCE_SORTING

```
final String it.unibo.torsello.bluetoothpositioning.constant.SettingConstants.DISTANCE_SORTING
= "distance_sorting_selected"  [static]
```

6.23.2.2 FILTER_RSSI

```
final String it.unibo.torsello.bluetoothpositioning.constant.SettingConstants.FILTER_RSSI =
"filter_rssi"  [static]
```

6.23.2.3 KALMAN_NOISE_VALUE

```
final String it.unibo.torsello.bluetoothpositioning.constant.SettingConstants.KALMAN_NOISE_V↩
ALUE = "kalman_filter_noise_value"  [static]
```

6.23.2.4 KALMAN_SEEKBAR_VALUE

```
final String it.unibo.torsello.bluetoothpositioning.constant.SettingConstants.KALMAN_SEEKBAR↩
_VALUE = "kalman_filter_seek_value"  [static]
```

6.23.2.5 SETTINGS_PREFERENCES

```
final String it.unibo.torsello.bluetoothpositioning.constant.SettingConstants.SETTINGS_PREFE↩
RENCES = "settings_preferences"  [static]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- SettingConstants.java

6.24 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment

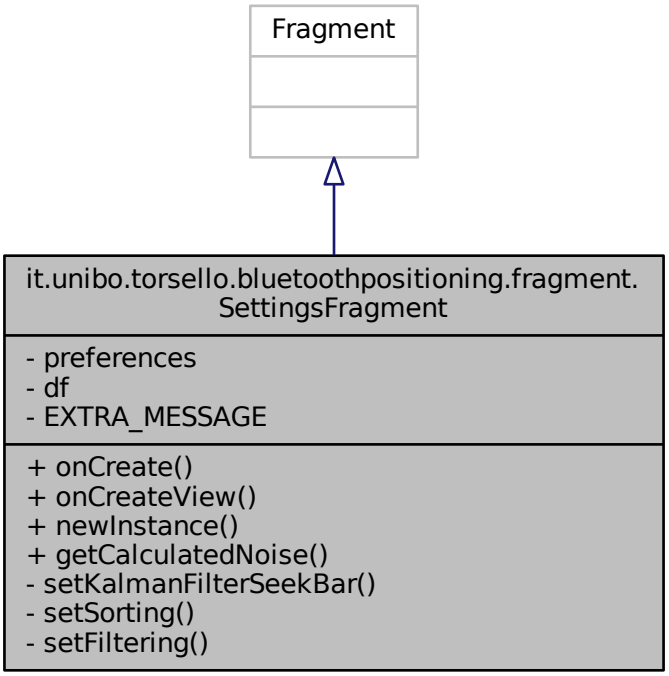
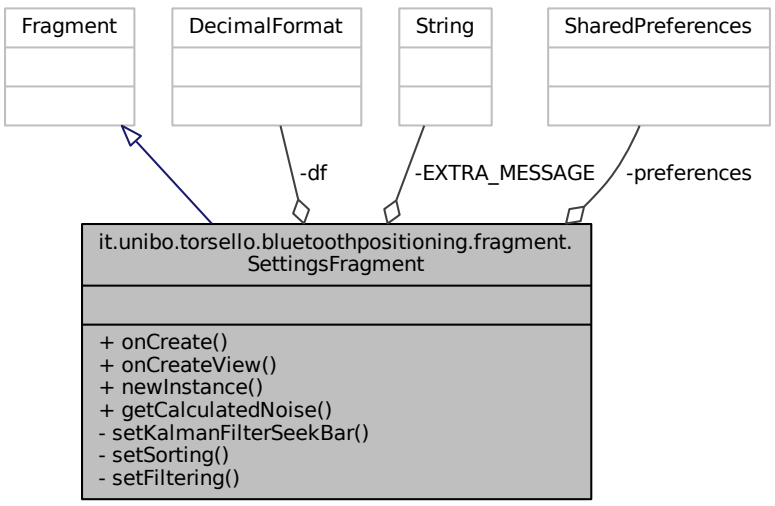


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment:



Membri pubblici

- void onCreate (Bundle savedInstanceState)
- View onCreateView (LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState)

Membri pubblici statici

- static SettingsFragment newInstance ()
- static float getCalculatedNoise (int p)

Membri privati

- void setKalmanFilterSeekBar (View root)
- void setSorting (View root)
- void setFiltering (View root)

Attributi privati

- SharedPreferences preferences
- DecimalFormat df

Attributi privati statici

- static final String EXTRA_MESSAGE = "EXTRA_MESSAGE"

6.24.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.24.2 Documentazione delle funzioni membro

6.24.2.1 getCalculatedNoise()

```
static float it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.getCalculated↩
Noise (
            int p )  [static]
```

```
90                                              {
91         double percent = (p / 10D);
92         double noise = KFilterConstants.KALMAN_NOISE_MIN +
93                 (KFilterConstants.KALMAN_NOISE_MAX - KFilterConstants.KALMAN_NOISE_MIN) * percent;
94
95         return (float) noise;
96
97     }
```

6.24.2.2 newInstance()

