NWSP

Nokia Wrist-Attached Sensor Platform

Demo Applications

v1.3 2008-04-25 Tom Ahola

NWSP is an open platform for research of wearable and wireless sensor solutions. The software and hardware is published with the GPL v2 open source license. The algorithms for the public release have been chosen from well known, obvious and previously published technology to avoid infringement of any IPR.
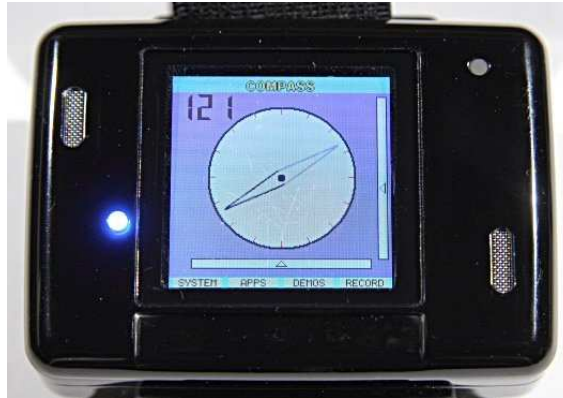
NWSP Splash Screen

Does nothing but displays the NWSP logo.


Realtime Clock

Digital clock displays hours, minutes and seconds. Current time can be adjusted from the menu.

Compass

Electronic compass that indicates magnetic compass heading. Black end of compass needle points always to magnetic north. Features tilt compensation with tilt indicators that keeps the compass heading correct even if the device is tilted. The compass includes automatic calibration of magnetometer sensor offsets and detection of magnetic inclination.
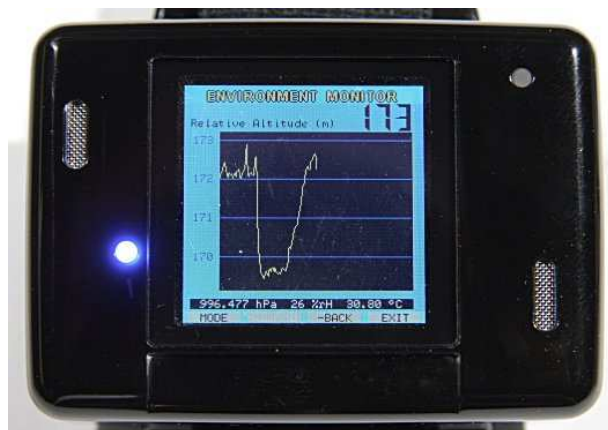
Inclinometer
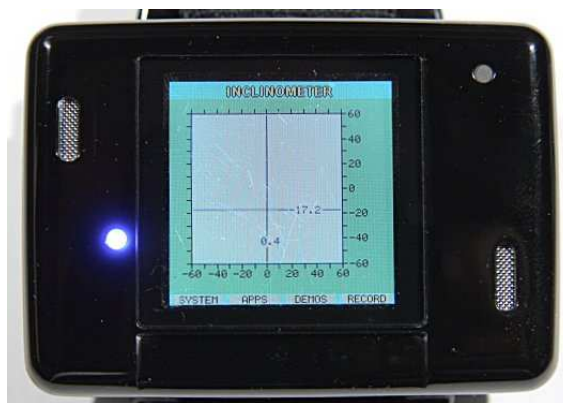
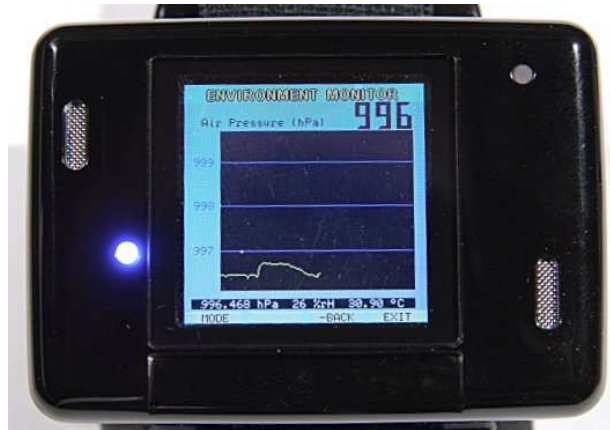The inclinometer measures tilt angles.

