

mSense Demo-Application (Version 1.3.1)

The mSense Demo-Application is a simple demo and showcase application built upon the mSense Middleware¹ and realizes more or less a proof-of-concept of the proposed context acquisition approach. The application utilizes the middleware to acquire, visualize and process the data available from real or simulated low-level sensor nodes (like for example the accelerometer, magnetic compass, or other sensors) as well as from high-level sensors (like for example a reverse geo-coder based on current GPS location information etc.). In fact there is a short demo scenario available for each sensor node supported by the mSense middleware. Therefore the main purpose of this application is still the demonstration of the mSense Middleware and it's usage within other projects or applications.

Another possible approach is to in acquire context data within the the mSense Middleware and publish or integrate this information (Movement, Position- and User Availability data) into the Facebook Platform Community. Therefore the so called Facebook Connect approach is used. The first thing when designing a new Facebook Application is to create and register it directly on the Facebook Platform (<http://www.facebook.com/developers/apps.php>). In doing so you get a specific API Key and an API Secret Key, which is needed to communicate from the mSense Demo-Application to the Facebook Platform.

Additional information concerning implementation details is available from the enclosed source code documentation as well as from the documentation of the enclosed mSense middleware.

GENERAL NOTES: Since the mSense Middleware is still under continuous development (extensions, improvements, bug-fixes etc.), the mSense Demo-Application is continuously updated as well to keep up with the latest features provided by the underlying middleware.

Target Platforms / Platform Specifics:

- Qt 4.6.0
- S60 5th Edition Version 1.0
- Nokia N97 Version 1.0

The project was tested on the following devices:

- Nokia 5800 XpressMusic (without magnetometer and magnetic north sensor support)
- Nokia N97

NOTE: The mSense Demo-Application was actually tested on the devices mentioned above using the mSense middleware library, which is available as enclosed project example (see *mSense Middleware*).

¹ The mSense Middleware is available as enclosed example project (see *mSense Middleware*).

Built Instructions:

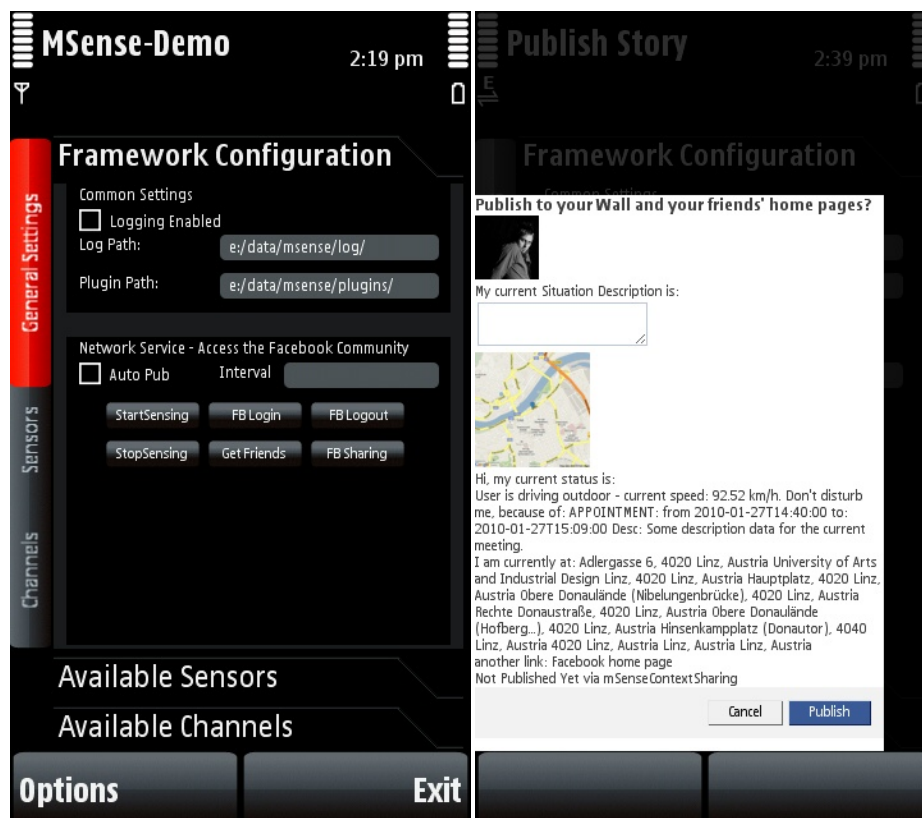
Project Dependencies: Due to the dependency to the mSense Middleware the particular project include paths have to be properly adopted (by default it is assumed that the needed source and include files are located in a directory named 'msense-lib' at the same level as the project's root directory).

