

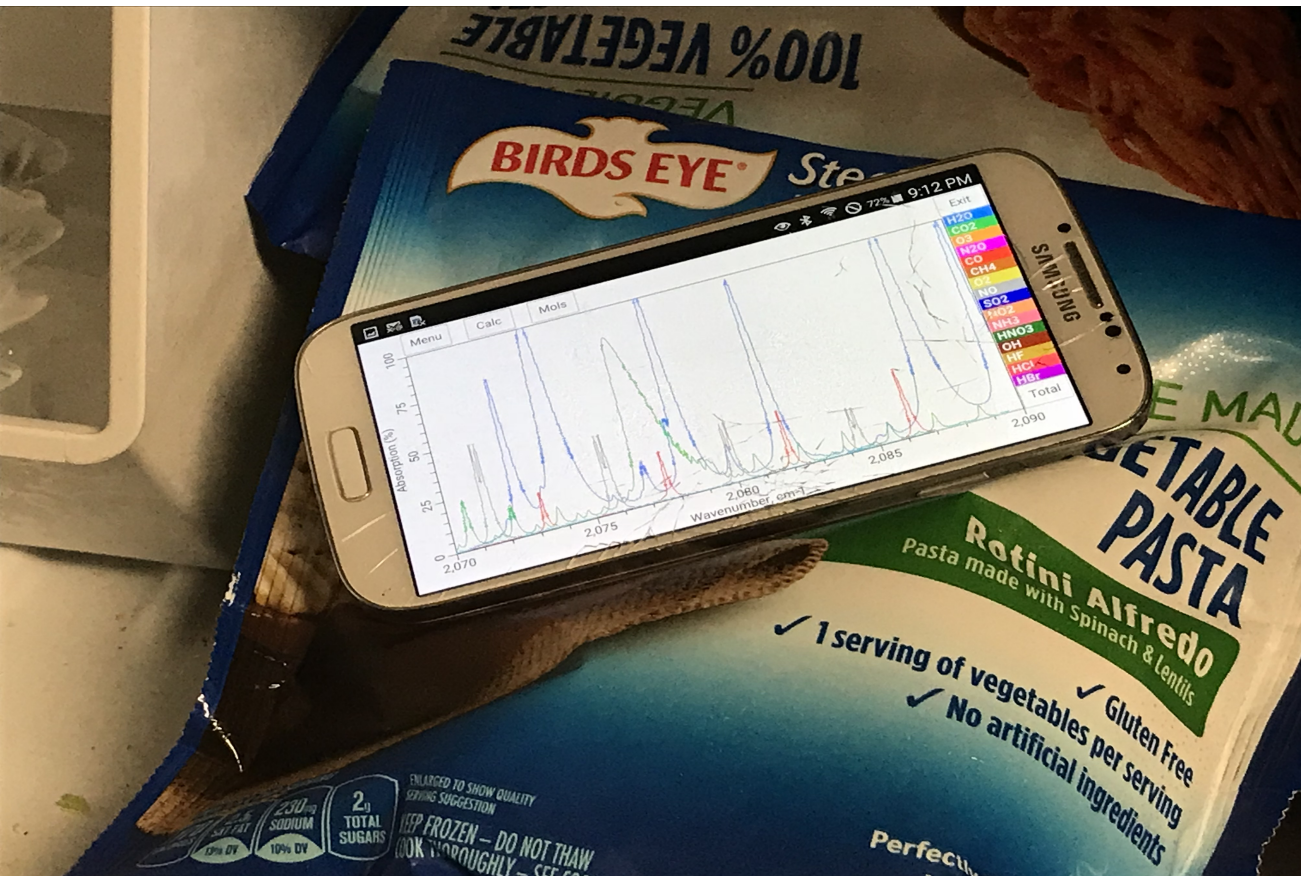
Expanding bytran capabilities with hardware sensors and device interconnect

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Modeling based on Hardware sensors (Pressure, Temperature, Humidity)

Cell phone built in sensors

Due to the current Qt limitations cell phone sensor support is limited.



Built in cell phone sensors currently not supported under iOS.

Only Barometer and Thermometer are accessible under Android.

