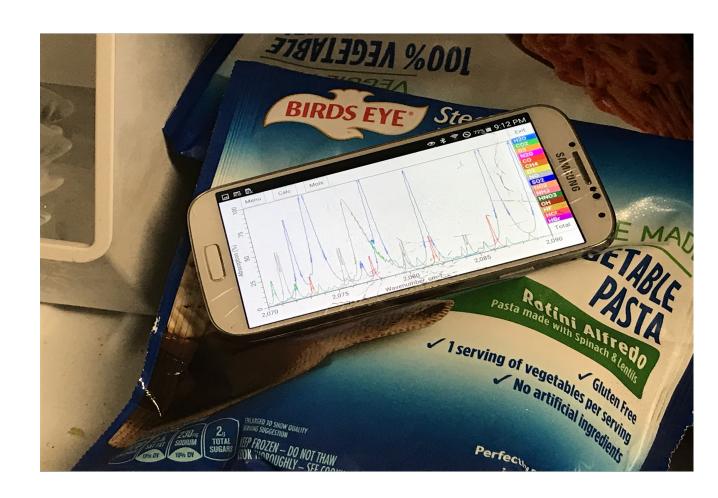
Expanding bytran capabilities with hardware sensors and device interconnect Denis Pliutau - bytran.org, 1083 Independence Blvd, P.O. Box 134, Virginia Beach, VA 23455

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.

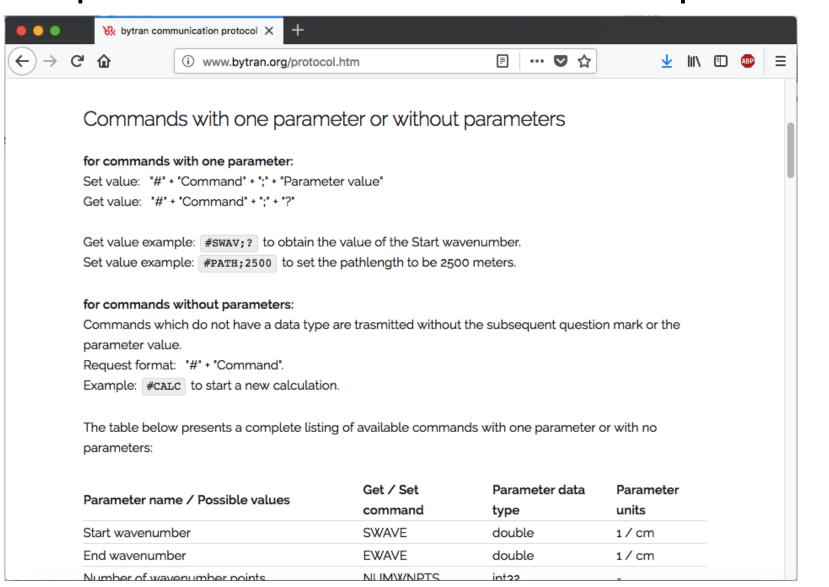


Built in cell phone sensors currently not supported under iOS.

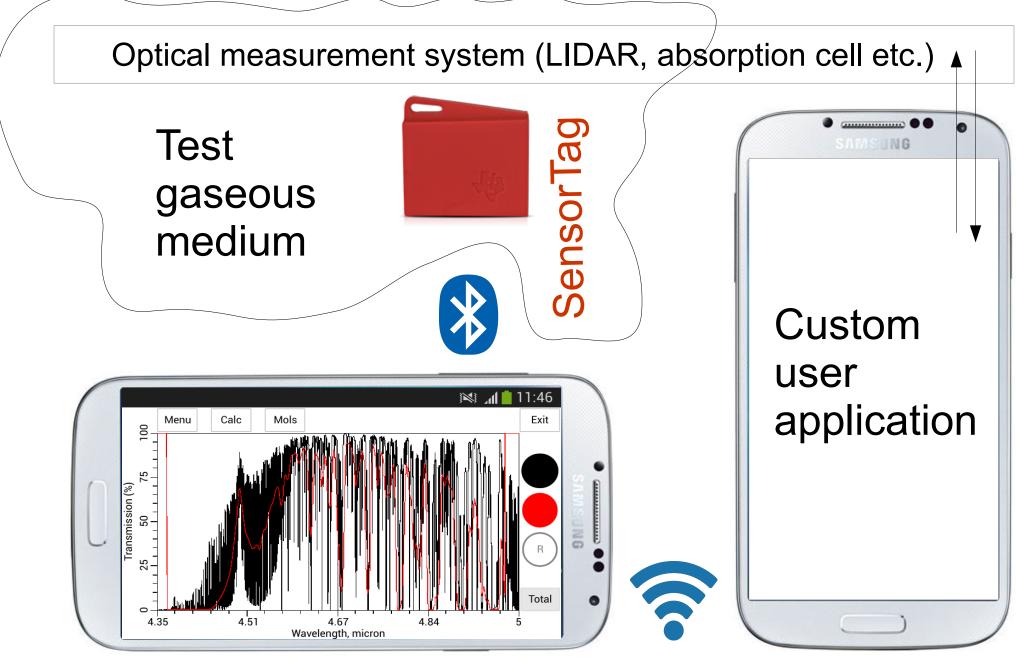
Only Barometer and Thermometer are accessible under Android.

