Open Robotic Board

ORB-WebView (Android)

Javascript Interface

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1 Interface Methods

1.1 JS to App

The App provides an Interface, which can used by the Javascript to send messages to the App. The message must be a JSON-formatted string.

Usage in Javascript:

```
OpenRoberta.jsToAppInterface( msg );
```

1.2 App to JS

The Javascript must provide an interface, which is used by the App to send messages to the Javascript. The message must be a JSON-formatted string:

```
function wvController()
{
  this.appToJsInterface = function( msg )
  {
    // evaluate msg;
    return true;
  }
}
var webviewController = new wvController();
```

2 JSON-formatted Messages

2.1 Internal

2.1.1 Identify

JS to App:

```
{"target":"internal","type":"identify"}
```

App to JS:

```
{"target":"internal","type":"identify","name":"OpenRoberta",
"app_version":"1.0","device_version":26,"model":"SM-A320FL" }
```

2.1.2 setRobot

JS to App:

```
{"target":"internal","type":"setRobot","robot":"orb" }
```

App to JS: No response

2.1.3 startMonitor

JS to App:

```
{"target":"internal","type":"startMonitor" }
```

App to JS: No response

The App starts the Monitor activity to provide a text display and a keyboard for user I/O

2.1.4 stopMonitor

JS to App:

```
{"target":"internal","type":"stopMonitor" }
```

App to JS: No response

The App returns to the Main activity.

2.2 ORB Connection

2.2.1 startScan

JS to App:

```
{ "target":"orb","type":"startScan" }
```

App to JS:

Multiple answers, one per detected device.

```
{"target":"orb","type":"scan","state":"appeared",
"brickid":"00:06:66:69:38:69","brickname":"ORB-2 3869"}
```

2.2.2 connect

JS to App:

```
{"target":"orb","type":"connect","robot":"00:06:66:69:38:69"}
```

App to JS::

```
{"target":"orb","type":"connect","state":"connected",
"brickid":"00:06:66:69:38:69","brickname":"ORB-2 3869" }
```

2.3 ORB Data

2.3.1 configToORB

JS to App:

```
{"target":"orb","type":"configToORB",
 "data":{"Sensor":[{"type":0,"mode":0,"option":0},
                   {"type":0,"mode":0,"option":0},
                   {"type":0,"mode":0,"option":0},
                   {"type":0,"mode":0,"option":0}],
         "Motor":[{"tics":0,"acc":0,"Kp":0,"Ki":0},
                  {"tics":0,"acc":0,"Kp":0,"Ki":0},
                  {"tics":0,"acc":0,"Kp":0,"Ki":0},
                  {"tics":0,"acc":0,"Kp":0,"Ki":0}]}}
```

Parameter	Bedeutung	typisch
`Motor.tics`	Anzahl Encoder-Impulse pro Umdrehung	144
`Motor.acc`	Beschleunigung bzw. Verzögerung im Modus "Move-To"	50
`Motor.Kp`	Proportional-Faktor der PI-Regelung	50
`Motor.Ki`	Integral-Faktor der PI-Regelung	30

The app starts sending `propFromORB` periodically as long as the Javascript is running.

2.3.2 propToORB

JS to App:

```
{"target":"orb","type":"propToORB",
 "data":{"Motor":[{"mode":0,"speed":0,"pos":0},
                  {"mode":0,"speed":0,"pos":0},
                  {"mode":0,"speed":0,"pos":0},
                  {"mode":0,"speed":0,"pos":0}],
         "Servo":[{"mode":0,"pos":0},
                  {"mode":0,"pos":0}]}}
```

Parameter	Bedeutung
`Motor.mode`	`0: POWER_MODE` Die durch speed angegebene Spannung wird eingestellt
	`1: BRAKE_MODE` Bremsbetrieb durch Kurzschluss des Motors
	`2: SPEED_MODE` Die durch speed angegebene Drehzahl wird geregelt
	`3: MOVETO_MODE`

	Die durch pos angegebene Motor-Position wird angefahren, die in speed angegebene Geschwindigkeit wird dabei nicht überschritten.
`Motor.speed`	Spannung im Bereich -1000 bis 1000 (Einheit: 1/1000 der Versorgungsspannung) ODER Geschwindigkeit in 1/1000 Umdrehungen/Sekunde
`Motor.pos`	Absolute Position in 1/1000 Umdrehungen

The app starts sending `propFromORB` periodically as long as the Javascript is running.

2.3.3 propFromORB

App to JS:

```
{"target":"orb","type":"propFromORB",
 "data":{"Motor":[{"pwr":0,"speed":0,"pos":0},
                  {"pwr":0,"speed":0,"pos":0},
                  {"pwr":0,"speed":0,"pos":0},
                  {"pwr":0,"speed":0,"pos":0}],
         "Sensor":[{"valid":false,"type":0,"option":0,"value":[0,0]},
                   {"valid":false,"type":0,"option":0,"value":[0,0]},
                   {"valid":false,"type":0,"option":0,"value":[0,0]},
                   {"valid":false,"type":0,"option":0,"value":[0,0]}],
         "Vcc":0,"Digital":[false,false],"Status":0}}
```

Parameter	**Bedeutung**
`Motor.pwr`	Motor-Spannung im Bereich -100 bis 100 (Einheit: 1/100 der Versorgungsspannung)
`Motor.speed`	Gemessene Geschwindigkeit in 1/1000 Umdrehungen/Sekunde
`Motor.pos`	Gemessene absolute Position in 1/1000 Umdrehungen

2.4 ORB Settings

2.4.1 settingsToORB

JS to App:

```
{"target":"orb","type":"settingsToORB",
 "data:"{"update":false,"clearMemory":false,
         "Name":"myORB","VCC_ok":7.5,"VCC_low":7.1}};
```

If `update` is true, the given setting is stored in ORB flash. In any case, the App answers with a `settingsFromORB` message.

2.4.2 settingsFromORB

App to JS:

```
{"target":"orb","type":"settingsFromORB",
 "data:"{"Version":[0,0],"Board":[0,0],"Name":"test",
         "VCC_ok":7.5,"VCC_low":7.1}};
```

2.5 Android-Sensorik

2.5.1 CommandToAS

JS to App:

```
{"target":"orb","type":"commandToAS","data":{"cmd":"resetSensor"}}
```

2.5.2 configToAS

JS to App:

```
{"target":"orb","type":"configToAS",
 "data":{"name":"Umgebungslicht","type":5}}
```

2.5.3 sensorFromAS

App to JS:

```
{"target":"orb","type":"sensorFromAS",
 "data":{"Umgebungslicht":[123],"Schwerkraft":[1,1,9.81]}}
```

2.6 Monitor

2.6.1 layoutToMon

JS to App:

```
{"target":"orb","type":"layoutToMon",
 "data":{"button":{"A1":"","A2":"","A3":"","A4":""
                   "A5":"","A6":"","A7":"","A8":"",
                   "B1":"","B2":"","B3":"","B4":"",
                   "B5":"","B6":"","B7":"","B8":"",
                   "B9":"","B10":"","B11":"","B12":"","C1":""}}}
```

The App sets the button labelling to the specified texts. HTML coded unicode is accepted.

2.6.2 textToMon

JS to App:

```
{"target":"orb","type":"textToMon",
 "data":{"text":["","","",""]}}
```

The App displays the text line by line

2.6.3 keyFromMon

App to JS:

```
{"target":"orb","type":"keyFromMon",
 "data":{"key":"A1"}}
```

key is the keycode of the button id's ("A1",..) or an empty string, if no button is pressed