Raspberry Pi's Sense Hat

Support planned for version 1.3 of bytran



Sense Hat typical accuracies: barometer - 10 to 100 Pa, thermometer - < 0.5 °C, humidity - 3.5%

TI's SensorTag

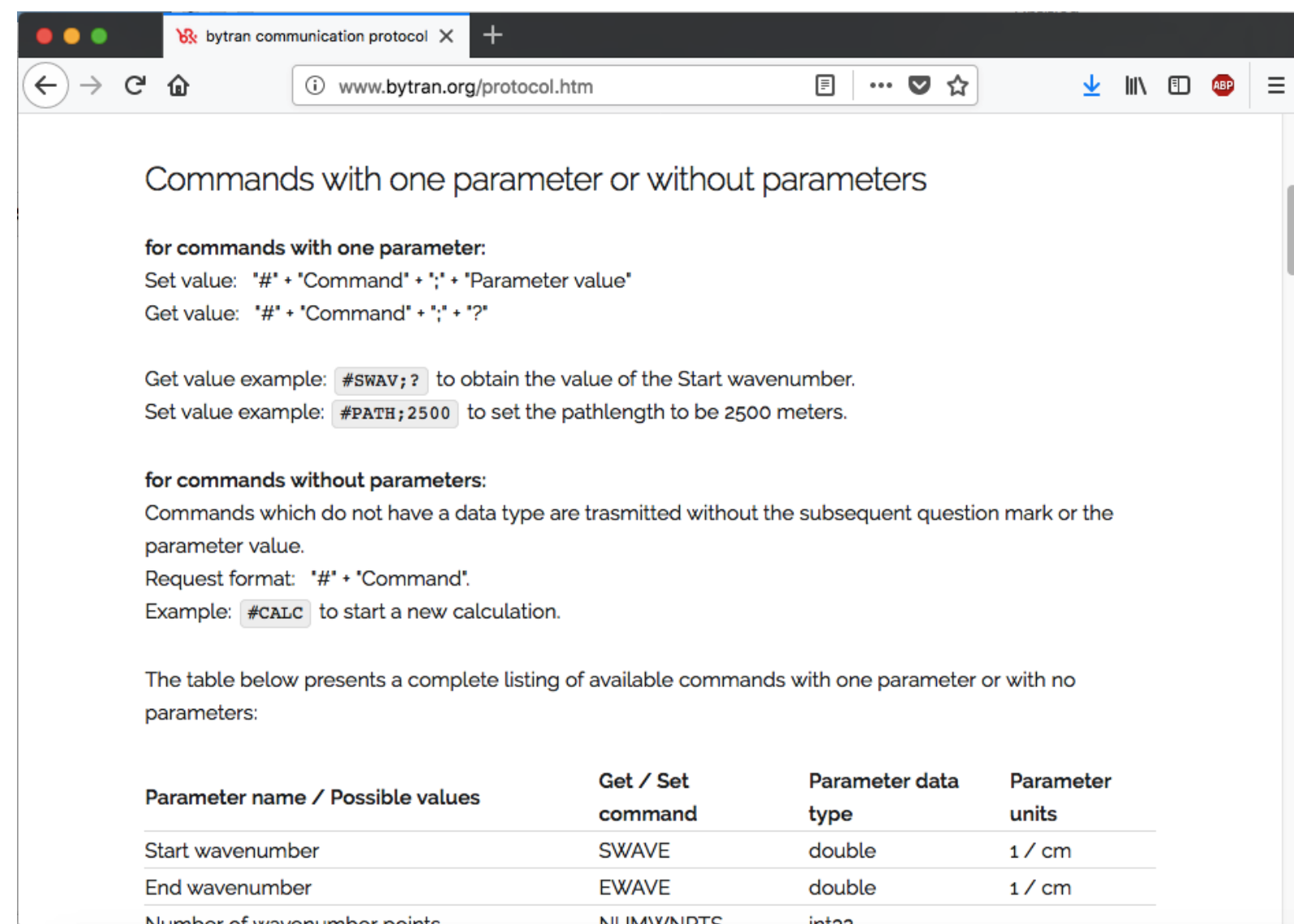
Available in current release (bytran 1.2)



