Exotic Device Gets Linux Support Via Wireshark And Rust

What can you do if you have a nice piece of hardware that kinda works out of the box, but doesn’t have support for your operating system to get the full functionality out of it? [Harry Gill] found himself in such a situation with a new all-in-one (AIO) water cooling system. It didn’t technically require any operating system interaction to perform its main task, but things like settings adjustments or reading back statistics were only possible with Windows. He thought it would be nice to have those features in Linux as well, and as the communication is done via USB, figured the obvious solution is to reverse engineer the protocol and simply replicate it.

His first step was to set up a dual boot system (his attempts at running the software in a VM didn’t go very well) which allowed him to capture the USB traffic with Wireshark and USBPcap. Then it would simply be a matter of analyzing the captures and writing some Linux software to make sense of the data. The go-to library for USB tasks would be libusb, which has bindings for plenty of languages, but as an avid Rust user, that choice was never really an issue anyway.

RAK7431 RS485 Bridge Relays ModBUS Data over the LoRaWAN Network

Last year with covered Dragino RS485-LN RS485 to LoRaWAN converter that extends the range of RS485 wirelessly up to 15+km thanks to LoRaWAN connectivity. Rakwireless has
now launched a similar product with RAK7431 Modbus RS485 to LoRaWAN bridge.

* **Samsung Galaxy Watch 3: Finally, a great smartwatch from someone other than Apple** [5]

While there are plenty of smartwatches out there, most of them are about fitness first. And, frankly, that's not my first priority. I wanted a watch with great health-monitoring sensors and health apps. That's exactly what Samsung's latest smartwatch gives me.

Thanks to its photoplethysmography (PPG) sensor with 8 pulse-reading optical photodiodes, the Galaxy Watch can monitor your pulse and much more. It works as a single-lead electrocardiogram (EKG or ECG); as an oximeter to measure your oxygen level; and as a sphygmomanometer to track your blood pressure.

That's the good news. The bad news is that, although the US Food and Drug Administration (FDA) has approved its EKG functionality for Class II use, which is as a non-critical medical device, it hasn't released the application in the US yet. It is already available in South Korea. The EKG app is expected to be available in the States later this year.

* **Assortment of tech solutions enable the Smart Home** [6]

IoT-Leveraged Living Spaces From preventive maintenance for appliances to voice-controlled lighting, the subsystems that comprise a modern Smart Home continue to evolve. Providing the building blocks for these implementations, IC vendors are keeping pace with specialized MCUs, sensors platforms and embedded software to meet diverse requirements. The evolution of Smart Homes is about more than pure convenience. Smart Home technologies are leveraging IoT concepts to improve energy efficiency and security, thanks to intelligent, connected devices. The topic encompasses things like power-saving motor control systems, predictive maintenance, cloud-based voice assistance, remote monitoring and more. Clearly the market is an attractive one. According to the latest Smart Home Device Database from market research firm IHS Markit, the global Smart Home market is forecast to grow by nearly a factor of five to reach more than $192 billion in 2023, up from $41 billion in 2018 (Figure 1). The report says that the fastest-growing device types in the market include lighting, smart speakers and connected major home appliances. FIGURE 1 - According to research from IHS Markit, the global Smart Home market is forecast to grow by nearly a factor of five to reach more than $192 billion in 2023, up from $41 billion in 2018.

* **Whiskey Lake thin Mini-ITX SBC boasts eight USB ports** [7]

Advantech's AIMB-233 is a thin Mini-ITX SBC that runs Linux on 8th Gen Whiskey Lake CPUs. The board serves up 32GB DDR4 DRAM, triple HDMI displays support, 2x GbE, 8x
Advantech has released its AIMB-233, a low-profile industrial-grade thin Mini-ITX SBC. The AIMB-233 is powered by a Whiskey Lake 8th Gen. Intel Core processor. The board supports Linux and Windows, as well as Advantech's own SUSIAccess remote management software. It also supports Advantech's WISE-PasS/RMM and Embedded Software APIs. The fanless board features a thin 25mm profile and a wide operating temperature of -20 to 70 °C.