Symbian Capabilities: Due to the direct dependency to the mSense Middleware the application needs at least the same capabilities as the middleware library – ReadDeviceData, WriteDeviceData, ReadUserData, WriteUserData, Location, NetworkServices and UserEnvironment.

Facebook Connect: For designing Facebook Applications an application key and also an application secret key is needed. For this showcase we have already registered an application called *mSenseContextTest*. The specific keys need to be defined in the global key file 'src/api_keys.h' (already done).

Google Reverse Geo-Coding and Google Maps: For reverse geo-coding (get position description or address data for the current GPS position) the Google Reverse Geo-Coding Service is used. Therefore a Google API Key is needed. The same applies to get a map image for the current location via Google Maps (the map image is additionally appended to the personal status information published at Facebook). In case of the Demo-Application we use the Google API key from the mSense Middleware – if not already done, you have to register your own Google API Key (<http://code.google.com/intl/en-EN/apis/maps/signup.html>) and define it in the global key file 'src/api_keys.h'.

Screenshots:



In the *General Settings* Screen it is possible to setup the configuration of the Demo-Application. If you want to share your current context information on Facebook, you first need to login to the platform. This can be done with any registered Facebook account.

After this you can start sensing context information (within the current example we will sense the movement status, actual position information and availability data based on calendar and phone profile settings). Concerning the position information you can either use a simulated location or the actual real position as provided by the device's GPS receiver. To finally share the personal context information, click the *FB Sharing* Button. A preview with your current context data is shown, containing

- your position information as retrieved via the reverse geo-coding sensor (also integrated in a Google Maps image),
- your movement status with the current speed (as provided by the GPS Signal and an additional accelerometer),
- your availability data (like for example: appointment from 14:45 till 15:30 with particular description from the calendar).

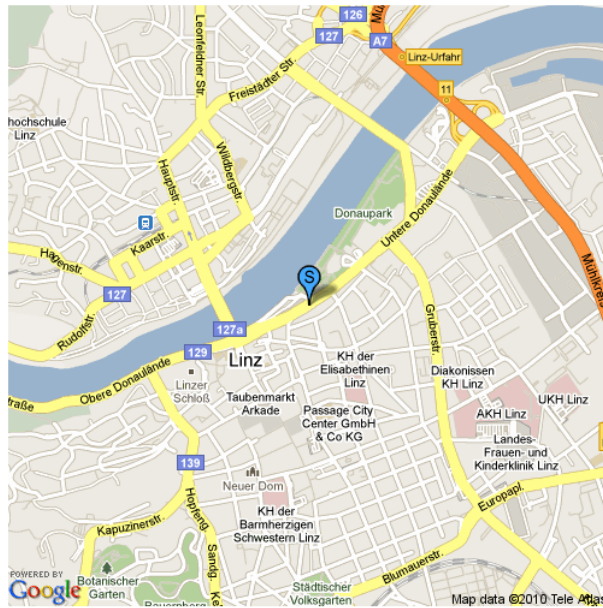
It is also possible to add a personal comment to the current context information in the text field above. By pressing the *Publish* Button your personal status is shared on your Facebook account.

The screenshot shows a Facebook post interface for Daniel Rothbauer. At the top, it says "Daniel Rothbauer test über mSenseContextSharing - letzten Donnerstag löschen". Below this are navigation tabs: "Pinnwand", "Info", "Fotos", "Links", "Veranstaltungen", "Felder", and a "+" icon. A text input field contains the placeholder "Was machst du gerade?". Below the input field are icons for attachments (photo, video, calendar, document) and a "Teilen" button. To the right of the input field is a search icon and the text "Optionen".