Remote execution of bytran and data retrieval

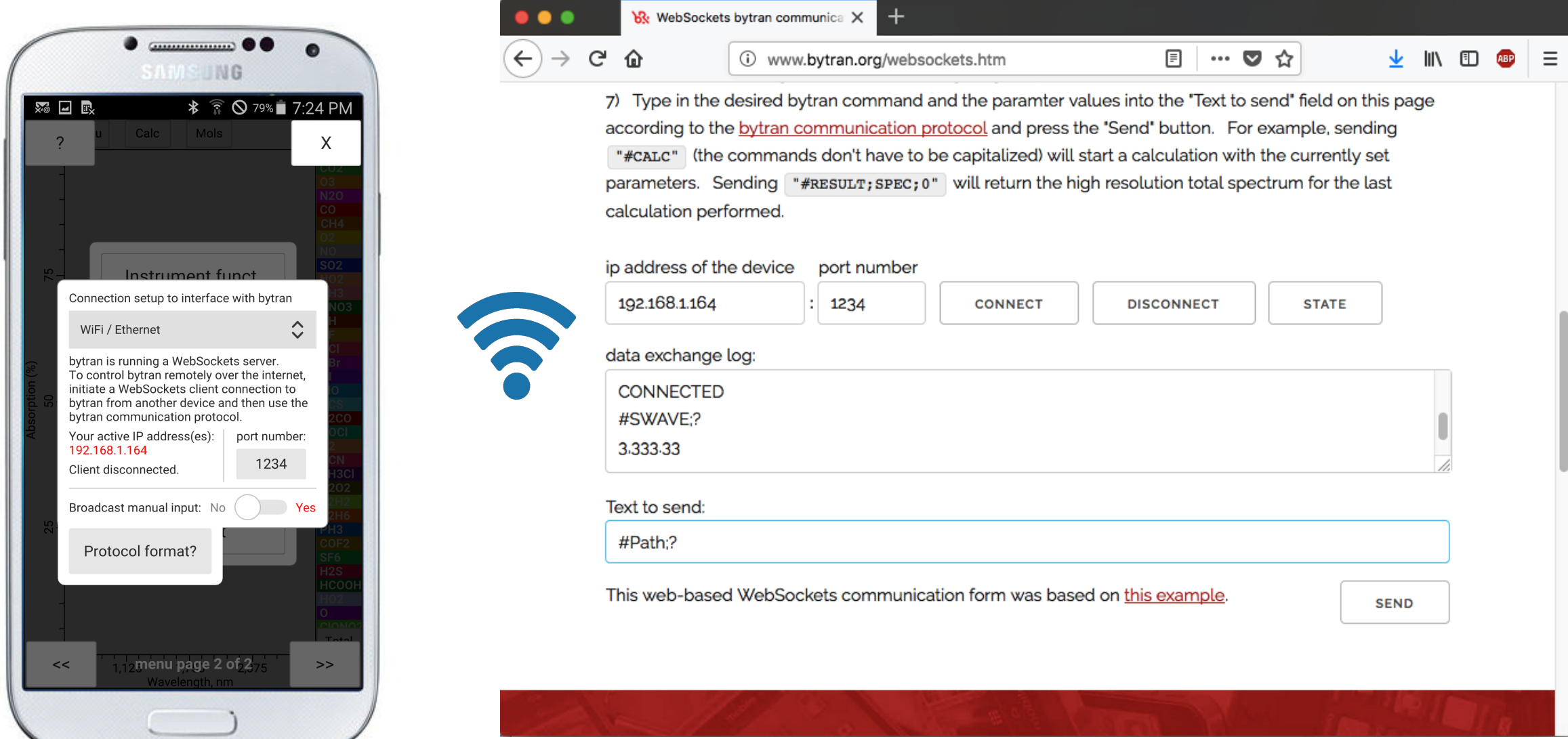
Communication protocol

Simple text-based communication protocol



WiFi / Ethernet

WiFi / Ethernet communication using WebSockets protocol (may be implemented using HTML5 and JavaScript, i.e. web-based applications)