Gyro Demo
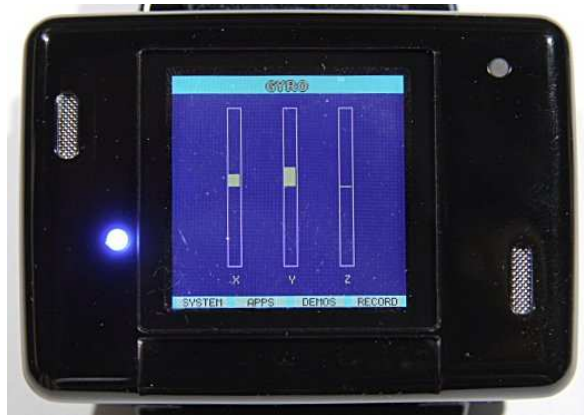
Demonstration that displays the gyro signals as bars that correspond to the rotational acceleration around all three orthogonal axes.
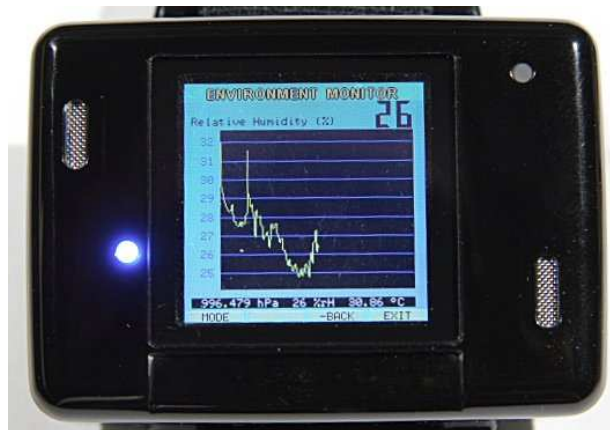
Environment Monitor – Relative Altitude

Demo plots relative altitude as a function of time. It is based on air pressure.

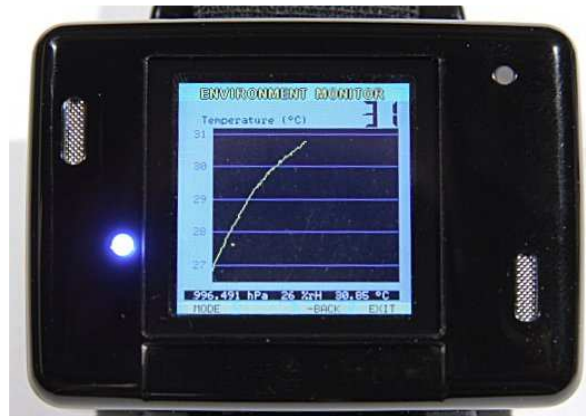# Environment Monitor – Air Pressure (Barometer)

The Barometer application plots the air pressure as a function of time.

Environment Monitor – Relative Humidity

This demo plots the relative humidity of the air

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Environment Monitor – Temperature

This demo plots the temperature changing over time.

Navigation

Navigation demo can connect to an external GPS module using Bluetooth connection.

Navigation demo searching for satellites.

Navigation demo with proper satellite fix shows date, time, speed, true course, position, altitude and accuracy. Also a plot of the path traveled is displayed.

Step Counter

Simple step counter counts running steps. It is not intended for walking. Sensitivity of the counter is adaptive to running intensity to optimize accuracy.

Ball Game

In the Ball Game demo you control a blue ball by tilting the device. The ball starts to roll downhills and it bounces of the walls. You must hit as many red balls as possible during two minutes. Beware of the blinking red balls, however, as you die if you bump into one of those. The game also features sound effects generated in real time.

Sound Demo

A demo of real-time performance synthesis of sounds rich in timbre. The sound changes as you move the device.
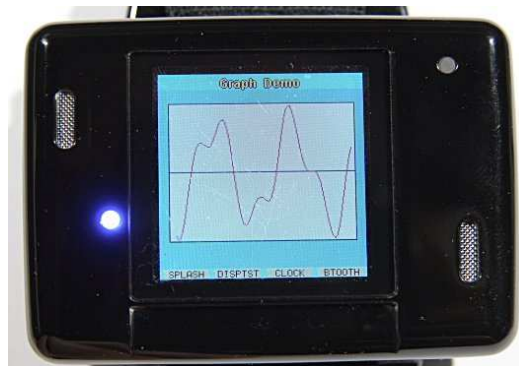
Touchpad Test

Demo of the capacitive sensors used for touchpad keys. Bars indicate how close your finger is to one or more of the sensors.

Textbox Demo

A demo of displaying random text and numbers scrolling in boxes.

Graph Demo

A simple demo of a computed waveform scrolling across the screen.   This is the first demo made for the NWSP.

Audio Analyzer

[PICTURE NOT AVAILABLE YET]

Using the built in MEMS-microphone the audio analyzer computes the windowed FFT periodogram (spectrum estimate) and displays the waveform and spectrum simultaneously on the display. The demo application also computes tone frequency and the distance to a musical tone, which makes the application usable for guitar tuning, for example.