

EAN 0604220146380

UserBot is an Arduino shield that allows the user to create their own custom GroLab module, with the desired support for devices and sensors. The only required ingredients are a bit of coding/electronics skills and a lot of imagination.

UserBot shield connects the Arduino, without the need for any external power, as well as the users' electronics and devices and sensors to GroLab.

This is a Plug'n'Play shield for Arduino that allows it to interface with whatever sensor or device users may need. With this, all extra features are user-defined.

Create numerous custom modules like remote control and set the desired action for each button (like turning some device ON/OFF), make portable sensors (pH, EC, temperature, CO2...), add support to infrared/Bluetooth, and start controlling third-party devices and sensors...

If it's needed to control a lamp, then use a relay, if it's needed to sample an analog voltage for any purpose, use Arduino analog pins or an external ADC.

In addition, UserBot contains all the necessary Radio Frequency (RF) communications and a complete breakout board for sensors and circuits.

In this way, if it is necessary to add more peripherals, sensors, or even spare parts to help get the most out of GroLab, please consult the nearest specialized store (**opengrow.pt/store-locator**) or check out our online shop at: **opengrow.pt/shop**.



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UserBot Specifications			
Hardware	HW01	SMD Sockets	1 x SOIC16
Dimensions	68.6mm x 53.4mm x 20.01mm (2.1in x 2.98in x 0.89in)		2 x TSSOP 8 (=) 1 x TSSOP 16 3 x SSOT223
Net weight	~20 grams (~0.71 oz)	THE	2 X SUI26
Exterior	Material: FR-4	TH Sockets	4 x 10-92
Exterior	Color: Green	Expected	>5 years
Daway Concurrentian		Service Life	
Power consumption	ISMA - U.USW	BreakOut Board Spacing	2.54mm - 100mil DIP/1206/0805/0603
Operating Voltage	3.3VDC		
Connections	SMA Female	Inter-Module	Radio Frequency - 2.4GHz
	Female Pin Headers (Arduino connection/extension)	Communication	
		Includes	Antenna
		Warranty	3-year limited hardware warranty



MAIN FEATURES



ARDUINO COMPATIBLE

UserBot is fully compatible with Arduino, allowing the users to integrate their electronics code into the GroLab system. It follows the shield's standard design, making it easy to install into an Arduino.



OPEN SOURCE CODE

The base code for UserBot is Open Source and it is available in the official Open Grow's repository in GitHub*. It already contains some examples, but the real magic will happen with the user's hands. *Official Open Grow's repository in GitHub: https://github.com/OpenWeGrow/UserBot



COMPONENTS COMPATIBILITY

Since UserBot is fully compatible with Arduino, it means that users are free to use any component that works with Arduino, meaning that the users can go as far as their imagination allows.



CUSTOM FEATURES

As the user is free to use any device that works with the GroLab system, he will be responsible for a large part of the characteristics that his module will have.



SECURITY PROTOCOLS

It is possible to create complex security protocols using alarms (one of the main programmable procedures type). GroLab provides several options, that can be fully customizable through the software, to prevent, notify or even react to risk situations. One of the possible reactions is to suspend some parts or even the whole system until the user gives the order to continue.



MODULE COMMUNICATION

UserBot communicates with GroNode (the system's core module) through radio frequency with a range of 25 meters (82 feet) indoors (depending on obstacles) and 100 meters (328 feet) in open spaces. This makes it easy to install the UserBot on your growing area or even on the outside.



MONITOR & ANALYSIS

Using GroLab Software the user can monitor and analyze the climate variables and the device's current state in real time. The software provides you notifications, charts, and grow(s) overview and even allows you to export the sensors/devices values from the beginning of your grow(s) life cycle.



NOTIFICATIONS

When you provide an Internet connection to GroNode it can send real-time alerts and updates to your e-mail, keeping you updated about the state of your grow(s) anywhere, anytime. You just need to permit GroNode to access the Internet, and configure it to notify you in case of any issue arises.

