Open Hardware: Arduino, Raspberry Pi, and RISC-V/ESP32-C3

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If you look at your car?​s dashboard, there?​s a good chance you?ll find an efficiency rating for how you?re driving. However, what if you instead ride a hoverboard? This functionality is certainly not stock equipment, yet Niklas Roy wanted to understand the power consumption of his transporter during different riding situations. For that reason, he decided to develop a power monitor that not only graphs his stats when scooting around, but records the data for later viewing and analysis.

Roy?​s handheld device is controlled by an Arduino Nano and utilizes a Hall effect ammeter for current sensing. The measurements are shown as numbers and as oscillograms on a 1.8?
TFT screen, which can also be logged to the display’s built-in SD card. An RTC module provides timestamp information for these readings, which can be produced using Processing and overlaid on video.

- **STM32U5 Cortex-M33 MCU gets more performance, 2D graphics accelerator, and advanced security** [3]

  The new family has a higher 160 MHz clock speed, up to 2048 KB flash, up to 786 KB RAM, a 2D graphics accelerator, several peripherals have been upgraded, and a new autonomous mode lets DMA and peripherals keep working while most of the device sleeps in order to save power.

  [...]

  The board also comes with 512-Mbit octal-SPI Flash memory, 64-Mbit octal-SPI PSRAM, 256-Kbit I2C EEPROM, as well as ARDUINO Uno V3, STMod+, and Pmod expansion connectors, plus an expansion connector for a camera module, and STLink-V3E embedded debugger.

- **Pi Day at the Raspberry Pi Foundation** [4]

- **Hello RISC-V! We got samples of the new ESP32-C3 module and it is only 13×17 mm** [5]

  We got some engineering samples of ESP32-C3 modules.

**Hardware**

**Source URL:** [http://www.tuxmachines.org/node/148212](http://www.tuxmachines.org/node/148212)

**Links:**
5. [https://olimex.wordpress.com/2021/02/23/hello-risc-v-we-got-samples-of-the-new-esp32-c3-module-and-it-is-only-13x17-mm/](https://olimex.wordpress.com/2021/02/23/hello-risc-v-we-got-samples-of-the-new-esp32-c3-module-and-it-is-only-13x17-mm/)