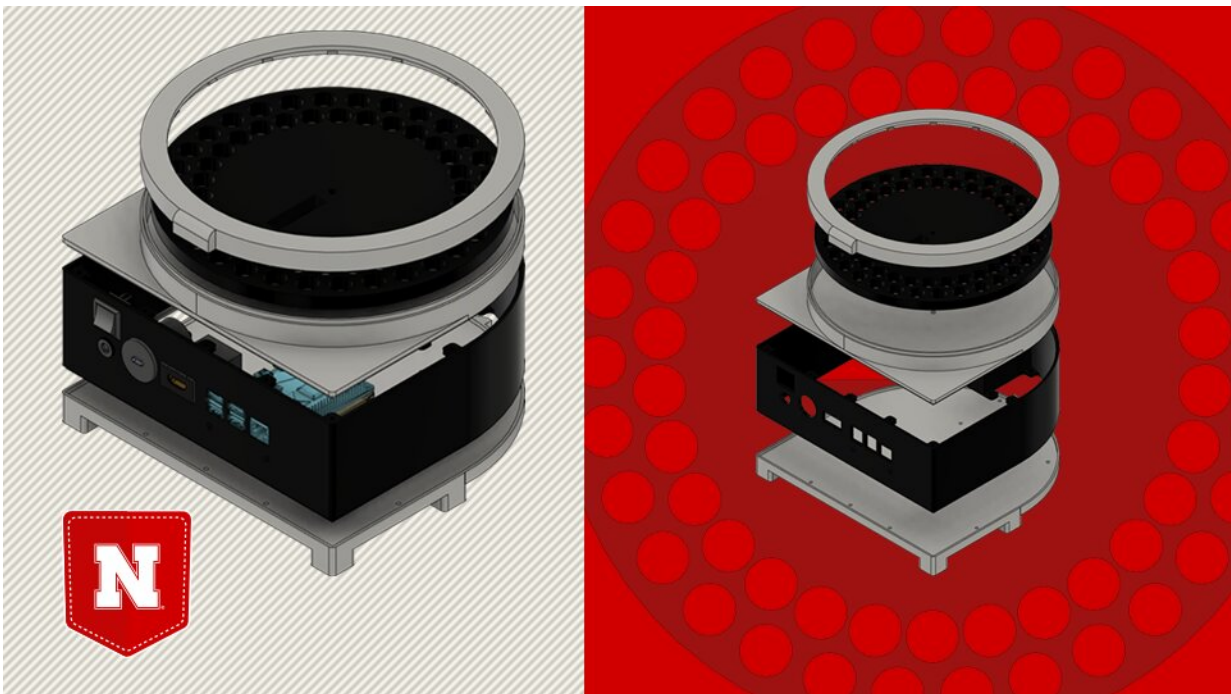


Lab's best friend: 3D-printed dog treat dispenser outperforms predecessors

February 24 2022, by Scott Schrage



Credit: Walker Arce / Scott Schrage

A fair amount of dog-related research, including some conducted at Nebraska's Canine Cognition and Human Interaction Lab, involves automatically dispensing treats that reinforce behaviors and help test a dog's ability to learn.

Reliably dispensing a specific number of treats can prove vital,

especially when the number of awarded treats depends on—and aims to evaluate—a dog's ability to distinguish between numbers or quantities. In those cases, doling out too many or too few treats can ruin the validity of a study.

Even so, automatic treat dispensers generally dish out the correct number only 70 to 80% of the time. Having a person dispense the treats, meanwhile, can introduce unwanted effects and limit experimental designs.

Nebraska's Walker Arce and Jeffrey Stevens recently designed a 3D-printable dispenser that holds up to 59 treats and can be constructed for less than \$200. After building five of the dispensers and testing each 100 times, the duo found that its design automatically doled out the correct number of treats in 96% of cases.

Because it includes a Raspberry Pi—a miniature computer weighing less than 2 ounces—the dispenser can also be paired with a monitor, mouse and/or keyboard.

Now what?

Having published the design's 3D-printing files, assembly guide and [open-source software](#), Arce and Stevens said labs can customize the system according to their own research questions.

Arce and Stevens illustrated just one potential application by mounting a touchscreen on the dispenser and training a dog to nose the screen. The Raspberry Pi presented a choice between two collections of dots on the screen, recording which option the dog selected. The pre-programmed system then dispensed the [number](#) of treats that corresponded to the dog's decision.

Hardware tweaks could accommodate studies involving birds, rats and other species, too.

The research was published in the *Journal of Open Hardware*.

More information: Walker Arce et al, A Precise Dispenser Design for Canine Cognition Research, *Journal of Open Hardware* (2022). [DOI: 10.5334/joh.41](https://doi.org/10.5334/joh.41)

Provided by University of Nebraska-Lincoln

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