```
static SettingsFragment it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.new↩
Instance ( )  [static]
```

```
29                                                  {
30         SettingsFragment fragment = new SettingsFragment();
31         Bundle args = new Bundle();
32         args.putString(EXTRA_MESSAGE, "Settings");
33         fragment.setArguments(args);
34         return fragment;
35     }
```

6.24.2.3 onCreate()

```
void it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.onCreate (
              Bundle savedInstanceState )
```

```
38                                                      {
39         super.onCreate(savedInstanceState);
40
41         preferences = getActivity().getSharedPreferences(SettingConstants.SETTINGS_PREFERENCES,
      0);
42         df = new DecimalFormat("0.0#");
43     }
```

6.24.2.4 onCreateView()

```
View it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.onCreateView (
              LayoutInflater inflater,
              ViewGroup container,
              Bundle savedInstanceState )
```

```
46                                                                                                  {
47         View root = inflater.inflate(R.layout.fragment_settings, container, false);
48
49         setKalmanFilterSeekBar(root);
50
51         setSorting(root);
52
53         setFiltering(root);
54
55         return root;
56     }
```

6.24.2.5 setFiltering()

```
void it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.setFiltering (
              View root )  [private]
```

```
118                                         {
119         RadioGroup rg = (RadioGroup) root.findViewById(R.id.radioGroupFilter);
120         int checkedRadioButton;
121         if (rg.getCheckedRadioButtonId() != 0) {
122             checkedRadioButton = preferences.getInt(SettingConstants.FILTER_RSSI, rg.
      getCheckedRadioButtonId());
123         } else {
124             checkedRadioButton = 0;
125         }
126         rg.check(checkedRadioButton);
127         rg.setOnCheckedChangeListener(new RadioGroup.OnCheckedChangeListener() {
128             @Override
129             public void onCheckedChanged(RadioGroup group, int checkedId) {
130                 SharedPreferences.Editor editor = preferences.edit();
131                 editor.putInt(SettingConstants.FILTER_RSSI, checkedId);
132                 editor.apply();
133             }
134         });
135     }
```

6.24.2.6 setKalmanFilterSeekBar()

```
void it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.setKalmanFilterSeekBar (
            View root )  [private]
```

```
59                                                  {
60         SeekBar kalmanSeek = (SeekBar) root.findViewById(R.id.kalmanSeek);
61         int seekValue = preferences.getInt(SettingConstants.KALMAN_SEEKBAR_VALUE, 4);
62         kalmanSeek.setMax(10);
63         kalmanSeek.setProgress(kalmanSeek.getMax() / 2);
64
65         final TextView kalmanFilterValue = (TextView) root.findViewById(R.id.kalmanValue);
66         kalmanFilterValue.setText(df.format(getCalculatedNoise(seekValue)));
67
68         kalmanSeek.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
69             @Override
70             public void onProgressChanged(SeekBar seekBar, int seekValue, boolean fromUser) {
71                 kalmanFilterValue.setText(df.format(getCalculatedNoise(seekValue)));
72             }
73
74             @Override
75             public void onStartTrackingTouch(SeekBar seekBar) {
76             }
77
78             @Override
79             public void onStopTrackingTouch(SeekBar seekBar) {
80                 SharedPreferences.Editor editor = preferences.edit();
81                 int progress = seekBar.getProgress();
82                 editor.putInt(SettingConstants.KALMAN_SEEKBAR_VALUE, progress);
83                 editor.putFloat(SettingConstants.KALMAN_NOISE_VALUE,
    getCalculatedNoise(progress));
84                 editor.apply();
85                 kalmanFilterValue.setText(df.format(getCalculatedNoise(progress)));
86             }
87         });
88     }
```

6.24.2.7 setSorting()

```
void it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.setSorting (
            View root )  [private]
```

```
99                                      {
100        RadioGroup rg = (RadioGroup) root.findViewById(R.id.radioGroupSortingMode);
101        int checkedRadioButton;
102        if (rg.getCheckedRadioButtonId() != 0) {
103            checkedRadioButton = preferences.getInt(SettingConstants.DISTANCE_SORTING, rg.
    getCheckedRadioButtonId());
104        } else {
105            checkedRadioButton = 0;
106        }
107        rg.check(checkedRadioButton);
108        rg.setOnCheckedChangeListener(new RadioGroup.OnCheckedChangeListener() {
109            @Override
110            public void onCheckedChanged(RadioGroup group, int checkedId) {
111                SharedPreferences.Editor editor = preferences.edit();
112                editor.putInt(SettingConstants.DISTANCE_SORTING, checkedId);
113                editor.apply();
114            }
115        });
116    }
```

6.24.3 Documentazione dei membri dato

6.24.3.1 df

```
DecimalFormat it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.df  [private]
```

6.24.3.2 EXTRA_MESSAGE