Communication protocol

Simple text-based communication protocol



Future example usage



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

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%

Remote execution of bytran and data retrieval

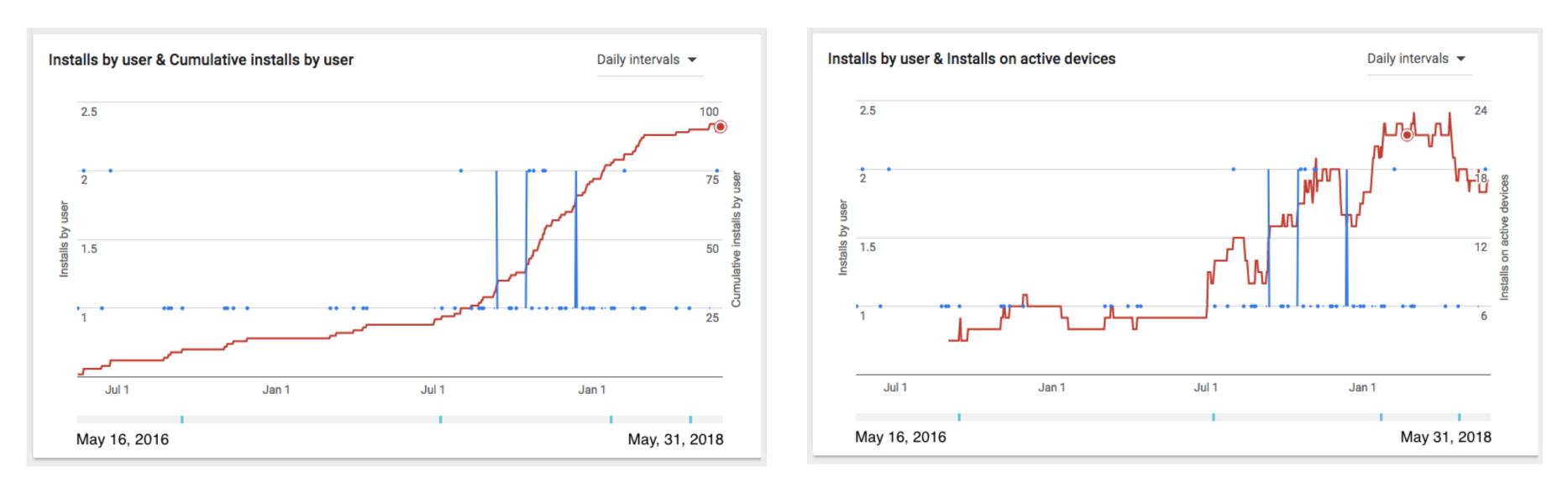
WiFi / Ethernet

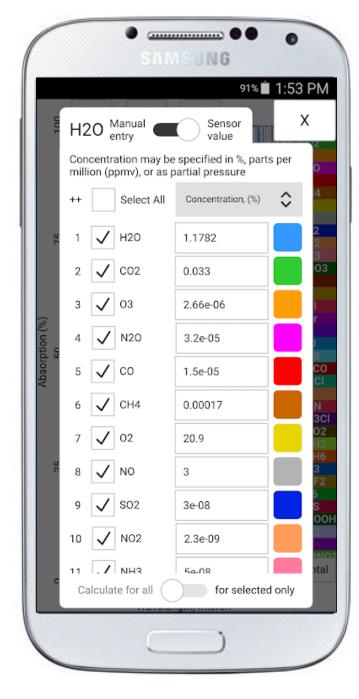
WiFi / Ethernet communication using WebSockets protocol (may be implemented using HTML5 and JavaScript, i.e. web-based applications)

