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Using Greybus, mikroBus and PocketBeagle to consolidate kernel IoT sensor/actuator development

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Many "*drivers*" for IoT sensors and actuators live outside kernel space through efforts that seek to provide abstractions not sufficiently handled in the kernel today. This is resulting in great code fragmentation that can be resolved by better understanding the developer needs and communicating an achievable collaborative approach. Pushing the interface to these devices off to userspace is not the Linux-way.

We'll look at the problems projects like MRAA/UPM, Adafruit_Blinka and numerous other projects from IoT tooling and breakout board providers are seeking to solve outside the kernel. These include providing libraries that support a very broad array of sensors, that help build understanding of the sensors themselves, make it easy to augment sensor parameters, and, at least for Adafruit_Blinka, include running the same interface code on microcontrollers.
Using these userspace libraries also aid in rapid prototyping by avoiding the step of configuring the kernel to use these sensors on non-probable busses.

Using Greybus, it is possible to, in a more flexible and secure way than device tree overlays, add IoT sensors in a rapid-prototyping fashion. See

Using mikroBus, it is possible to collaborate across a large number of embedded Linux development platforms across a large number of IoT sensors and actuators. This is at least partially thanks to the almost 700 different available Click boards and a number of add-on daughter boards for embedded Linux development boards to interface to them.

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Yes

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