```
final String it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.EXTRA_MESSAGE =
"EXTRA_MESSAGE"  [static], [private]
```

6.24.3.3 preferences

```
SharedPreferences it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment.preferences
[private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- SettingsFragment.java

6.25 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter

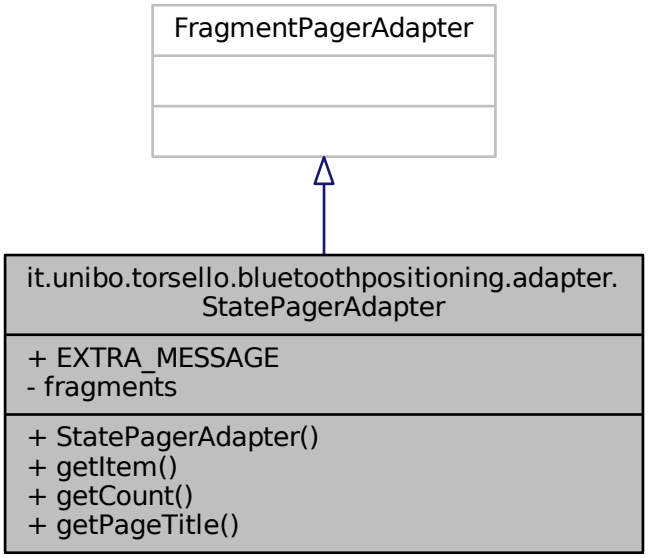
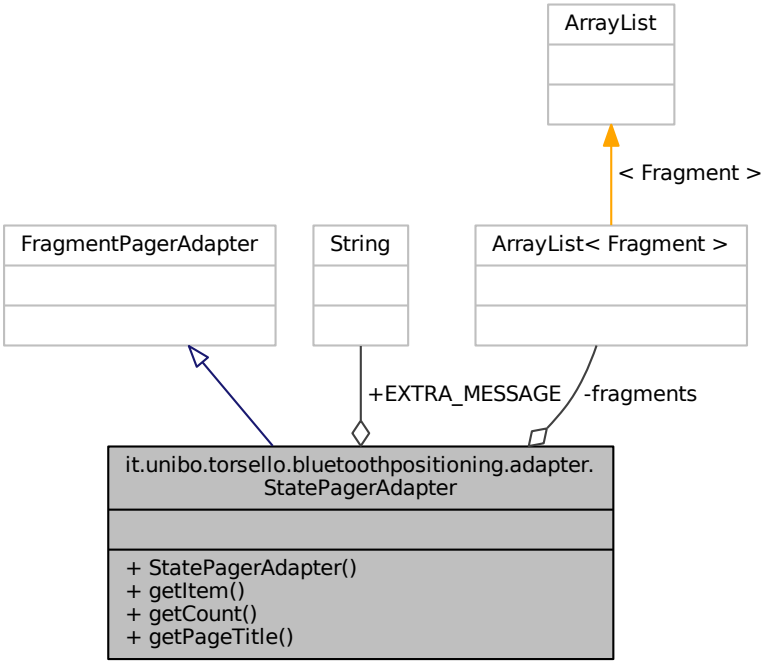


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter:



Membri pubblici

- StatePagerAdapter (FragmentManager fm, ArrayList< Fragment > fragments)
- Fragment getItem (int position)
- int getCount ()
- CharSequence getPageTitle (int position)

Attributi pubblici statici

- static final String EXTRA_MESSAGE = "EXTRA_MESSAGE"

Attributi privati

- ArrayList< Fragment > fragments

6.25.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.25.2 Documentazione dei costruttori e dei distruttori

6.25.2.1 StatePagerAdapter()

```
it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter.StatePagerAdapter (
            FragmentManager fm,
            ArrayList< Fragment > fragments )
```

```
21                                                                              {
22         super(fm);
23         this.fragments = fragments;
24     }
```

6.25.3 Documentazione delle funzioni membro

6.25.3.1 getCount()

```
int it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter.getCount ( )
```

```
32                          {
33         return this.fragments.size();
34     }
```

6.25.3.2 getItem()

```
Fragment it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter.getItem (
            int position )
```

```
27                                      {
28         return this.fragments.get(position);
29     }
```

6.25.3.3 getPageTitle()

```
CharSequence it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter.getPageTitle (
            int position )
```

```
37                                                  {
38         return fragments.get(position).getArguments().getString(
      EXTRA_MESSAGE);
39     }
```

6.25.4 Documentazione dei membri dato

6.25.4.1 EXTRA_MESSAGE

```
final String it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter.EXTRA_MESSAGE =
"EXTRA_MESSAGE"  [static]
```