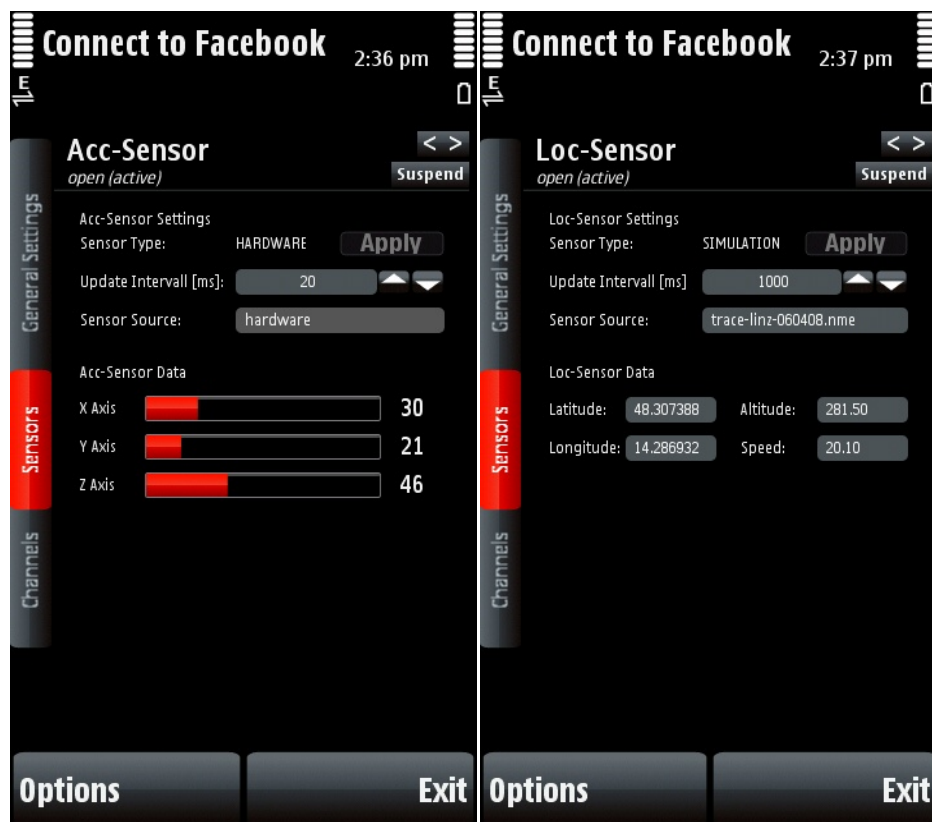
The post content includes a profile picture of Daniel Rothbauer, a small map image, and the following text:

Hi, my current status is:
 User is driving outdoor - current speed: 92.52 km/h. Don't disturb me, because of: APPOINTMENT: from 2010-01-27T14:40:00 to: 2010-01-27T15:09:00 Desc: Some description data for the current meeting. I am currently at: Adlegasse 6, 4020 Linz, Austria University of Arts and Industrial Design Linz, 4020 Linz, Austria Hauptplatz, 4020 Linz, Austria Obere Donaulände (Nibelungenbrücke), 4020 Linz, Austria Rechte Donaustraße, 4020 Linz, Austria Obere Donaulände (Hofberg), 4020 Linz, Austria Hinsenkampplatz (Donautor), 4040 Linz, Austria 4020 Linz, Austria Linz, Austria Linz, Austria
 another link: [Facebook home page](#)

At the bottom of the post, it says "vor 55 Minuten über mSenseContextSharing" followed by a lock icon and the text "Kommentieren · Gefällt mir".



The two screenshots above visualize the published data integrated into a Facebook Profile, containing all sensed information about the current context. Sometimes when clicking the link on the map, it is possible that Google Map responds with a key error. This is a known bug, simple reloading the link URL to show the map should work.



The two last screenshots show some general data views of different sensors (acceleration sensor and simulated GPS location sensor).