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FREE FIRMWARE UPDATES

One of the advantages of a digital system is the ability to receive updates that can be easily applied. With this in mind, the Open Grow team works every day to correct any reported/discovered bugs, as well as to improve and add new functionalities to the GroLab system (software and modules). These updates are free and, in the case of the UserBot, are quickly obtained from the Open Grow repository on GitHub and merged with the user code.



REMOTE CONTROL

Connecting the GroNode to a router with an Internet connection allows you to activate the GroLab system's remote control. This feature grants user access from anywhere at any time through the GroLab Software, allowing complete control of all the modules, including UserBot.

CONFIGURATION EXAMPLES

CONFIGURATION 1 (Figure 1):

In the illustrated configuration, UserBot installed on an Arduino controls four lines on an electrical panel via relays, activating and deactivating lighting and extraction systems in a grow room — with two lines free for future expansions. It simultaneously manages a solenoid valve for automatic filling and three peristaltic pumps: one for pH regulation and two for dosing nutrients A and B. At the same time, it collects data from the GroLab[™] CO₂ Compact Sensor, ensuring integrated monitoring and automated control of the growing environment. This example highlights UserBot's versatility in managing multiple devices within a fully customizable module, simplifying advanced automation.



Figure 1 - UserBot Outputs + GroLab CO2 Compact

You can find a similar example code to run this scenario at:

https://github.com/OpenWeGrow/UserBot/tree/master/examples/OpenGrow/UserBot-8Outputs-DHT

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CONFIGURATION 2 (Figure 2):

The configuration shown below connects your Arduino to a MOSFET transistor in order to control the speed of a motor. This setup can control a motor's speed, useful for ventilation or nutrient delivery systems. The GroLab Software allows you to set a defined speed for each output, expanding the control capabilities of DC motors with GroLab.



Figure 2 - UserBot DC Motor Example Schematics

You can find all the necessary example code to run this scenario at:

https://github.com/OpenWeGrow/UserBot/tree/master/examples/OpenGrow/UserBot-DCMotor

USEFUL TIPS

To facilitate and avoid possible issues, please find below some tips regarding the installation of UserBot.

> UserBot offers some extra security features, one of which is the "Cooldown Time", which prevents damage to devices like HPS lamps that need some time to cool down before turning them ON.

> To keep the UserBot always updated, we recommend that the user make a periodic check to the Open Grow repository on GitHub.

Some of the Arduino pins are dedicated to controlling the RF chip on the shield. Refer to the **OpenWeGrow/UserBot** repository description for more information.

For better wireless communication

> Ensure that the maximum distance between UserBot and GroNode is not exceeded, typically 25 meters (82 feet) indoors and 100 meters (328 feet) in open areas. In addition, avoid obstacles between UserBot and GroNode.

> Do not install the UserBot near other equipment that communicates wirelessly (including GroLab modules), ensuring a minimum of 20 centimeters (0.66 feet) between equipment.

> Make sure antennas are screwed on tightly and positioned upward. When the module is installed on the wall, the antenna must be parallel to the wall. If the module is on a surface (a table, for example), the antenna must be perpendicular to the surface.

To increase the lifetime and ensure the best functioning of the UserBot

> Keep the UserBot out of extremely humid areas and prone to contact with water. When installed outdoors, UserBot must be protected from environmental factors.

Perform periodic maintenance to ensure that UserBot remains clean and dust free.

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*Official Open Grow's repository in GitHub: https://github.com/OpenWeGrow/UserBot

COMPLIANCE



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This symbol on the product or packaging means that this product is compliant with RoHS Regulations of the European Parliament and Council Directive on the Restrictions of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (2011/65/EU).

This symbol on the product or packaging means that this product complies with the following directives and regulations: •(2014/53/EU) Radio equipment directive. •(2011/65/EU) RoHS directive. •(2014/35/EU) Low voltage directive. •(2014/30/EU) EMC.

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