6.25.4.2 fragments

```
ArrayList<Fragment> it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter.fragments
[private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- StatePagerAdapter.java

6.26 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment

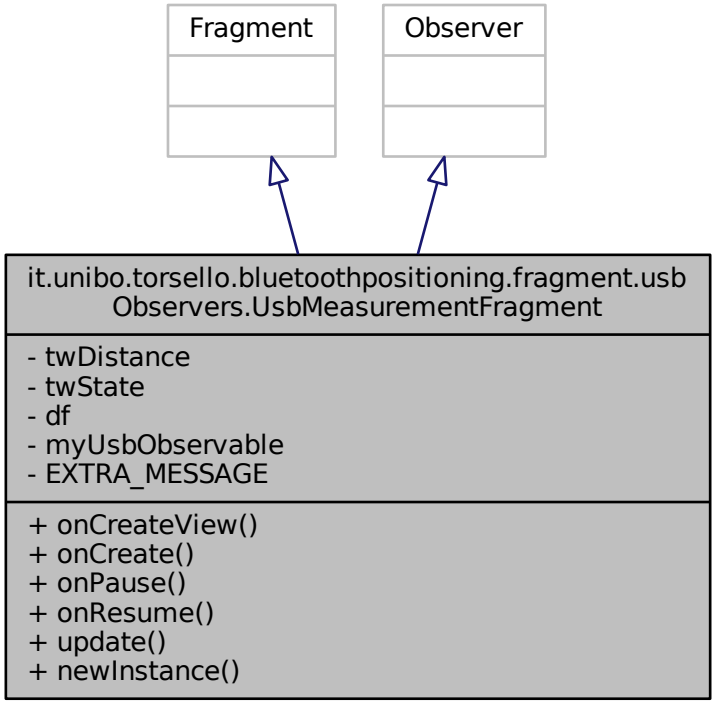
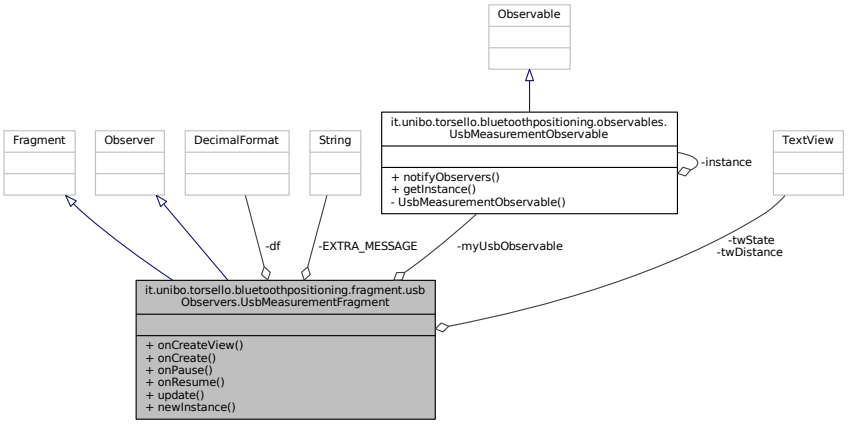


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurement↩
Fragment:



Membri pubblici

- View onCreateView (LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState)
- void onCreate (@Nullable Bundle savedInstanceState)
- void onPause ()
- void onResume ()
- void update (Observable o, final Object arg)

Membri pubblici statici

- static UsbMeasurementFragment newInstance ()

Attributi privati

- TextView twDistance
- TextView twState
- DecimalFormat df
- UsbMeasurementObservable myUsbObservable

Attributi privati statici

- static final String EXTRA_MESSAGE = "EXTRA_MESSAGE"

6.26.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.26.2 Documentazione delle funzioni membro

6.26.2.1 newInstance()

```
static UsbMeasurementFragment it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.↩
UsbMeasurementFragment.newInstance ( )  [static]
```

```
35                                                      {
36         UsbMeasurementFragment fragment = new UsbMeasurementFragment();
37         Bundle args = new Bundle();
38         args.putString(EXTRA_MESSAGE, "Measurement");
39         fragment.setArguments(args);
40         return fragment;
41     }
```

6.26.2.2 onCreate()

```
void it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment.on↩
Create (
             @Nullable Bundle savedInstanceState )
```

```
55                                                              {
56         super.onCreate(savedInstanceState);
57
58         myUsbObservable = UsbMeasurementObservable.getInstance();
59         df = new DecimalFormat("0.00", DecimalFormatSymbols.getInstance());
60
61     }
```

6.26.2.3 onCreateView()

```
View it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment.on↩
CreateView (
             LayoutInflater inflater,
             ViewGroup container,
             Bundle savedInstanceState )
```

```
45                                                       {
46         View root = inflater.inflate(R.layout.fragment_usb_measurement, container, false);
47
48         twDistance = (TextView) root.findViewById(R.id.tw_distance_value);
49         twState = (TextView) root.findViewById(R.id.tw_state_value);
50
51         return root;
52     }
```

6.26.2.4 onPause()

```
void it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment.on↩
Pause ( )
```

```
64                          {
65         myUsbObservable.deleteObserver(this);
66         super.onPause();
67     }
```

6.26.2.5 onResume()

```
void it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment.on↩
Resume ( )
```