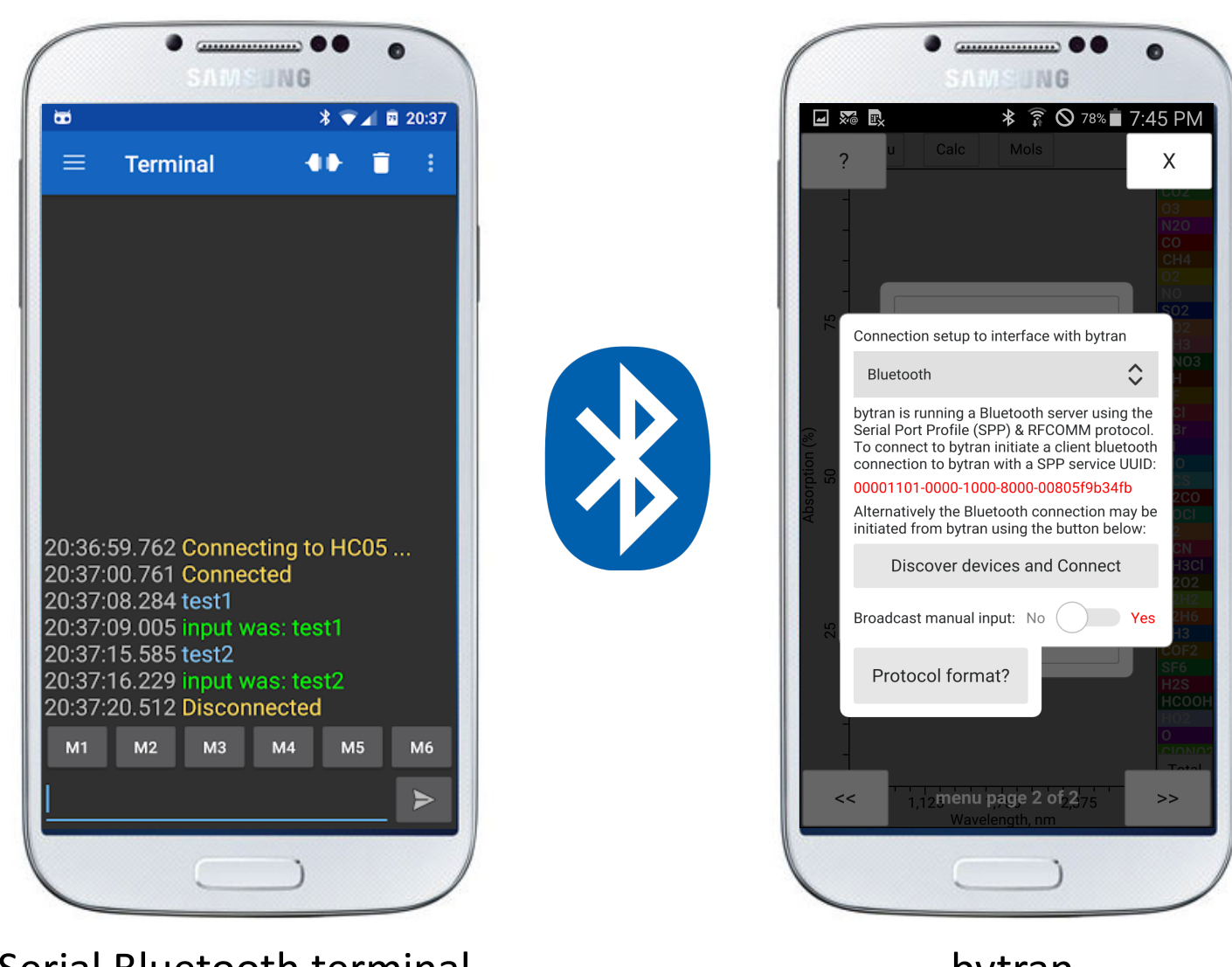


Bluetooth

Based on the Bluetooth Serial Port Profile (SPP), easy to implement. May be tested using Bluetooth terminal applications.

