Open Hardware/Modding: Ubuntu Frame/OSK, Librem, and Arduino

By Roy Schestowitz
Created 26/02/2022 - 12:34am

 Isn’t it nice when things just work? When you don’t have to worry about every single detail but only about what creates value? Imagine that you are building a digital kiosk using a touch screen. To log in, users need to input their credentials. Do you want to spend time integrating an on-screen keyboard or rather work on your application?

Yes, how difficult is it to integrate a javascript-based on-screen keyboard (OSK), for example? While managing external code adds complexity to the longevity of big deployment (should we all start looking again where we integrated Log4j?), it is not that difficult to do such integrations to your application. But what if your application is running an external service? Imagine that you want to run an external authentication system like Azure or Google. Then your application will be making API calls to a hosted service on an external server where you can no longer integrate your javascript. Sounds complicated? But most importantly, why should you worry about it in the first place?

Following up on our report for Linux 5.16 this summarizes the progress on mainline support for the Librem 5 phone and its development kit during the 5.17 development cycle. This
summary is only about code flowing upstream.

- [James Bruton’s strange bicycle robot self-balances with an omni wheel | Arduino Blog][5]

  Omni wheels, sometimes referred to by the trademarked Mecanum name, are special wheels lined with rollers. Thanks to the orientation of the rollers, a vehicle equipped with four omni wheels (each driven independently) can move in any direction by vectoring each wheel relative to the others. A typical setup includes four omni wheels, but James Bruton proved that even a single one is useful when he built this strange self-balancing bicycle robot.

  This robot is part of a larger project exploring full-sized self-balancing bicycles. It's a small robot meant for experimenting with some unusual concepts. The front wheel is an omni wheel with its own motor and an axle that is perpendicular to that of the rear wheel, which is a conventional wheel driven by a second motor. The orientation of the omni wheel means that the robot can move the front end left and right easily, providing the inverted pendulum dynamic for self-balancing. When the robot needs to drive forward or backward, the rear motor provides propulsion and the omni wheel rollers spin freely.

- [Check the weather from indoors with this MKR WiFi 1010-controlled contraption | Arduino Blog][6]

  Going outside to see the weather is time consuming and merely looking at a phone gets boring, which is what inspired YouTuber Mikey Makes to build a fun weather-telling device that displays the current conditions in a new format. Owing to his love of the old BBC weather symbols, which were placed on physical stickers rather than a computer screen, Mikey Makes wanted to replicate them and physically swap out various components in a mechanical fashion.

---

**Development Hardware**

**Source URL:** [http://www.tuxmachines.org/node/161865](http://www.tuxmachines.org/node/161865)

**Links:**
[3] [https://ubuntu.com/blog/developing-guis-for-iot-is-easier-with-ubuntu-frame-on-screen-keyboard](https://ubuntu.com/blog/developing-guis-for-iot-is-easier-with-ubuntu-frame-on-screen-keyboard)