```
70                          {
71         super.onResume();
72         myUsbObservable.addObserver(this);
73     }
```

6.26.2.6 update()

```
void it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment.↩
update (
              Observable o,
              final Object arg )
```

```
76                                                  {
77
78         getActivity().runOnUiThread(new Runnable() {
79             @Override
80             public void run() {
81                 if (arg instanceof Double) {
82                     Double arduinoDistance = (Double) arg;
83                     twDistance.setText(String.format("%s m", df.format(arduinoDistance)));
84                 } else if (arg instanceof String) {
85                     String message = (String) arg;
86                     twState.setText(message);
87                 } else if (arg instanceof Boolean) {
88                     boolean state = (Boolean) arg;
89                     if (state) {
90                         twState.setTextColor(Color.GREEN);
91                     } else {
92                         twState.setTextColor(Color.RED);
93                     }
94                 }
95             }
96         });
97     }
```

6.26.3 Documentazione dei membri dato

6.26.3.1 df

```
DecimalFormat it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurement↩
Fragment.df  [private]
```

6.26.3.2 EXTRA_MESSAGE

```
final String it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurement↩
Fragment.EXTRA_MESSAGE = "EXTRA_MESSAGE"  [static], [private]
```

6.26.3.3 myUsbObservable

```
UsbMeasurementObservable it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.Usb↩
MeasurementFragment.myUsbObservable  [private]
```

6.26.3.4 twDistance

```
TextView it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment.↩
twDistance  [private]
```

6.26.3.5 twState

```
TextView it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment.↩
twState  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- UsbMeasurementFragment.java

6.27 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurement↩ Observable

Diagramma delle classi per it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurementObservable

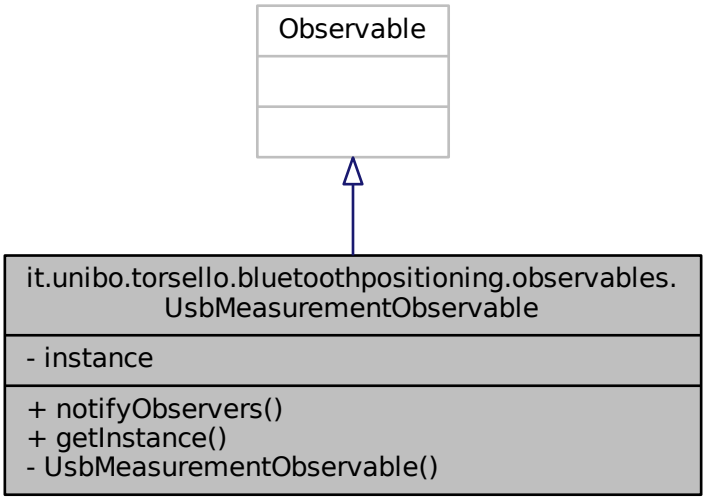
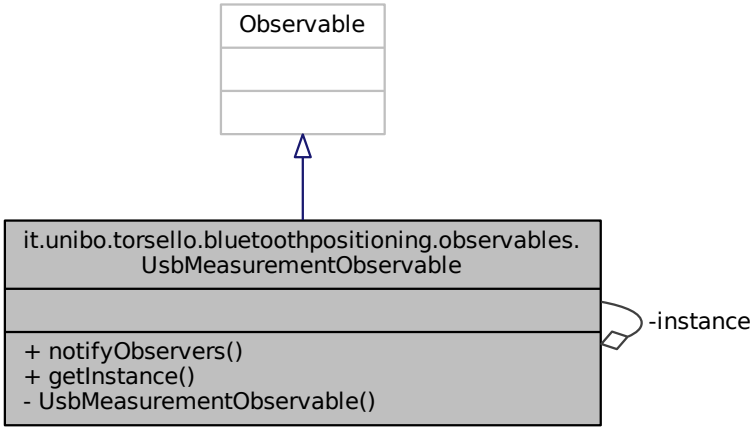


Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurementObservable:



Membri pubblici

- void notifyObservers (Object data)

Membri pubblici statici

- static UsbMeasurementObservable getInstance ()

Membri privati

- UsbMeasurementObservable ()

Attributi privati statici

- static UsbMeasurementObservable instance = new UsbMeasurementObservable()

6.27.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.27.2 Documentazione dei costruttori e dei distruttori

6.27.2.1 UsbMeasurementObservable()

```
it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurementObservable.UsbMeasurement↩
Observable ( )  [private]
```

```
17                                      {
18         super();
19     }
```

6.27.3 Documentazione delle funzioni membro

6.27.3.1 getInstance()

```
static UsbMeasurementObservable it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurement↩
Observable.getInstance ( )  [static]
```

```
13                                                      {
14         return instance;
15     }
```

6.27.3.2 notifyObservers()

```
void it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurementObservable.notify↩
Observers (
              Object data )
```

```
22                                                 {
23         setChanged();
24         super.notifyObservers(data);
25     }
```

