

Open Hardware/Modding Projects

By *Roy Schestowitz*

Created 27/09/2021 - 4:35pm

Submitted by Roy Schestowitz on Monday 27th of September 2021 04:35:04 PM Filed under [Development](#) [1]

[Hardware](#) [2]

- [ANAVI Gardening uHAT adds soil and other sensors to Raspberry Pi \(Crowdfunding\) - CNX Software](#)[3]

We've been covering and reviewing ANAVI open-source hardware boards for several years now, either standalone boards based on ESP8266, or add-on boards for Raspberry Pi.

The ANAVI Gardening uHAT is the latest board from Leon Anavi. It is a micro HAT designed for Raspberry Pi Zero to Raspberry Pi 4 SBCs that offers interfaces for soil sensors and other environmental sensors allowing measurements of soil moisture, atmospheric pressure and humidity, temperature with a waterproof sensor, and light intensity for gardening applications.

- [ZB-GW03 ESP32-based Ethernet Zigbee gateway works with Tasmota firmware - CNX Software](#)[4]

ZB-GW03 is an Ethernet Zigbee Gateway compatible with eWelink mobile app and with a design similar to SONOFF ZBBridge gateway but replacing ESP8266 SoC by ESP32 SoC, and adding an Ethernet port.

The ZB-GW03 gateway is apparently based on the same Silicon Labs EFR32MG21 Zigbee Arm Cortex-M33 chip and has been hacked to run Tasmota open-source software for people preferring more flexibility and/or integration with OpenHAB or Home Assistant open-source home automation frameworks via Zigbee2MQTT.

- [Arduino Orchestra Plays The Planets Suite | Hackaday](#) [5]

We've seen a great many Arduino synthesizer projects over the years. We love to see a single Arduino bleeping out some monophonic notes. From there, many hackers catch the bug and the sky is truly the limit. [Kevin] is one such hacker who now has an Arduino orchestra capable of playing all seven movements of Gustav Holst's Planets Suite.

The performers are not human beings with expensive instruments, but simple microcontrollers running code hewn by [Kevin's] own fingertips. The full orchestra consists of 11 Arduino Nanos, 6 Arduino Unos, 1 Arduino Pro Mini, 1 Adafruit Feather 32u4, and finally, a Raspberry Pi.

- [3D Printed Research Robotics Platform Runs Remotely | Hackaday](#) [6]

By patching Ubuntu Linux, and enabling preemptive multitasking for real-time scheduling, as well as carefully selecting Wi-Fi drivers, it was possible to get raw packets out to robot in about 1 ms, enabling control loop bandwidths of around 1 Khz. And, that, was fast enough to run at least sixteen motors in parallel.

- [Automated Window Blinds Using MQTT And Home Assistant | Hackaday](#) [7]

Finnish software engineer [Toni] is on a quest to modernize his 1991 house, and his latest project was to automate the window blinds and control them using Home Assistant. Unless your blinds have built-in motors, most of the effort of such a project centers around how to integrate and attach the motor ? and as [Toni] points out, there are tons of different blinds with all kinds of operating mechanisms. But once you solve that issue, half the battle is over.

These particular blinds require less than one turn of the control rod to go from fully open to fully closed, and [Toni] selects a 270-degree range-of-motion, 20 kg*cm torque servo motor to drive them. He really wanted to install the motor inside the window, but it just wouldn't fit. Instead, each servo motor is mounted in a custom 3D-printed case installed on the window frame just below the operating rod. An ESP8266-based controller box is installed above the window, hidden behind curtains, and operates all three servos.

[Development Hardware](#)

Source URL: <http://www.tuxmachines.org/node/156151>

Links:

[1] <http://www.tuxmachines.org/taxonomy/term/145>

[2] <http://www.tuxmachines.org/taxonomy/term/39>

[3] <https://www.cnx-software.com/2021/09/27/anavi-gardening-raspberry-pi-soil-sensor/>

[4] <https://www.cnx-software.com/2021/09/27/zb-gw03-esp32-based-ethernet-zigbee-gateway-now-working-with-tasmota-firmware/>

[5] <https://hackaday.com/2021/09/26/arduino-orchestra-plays-the-planets-suite/>

[6] <https://hackaday.com/2021/09/27/3d-printed-research-robotics-platform-runs-remotely/>

[7] <https://hackaday.com/2021/09/26/automated-window-blinds-using-mqtt-and-home-assistant/>