



"Danger, Will Robinson!"

The information in this page is valid only for a limited set of Nokia S60 phones. The APIs described are not part of the S60 Platform therefore they are not available on phones created by other S60 licensee.

Mobile sensor APIs (available in the Sensor plug-in for S60 SDK [1]) allow us to get the data from the embedded sensors.

That 3D accelerometer inside N95 , N93i or N82 is from STMicroelectronics (type LIS302DL). The European chip maker STMicroelectronics (STM) has also supplied the motion-control chip for the Nintendo Wii console's controller. This chip is built around a technology known as Micro Electro-Mechanical Systems (MEMS). Essentially chips with tiny moving parts like gears.

More information about it can be found in the public spec from ST web site <http://www.st.com/stonline/products/families/sensors/accelerometers.htm>

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Sensor Framework

S60 5th edition saw a introduction of new [Sensor Framework](#) which has new APIs that offer more versatility and extendability as well as new possibilities with sensor data formats and usage schenarios. This Framework has been backported to S60 3rd FP2 edition and also to E66 (S60 3rd FP1).

Sensor Framework Sensors can also be accessed via [Platform Services](#) in S60 5th Edition devices.

Compatibility

Sensor FW is not backwards compatible with Sensor API. Sensor API is not backwards compatible with R&D Plugin. Therefore you have to be careful to select correct sensor interface depending on your target hardware.

Sensor FW for S60 5th Ed and 3rd FP2 (and E66 3rd Ed FP1).

Sensor API for S60 3rd Ed and 3rd Ed FP1.

N95 with firmware < 20.0.015

- It allows us to get notification about the phone tilt for example whether the phone is tilted 0,90,180,270 degrees.
- The UID of the sensor is 0x303E. This UID can be used to get the call back notifications about the movement. The following link, [sensor example](#), has the example for 5500 sensor. The UID of the 5500 sensor is 0x10273024. Simply changing in the file SensorTestAppui.cpp the 5500 UID to the N95 one allows us to get the call backs for N95.

>Note that with N95 you can only get one sensor and it gives only 4 different values (0/90/180/270), whereas with 5500 you get lot more information as well as there is tap sensor included with 5500.

- Until you can upgrade your firmware to V 20.0.015, you can also use the N95 RD Accelerometer plug-in described in Nokia Research Center's [activity monitor](#) project. This allows for a higher amount of detail to be received from the N95 accelerometer. The MovingBall example on that page also gives a good indication of what is possible with the N95 accelerometer. Please note that this R&D API is not binary compatible with the Sensor API offered by the S60 Platform.

N95 with firmware >= 20.0.015

SensorAPI example used 'out-of-the-box' give you the values on the 3 axis not limited to 4 values.

Note however the SensorAPI example used with N95 V 20.0.015 (13/11/07) and the UID 0x303E still give only one axis with 4 values.

Device coverage

- Here's a panel for matching sensor API and R&D Plugin and device supporting it.

Device	Platform	Sensor API	R&D Plugin	<u>Sensor FW</u>	<u>Platform Services</u>
<u>N95</u> firmware < 20.0.015	3rd Ed FP1	Tilt only	v		
<u>N95</u> firmware >= 20.0.015 [0x303E]	3rd Ed FP1	Tilt only	v		
<u>N95</u> firmware >= 20.0.015 [0x10273024]	3rd Ed FP1	v	v		
<u>N95 8GB</u>	3rd Ed FP1	v	v		
<u>N93i</u> firmware < 20.0.084	3rd Ed	?	v		
<u>N93i</u> firmware >= 20.0.084	3rd Ed	v	v		
<u>N82</u>	3rd Ed FP1	v	v		

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<u>6210 Navigator</u>	3rd Ed FP2		acc+
<u>N79</u>	3rd Ed FP2		magnetometer.
<u>N85</u>	3rd Ed FP2		?
<u>N96</u>	3rd Ed FP2		?
<u>E66</u>	3rd Ed FP1		?
<u>5800 ExpressMusic</u>	5th Ed		acc.
<u>N97</u>	5th Ed		acc.
<u>5500</u>	3rd Ed	v	acc.