Functionality may be tested using:

Serial Bluetooth terminal

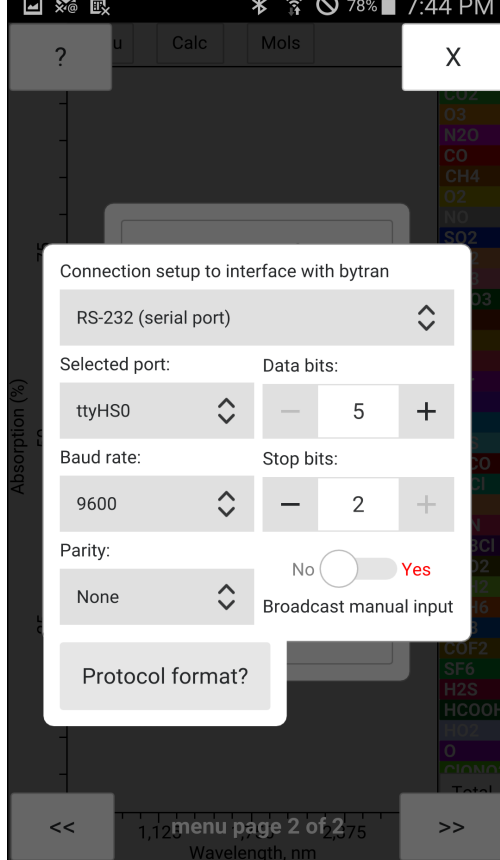


Serial Bluetooth terminal

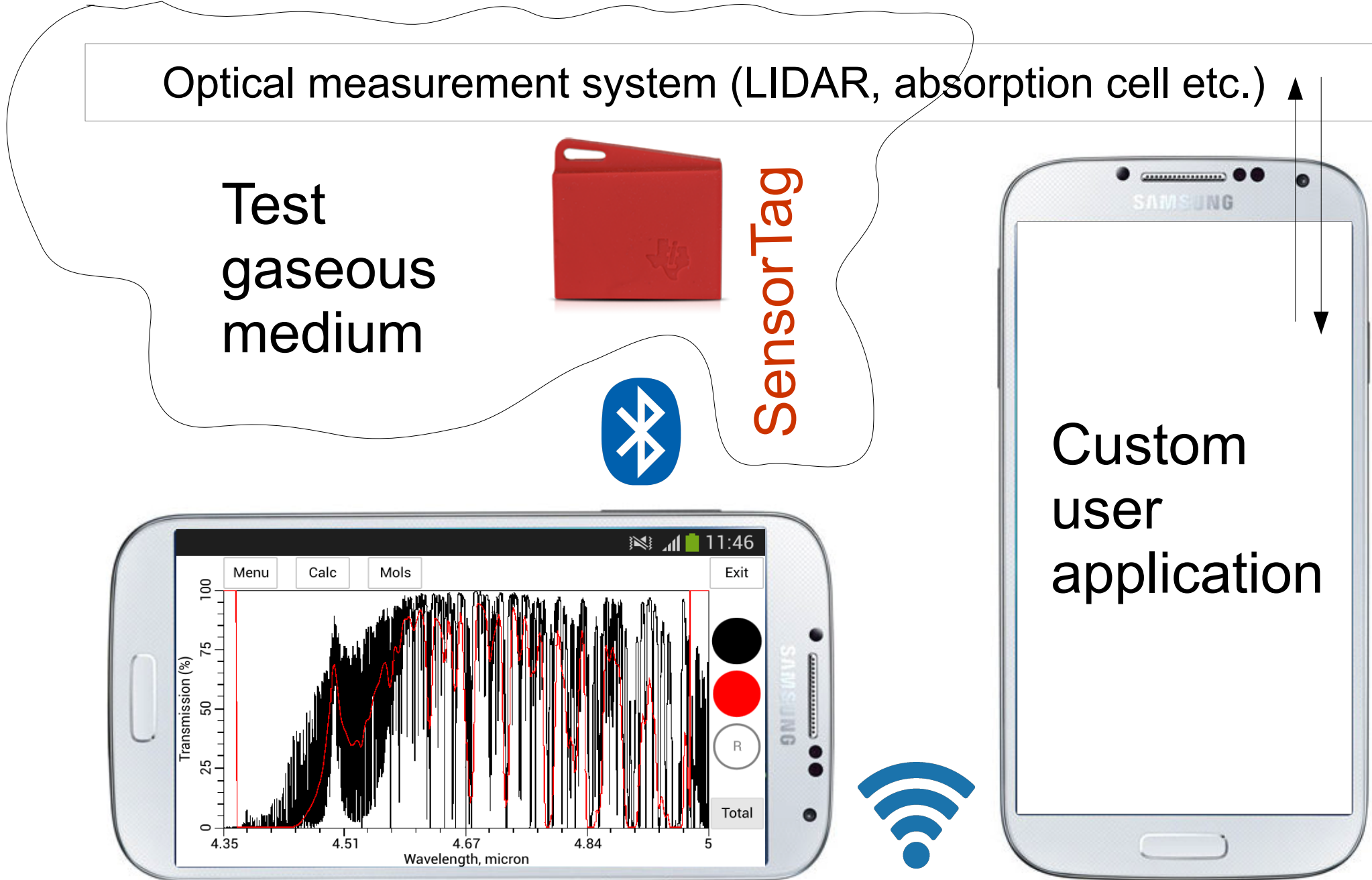
bytran

Serial port

For wired data exchange under desktop and other Linux-based hardware



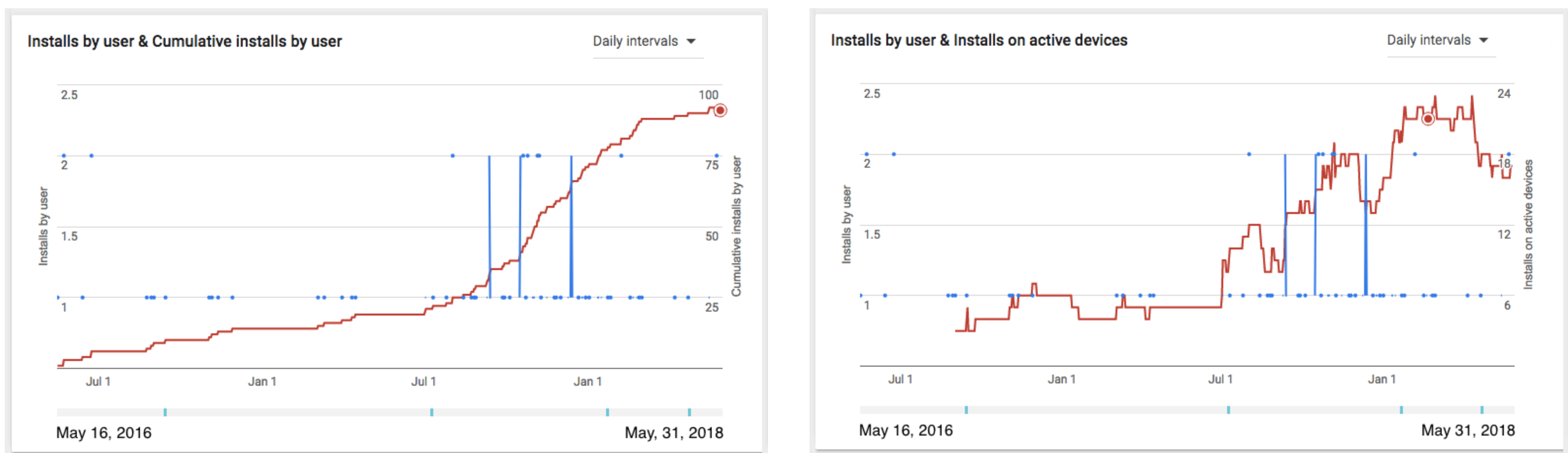
Future example usage



bytran to calculate absorption for given pressure, temperature (and possibly facilitate water vapor correction)

Installation statistics

Installation and retention statistics under the Android operating system



Possible future HAPI integration support

PySide to be included into Qt to possibly allow a hybrid application with the bytran interface using HAPI's Python computational code.

Advantage of PySide is that it may be distributed under the GNU Lesser General Public License (LGPL) allowing integration into commercial software products without the need in purchasing license (in contrast to PyQt).
Near term future plans: bug fixes, code optimization and Hartmann-Tran profile integration