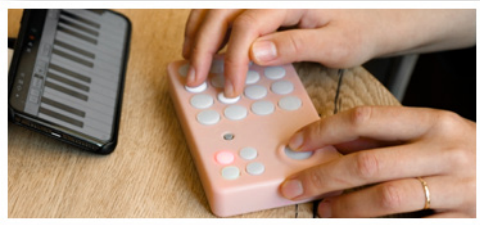
INTERLINK ELECTRONICS®

CASE STUDY

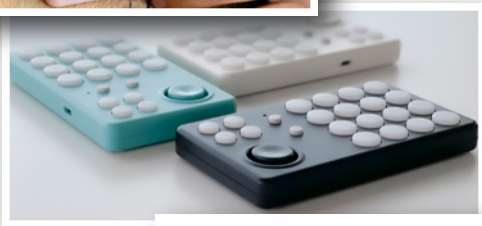
Interlink Electronics & Consumer Gadgets

Grip a Beat

BACKGROUND

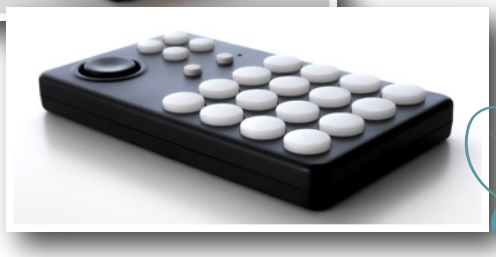


Birdkids is a digital instrument manufacturer based in Vienna, Austria. The company had released several professional-grade synthesizer in the past, but it wanted to create a new device that was accessible to novices and professionals alike. As an on-the-go gadget, it needed to be wireless, reliable, and rugged, so musicians can create art whenever and wherever inspiration strikes.



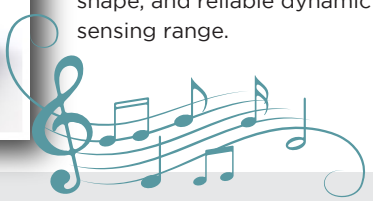
CHALLENGES

To satisfyingly reproduce the analog sensation of playing a musical instrument, the interface of the OffGrid needed to provide users with a specific tactile quality, while offering precision response and a wide sensitivity range. The interface also needed to be a low-power, compact solution.



EXECUTIVE SUMMARY

- Birdkids needed a force sensing solution for its on-the-go MPC/drumpad.
- Silicone button pads had already been decided upon for their tactile qualities, so any sensing solution needed to be compatible.
- The company evaluated developing a simplified velocity detection solution but chose true FSR technology instead.
- After some successful tests, birdkids began working directly with Interlink's engineering team.
- The FSR 404 was ultimately chosen as a starting point for its size, shape, and reliable dynamic sensing range.



PROCESS > SOLUTION > RESULTS

With OffGrid, birdkids wanted to deliver the best, most intuitive digital music creation experience possible, while still making the device portable and tough enough withstand on-the-go use. To capture the appropriate tactile feel, birdkIds knew early in their design process that they wanted to use buttons capped with soft-yet-resilient silicone pads for the interface. The material is comfortable enough to allow musicians to play extended sessions without discomfort and provides the appropriate tactile resistance when being struck at different speeds and with different amounts of force.

With the interface material chosen, birdkids then needed to find a sensing solution that would translate these strikes into digital information. Initially, the company contemplated developing a four-step velocity detection pattern on the printed circuit board, but chose FSR technology instead for its wider dynamic range. The company knew that FSRs had been successfully used in instrument applications for decades (the very first FSRs were used on keyboards) and began prototyping with various force sensing resistors from different providers. They quickly discovered that Interlink's FSRs best matched the dynamic range they were looking for.

After getting in touch with Interlink's engineering team, birdkids tried a number of FSR configurations and found the doughnut-shaped FSR 404 to be the best starting point for customization, as its center cutout could accommodate an LED light. FSRs are also low-power sensors, which is an important consideration for a mobile device. Nobody wants to lose a composition they have been working on because the battery dies, so birdkids wanted to ensure that the OffGrid could operate for an entire day on a single charge.

After an amazingly successful Kickstarter campaign that exceeded its goal eighteenfold, birdkids officially launched the production version of OffGrid in three colors in 2021.

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