6.27.4 Documentazione dei membri dato

6.27.4.1 instance

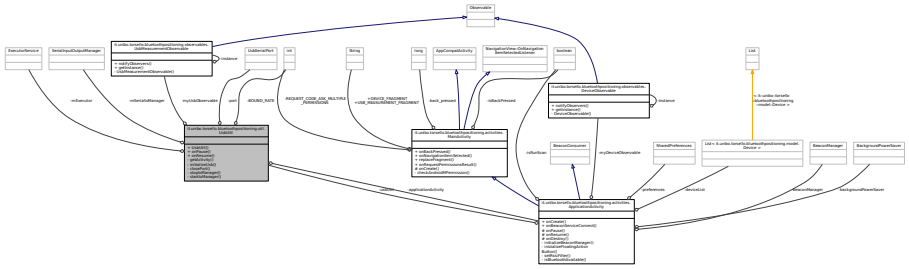
```
UsbMeasurementObservable it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurement↩
Observable.instance = new UsbMeasurementObservable()  [static], [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- UsbMeasurementObservable.java

6.28 Riferimenti per la classe it.unibo.torsello.bluetoothpositioning.util.UsbUtil

Diagramma di collaborazione per it.unibo.torsello.bluetoothpositioning.util.UsbUtil:



Membri pubblici

- UsbUtil (ApplicationActivity applicationActivity)
- void onPause ()
- void onResume ()

Membri privati

- ApplicationActivity getActivity ()
- void initializeUsb ()
- void closePort ()
- void stopIoManager ()
- void startIoManager ()

Attributi privati

- UsbMeasurementObservable myUsbObservable
- final ExecutorService mExecutor = Executors.newSingleThreadExecutor()
- UsbSerialPort port
- SerialInputOutputManager mSerialIoManager
- ApplicationActivity applicationActivity
- int BOUND_RATE = 115200

6.28.1 Descrizione dettagliata

Created by Federico Torsello. federico.torsello@studio.unibo.it

6.28.2 Documentazione dei costruttori e dei distruttori

6.28.2.1 UsbUtil()

```
it.unibo.torsello.bluetoothpositioning.util.UsbUtil.UsbUtil (
            ApplicationActivity applicationActivity )
```

```
39                                                          {
40         this.applicationActivity = applicationActivity;
41         myUsbObservable = UsbMeasurementObservable.getInstance();
42     }
```

6.28.3 Documentazione delle funzioni membro

6.28.3.1 closePort()

```
void it.unibo.torsello.bluetoothpositioning.util.UsbUtil.closePort ( )  [private]
```

```
116                             {
117         if (port != null) {
118             try {
119                 port.close();
120             } catch (IOException e) {
121                 // Ignore.
122             }
123             port = null;
124         }
125     }
```

6.28.3.2 getActivity()

```
ApplicationActivity it.unibo.torsello.bluetoothpositioning.util.UsbUtil.getActivity ( )  [private]
```

```
44                                          {
45         return applicationActivity;
46     }
```

6.28.3.3 initializeUsb()

```
void it.unibo.torsello.bluetoothpositioning.util.UsbUtil.initializeUsb ( )  [private]
```

```
58                                  {
59
60         // Find all available drivers from attached devices.
61         UsbManager usbManager = (UsbManager) getActivity().getSystemService(Context.USB_SERVICE)
     ;
62         List<UsbSerialDriver> availableDrivers = UsbSerialProber.getDefaultProber().findAllDrivers(
     usbManager);
63         if (!availableDrivers.isEmpty()) {
64
65             // Open a connection to the first available driver.
66             UsbSerialDriver driver = availableDrivers.get(0);
67
68             if (usbManager.hasPermission(driver.getDevice())) {
69                 if (usbManager.openDevice(driver.getDevice()) != null) {
70                     // Read some data! Most have just one port (port 0).
71                     port = driver.getPorts().get(0);
72                 }
73             } else {
74                 Intent startIntent = new Intent(getActivity(), getClass());
75                 PendingIntent pendingIntent =
76                         PendingIntent.getService(getActivity(), 0, startIntent, 0);
77                 usbManager.requestPermission(driver.getDevice(), pendingIntent);
78
79 //                PendingIntent mPendingIntent = PendingIntent.getBroadcast(getActivity(), 0, new
       Intent("intent"), 0);
80 //                usbManager.requestPermission(driver.getDevice(), mPendingIntent);
81             }
82
83             if (port != null) {
84
85                 UsbDeviceConnection connection = usbManager.openDevice(port.getDriver().getDevice());
86
87                 if (connection != null) {
88                     try {
89                         port.open(connection);
90                         port.setParameters(BOUND_RATE, UsbSerialPort.DATABITS_8,
91                                 UsbSerialPort.STOPBITS_1, UsbSerialPort.PARITY_NONE);
92
93 //                      String details = "CD  - Carrier Detect" + port.getCD() + '\n' +
94 //                              "CTS - Clear To Send" + port.getCTS() + '\n' +
95 //                              "DSR - Data Set Ready" + port.getDSR() + '\n' +
96 //                              "DTR - Data Terminal Ready" + port.getDTR() + '\n' +
97 //                              "DSR - Data Set Ready" + port.getDSR() + '\n' +
98 //                              "RI  - Ring Indicator" + port.getRI() + '\n' +
99 //                              "RTS - Request To Send" + port.getRTS();
100
101                     } catch (IOException e) {
102                         myUsbObservable.notifyObservers(
     getActivity().getString(R.string.error_opening_device)
103                                 + " " + e.getMessage());
104                         myUsbObservable.notifyObservers(false);
105                         closePort();
106                         return;
107                     }
108
109                     stopIoManager();
110                     startIoManager();
111                 }
112             }
113         }
114     }
```

6.28.3.4 onPause()