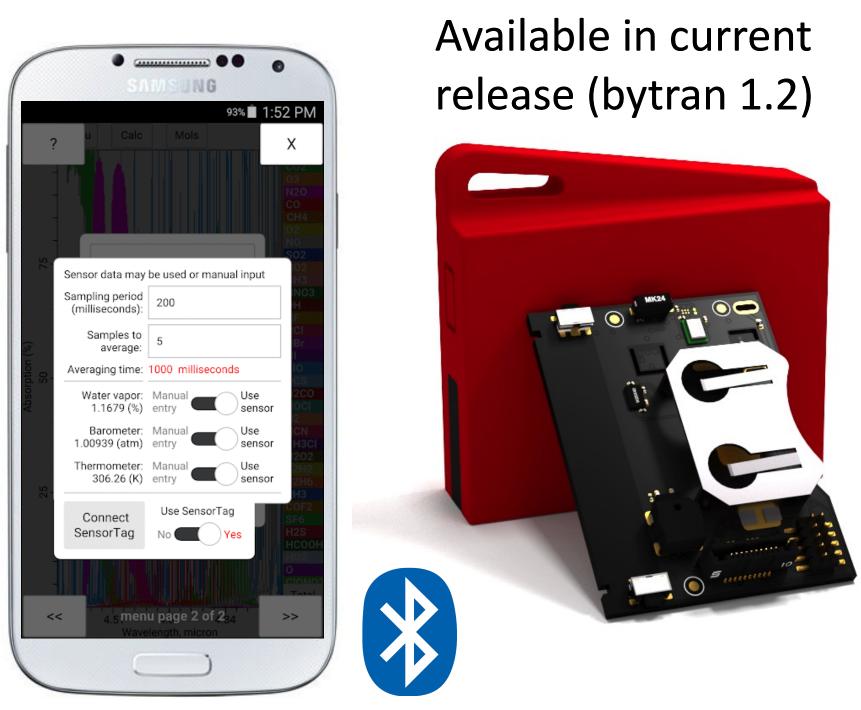
	🛑 🔵 🌒 😽 WebSock	tets bytran communica 🗙 🕂		
	← → ♂ ☆	i www.bytran.org/websockets.htm	▣ 🔤 🕶 🛇 🏠	👱 III\ 🗊 🐠
Image: Second secon	according to t "#CALC" (th	e desired bytran command and the paramter the <u>bytran communication protocol</u> and press the commands don't have to be capitalized) will Sending "#RESULT; SPEC; 0" will return the lear formed.	the "Send" button. For example, Il start a calculation with the curre	sending ntly set
R Instrument funct	ip address of	the device port number		
Connection setup to interface with bytran	192.168.1.164	4 : 1234 CONNECT	DISCONNECT STAT	ГЕ
WiFi / Ethernet Image: Constraint of the second	data exchang CONNECTE #SWAVE;? 3.333.33	<u> </u>		
Broadcast manual input: No Yes 246	Text to send:			
Protocol format?	#Path;?			
<	This web-bas	ed WebSockets communication form was ba	sed on <u>this example</u> .	SEND
	Carlin /	all a state of the	Coral Prove	In I WILLIA

Installation statistics

Installation and retention statistics under the Android operating system





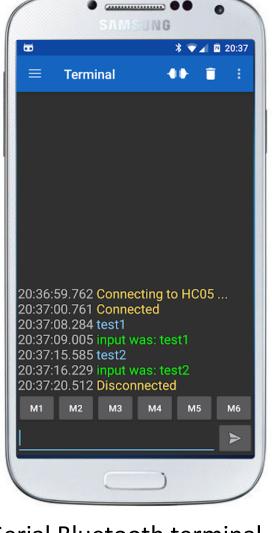


Bluetooth

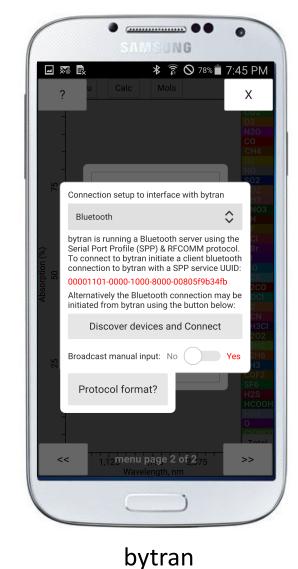
Based on the Bluetooth Serial Port Profile (SPP), easy to implement. May be tested using Bluetooth terminal applications.

Functionality may be tested using:

Serial Bluetooth terminal



Serial Bluetooth terminal



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 Near termin further of the Prof. fixes, code optimization and Hartmann-Tran profile integration

TI's SensorTag



Serial port

For wired data exchange under desktop and other Linux-based