Applications

Several developers have announced applications that make use of 5500 , N95,N93i or N82's sensors using either the Sensor API (previously used with only 5500) or the middleware released by the Nokia Research Center (NRC). Here are the ones known at this time:

Application	Author	Download link	Video demo	Supported API
<u>Activity Monitor</u>	<u>NRC</u>	<u>Download</u>		Plugin
<u>MovingBall</u>	<u>NRC</u>	<u>Download</u>	<u>View</u>	Plugin
<u>Nokia Image Exchange</u>	<u>NRC</u>	<u>Download</u>		Plugin
Shake Control	The Dude	Not released.	<u>View</u>	Plugin
<u>RotateMe 2.0 beta5</u>	<u>Samir</u>	<u>Download</u>	<u>View</u>	Plugin
<u>Nokmote</u>	<u>Samir</u>	Not released.	<u>View</u>	Plugin
<u>Shutup</u>	<u>Samir</u>	Not released.	<u>View</u>	Plugin
<u>Inclinometer</u>	<u>sybianyucca</u>	<u>Download</u>	<u>View</u>	Sensor
Lightsabre	Graham Oldfield	<u>Download</u>	<u>View</u>	Plugin or Sensor
Wattery screensaver	Psiloc	<u>Download</u>		Sensor
Groove Labyrinth	Bitside	<u>Download</u>		Sensor
Accelerinvaders	<u>Luis Valente</u>	<u>Download</u>	<u>View</u>	Sensor
Tunnel Run	<u>Mobile Radicals</u>	Not released.	<u>View</u>	Sensor
gBoarder	<u>FH Hagenberg</u> <u>Stefan Damm and</u> <u>Benjamin Gmeiner</u>	<u>Download</u>	<u>View</u>	Sensor
CarMeter	<u>FH Hagenberg</u> <u>Alexander Erifiu,</u> <u>Grammer Mario and</u> <u>Martin Legath</u>	<u>Download</u>		Sensor
ShakerRacer	<u>FH Hagenberg</u> <u>Andreas Jakl, Stephan</u> <u>Selinger</u>	<u>Download</u>	<u>View</u>	Sensor or plugin
pyWuzzler		<u>Download</u>	<u>View</u>	Sensor

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	FH Hagenberg Benjamin Gmeiner, Yen-Chia Lin			
xyz2NXT : control a LEGO NXT robot car with your phone.	Goodan	Download	View	Plugin with Python wrapper
MovingBall in JAVA	BjoernQ	Download		Plugin with Python socket server
BallGame in JAVA	BjoernQ	Download	View	Plugin with Python socket server
emTube	Sebastian Jedruszkiewicz	Download		Sensor or Plugin
Channels Media Service	Nokia beta labs	Download	View	Sensor or plugin
FLVPlayer	OPDA	Download		Sensor or plugin
Glogger VS2	Glogger	Download		Plugin
FlipSilent	Tong Reng	Download	View	Plugin
pyPiwo	Ariek	Download	View	Sensor
pyRybka	Ariek	Download	View	Sensor
NiiMe : Mouse Control with N95	A2JSoft (Alcyone)	Download	View	Plugin
MIRAGE-X : 3-D motion control for the N95	MobileRadicals	Download	View	Sensor or plugin
PyAcceleREMOTER	Serk01	Download	View	Sensor
Phone Fight	lastminute.com labs	Download	View	Plugin with Python wrapper
16 Puzzle	Jouni Miettunen	Download		Sensor
Sensor Analyzer	Jouni Miettunen	Download		Sensor
Rol-a-Bol	Jouni Miettunen	Download		Sensor
MirageMoney2	MobileRadicals	Download	View(old version demo)	Sensor or plugin
Paparazzi Attack	Jouni Miettunen	Download		Sensor
AlertMe	Ahmet YILDIRIM	Download	View	Sensor
Unity	Jouni Miettunen	Download		Sensor
nGun	Ahmet YILDIRIM	Download	View	Sensor
Mazing Days	Jouni Miettunen	Download		Sensor
Creepy Invaders	Hannu Viitala	Download		Sensor
Shake Me	Pankaj Nathani	Download	View	Sensor