```
void it.unibo.torsello.bluetoothpositioning.util.UsbUtil.onPause ( )
```

```
48                          {
49         stopIoManager();
50         closePort();
51     }
```

6.28.3.5 onResume()

```
void it.unibo.torsello.bluetoothpositioning.util.UsbUtil.onResume ( )
```

```
53                          {
54         initializeUsb();
55     }
```

6.28.3.6 startIoManager()

```
void it.unibo.torsello.bluetoothpositioning.util.UsbUtil.startIoManager ( )  [private]
```

```
134                                 {
135         if (port != null) {
136
137             SerialInputOutputManager.Listener mListener =
138                     new SerialInputOutputManager.Listener() {
139
140                         @Override
141                         public void onRunError(Exception e) {
142                             myUsbObservable.notifyObservers(false);
143                             myUsbObservable.notifyObservers(
      getActivity().getString(R.string.usb_device_not_connected));
144                             myUsbObservable.notifyObservers(0D);
145                         }
146
147                         @Override
148                         public void onNewData(final byte[] data) {
149                             try {
150                                 myUsbObservable.notifyObservers(true);
151                                 myUsbObservable.notifyObservers(
      getActivity().getString(R.string.usb_device_connected));
152                                 Double distanceEstimate = Double.valueOf(new String(data).trim()) / 100;
153                                 myUsbObservable.notifyObservers(
      distanceEstimate);
154                             } catch (NumberFormatException nfe) {
155                             }
156                         }
157                     };
158
159             mSerialIoManager = new SerialInputOutputManager(port, mListener);
160             mExecutor.submit(mSerialIoManager);
161         }
162     }
```

6.28.3.7 stopIoManager()

```
void it.unibo.torsello.bluetoothpositioning.util.UsbUtil.stopIoManager ( )  [private]
```

```
127                                 {
128         if (mSerialIoManager != null) {
129             mSerialIoManager.stop();
130             mSerialIoManager = null;
131         }
132     }
```

6.28.4 Documentazione dei membri dato

6.28.4.1 applicationActivity

```
ApplicationActivity it.unibo.torsello.bluetoothpositioning.util.UsbUtil.applicationActivity
[private]
```

6.28.4.2 BOUND_RATE

```
int it.unibo.torsello.bluetoothpositioning.util.UsbUtil.BOUND_RATE = 115200  [private]
```

6.28.4.3 mExecutor

```
final ExecutorService it.unibo.torsello.bluetoothpositioning.util.UsbUtil.mExecutor = Executors.↩
newSingleThreadExecutor()  [private]
```

6.28.4.4 mSerialIoManager

```
SerialInputOutputManager it.unibo.torsello.bluetoothpositioning.util.UsbUtil.mSerialIoManager
[private]
```

6.28.4.5 myUsbObservable

```
UsbMeasurementObservable it.unibo.torsello.bluetoothpositioning.util.UsbUtil.myUsbObservable
[private]
```

6.28.4.6 port

```
UsbSerialPort it.unibo.torsello.bluetoothpositioning.util.UsbUtil.port  [private]
```

La documentazione per questa classe è stata generata a partire dal seguente file:

- UsbUtil.java

7 Documentazione dei file

7.1 Riferimenti per il file ApplicationActivity.java

Composti

- class it.unibo.torsello.bluetoothpositioning.activities.ApplicationActivity

Package

- package it.unibo.torsello.bluetoothpositioning.activities

7.2 Riferimenti per il file CameraFragment.java

Composti

- class it.unibo.torsello.bluetoothpositioning.fragment.CameraFragment

Package

- package it.unibo.torsello.bluetoothpositioning.fragment

7.3 Riferimenti per il file CameraPreviewUtil.java

Composti

- class it.unibo.torsello.bluetoothpositioning.util.CameraPreviewUtil

Package

- package it.unibo.torsello.bluetoothpositioning.util

7.4 Riferimenti per il file ChartUtil.java

Composti

- class it.unibo.torsello.bluetoothpositioning.util.ChartUtil

Package

- package it.unibo.torsello.bluetoothpositioning.util

7.5 Riferimenti per il file Device.java

Composti

- class it.unibo.torsello.bluetoothpositioning.model.Device

Package

- package it.unibo.torsello.bluetoothpositioning.model

7.6 Riferimenti per il file DeviceCardViewAdapter.java

Composti

- class it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter
- class it.unibo.torsello.bluetoothpositioning.adapter.DeviceCardViewAdapter.DeviceViewHolder

Package

- package it.unibo.torsello.bluetoothpositioning.adapter

7.7 Riferimenti per il file DeviceChartFragment.java

Composti

- class it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceChartFragment

Package

- package it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers

7.8 Riferimenti per il file DeviceConstants.java

Composti

- class it.unibo.torsello.bluetoothpositioning.constant.DeviceConstants

Package

- package it.unibo.torsello.bluetoothpositioning.constant

7.9 Riferimenti per il file DeviceDetailFragment.java

Composti

- class it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailFragment

Package

- package it.unibo.torsello.bluetoothpositioning.fragment

7.10 Riferimenti per il file DeviceDetailInner1Fragment.java

Composti

- class it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceDetailInner1Fragment

Package

- package it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers

7.11 Riferimenti per il file DeviceDetailInner2Fragment.java

Composti

- class it.unibo.torsello.bluetoothpositioning.fragment.DeviceDetailInner2Fragment

Package

- package it.unibo.torsello.bluetoothpositioning.fragment

7.12 Riferimenti per il file DeviceListFragment.java

Composti

- class it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers.DeviceListFragment

Package

- package it.unibo.torsello.bluetoothpositioning.fragment.devicesObservers

7.13 Riferimenti per il file DeviceObservable.java

Composti

- class it.unibo.torsello.bluetoothpositioning.observables.DeviceObservable

Package

- package it.unibo.torsello.bluetoothpositioning.observables

7.14 Riferimenti per il file Estimation.java

Composti

- class it.unibo.torsello.bluetoothpositioning.distanceEstimation.Estimation

Package

- package it.unibo.torsello.bluetoothpositioning.distanceEstimation

7.15 Riferimenti per il file FABBehavior.java

Composti

- class it.unibo.torsello.bluetoothpositioning.extra.FABBehavior

Package

- package it.unibo.torsello.bluetoothpositioning.extra

7.16 Riferimenti per il file KFilter.java

Composti

- class it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilter

Package

- package it.unibo.torsello.bluetoothpositioning.kalmanFilter

7.17 Riferimenti per il file KFilterBuilder.java

Composti

- class it.unibo.torsello.bluetoothpositioning.kalmanFilter.KFilterBuilder

Package

- package it.unibo.torsello.bluetoothpositioning.kalmanFilter

7.18 Riferimenti per il file KFilterConstants.java

Composti

- class it.unibo.torsello.bluetoothpositioning.constant.KFilterConstants

Package

- package it.unibo.torsello.bluetoothpositioning.constant

7.19 Riferimenti per il file MainActivity.java

Composti

- class it.unibo.torsello.bluetoothpositioning.activities.MainActivity

Package

- package it.unibo.torsello.bluetoothpositioning.activities

7.20 Riferimenti per il file MyArmaRssiFilter.java

Composti

- class it.unibo.torsello.bluetoothpositioning.configuration.MyArmaRssiFilter

Package

- package it.unibo.torsello.bluetoothpositioning.configuration

7.21 Riferimenti per il file SaveImageTask.java

Composti

- class it.unibo.torsello.bluetoothpositioning.task.SaveImageTask

Package

- package it.unibo.torsello.bluetoothpositioning.task

7.22 Riferimenti per il file SettingConstants.java

Composti

- class it.unibo.torsello.bluetoothpositioning.constant.SettingConstants

Package

- package it.unibo.torsello.bluetoothpositioning.constant

7.23 Riferimenti per il file SettingsFragment.java

Composti

- class it.unibo.torsello.bluetoothpositioning.fragment.SettingsFragment

Package

- package it.unibo.torsello.bluetoothpositioning.fragment

7.24 Riferimenti per il file StatePagerAdapter.java

Composti

- class it.unibo.torsello.bluetoothpositioning.adapter.StatePagerAdapter

Package

- package it.unibo.torsello.bluetoothpositioning.adapter

7.25 Riferimenti per il file UsbMeasurementFragment.java

Composti

- class it.unibo.torsello.bluetoothpositioning.fragment.usbObservers.UsbMeasurementFragment

Package

- package it.unibo.torsello.bluetoothpositioning.fragment.usbObservers

7.26 Riferimenti per il file UsbMeasurementObservable.java

Composti

- class it.unibo.torsello.bluetoothpositioning.observables.UsbMeasurementObservable

Package

- package it.unibo.torsello.bluetoothpositioning.observables

7.27 Riferimenti per il file UsbUtil.java

Composti

- class it.unibo.torsello.bluetoothpositioning.util.UsbUtil

Package

- package it.unibo.torsello.bluetoothpositioning.util

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