BeagleBone IoT Projects

INTERN SEBASTIAN ARRAZATE MARTINEZ

Poursteady

Poursteady automatic pour over coffee machines bring unprecedented speed, precision, and reliability to commercial coffee retailers–and better coffee to their customers–by combining automation, information technology, and design.

Throughput
Make pour-over coffee just as fast as espresso without changes to your staffing or training.

Consistency
Each pour-over is perfectly repeatable with the press of the button.

Custom Recipes
Dial-in your pour-overs by controlling the number of pours, amount of water, shape and size of the pour patterns, and the time between each pour.

Share to Multiple Locations
Instantly share your recipes to all your customers, organizations, and locations from a single user interface.

- **Share to Multiple Locations**

Instantly share your recipes to all your customers, organizations, and locations from a single user interface.

- **Recipe Management**

Create as many recipes as your heart desires that can be assigned to any machine(s).

- **Assign Recipes**

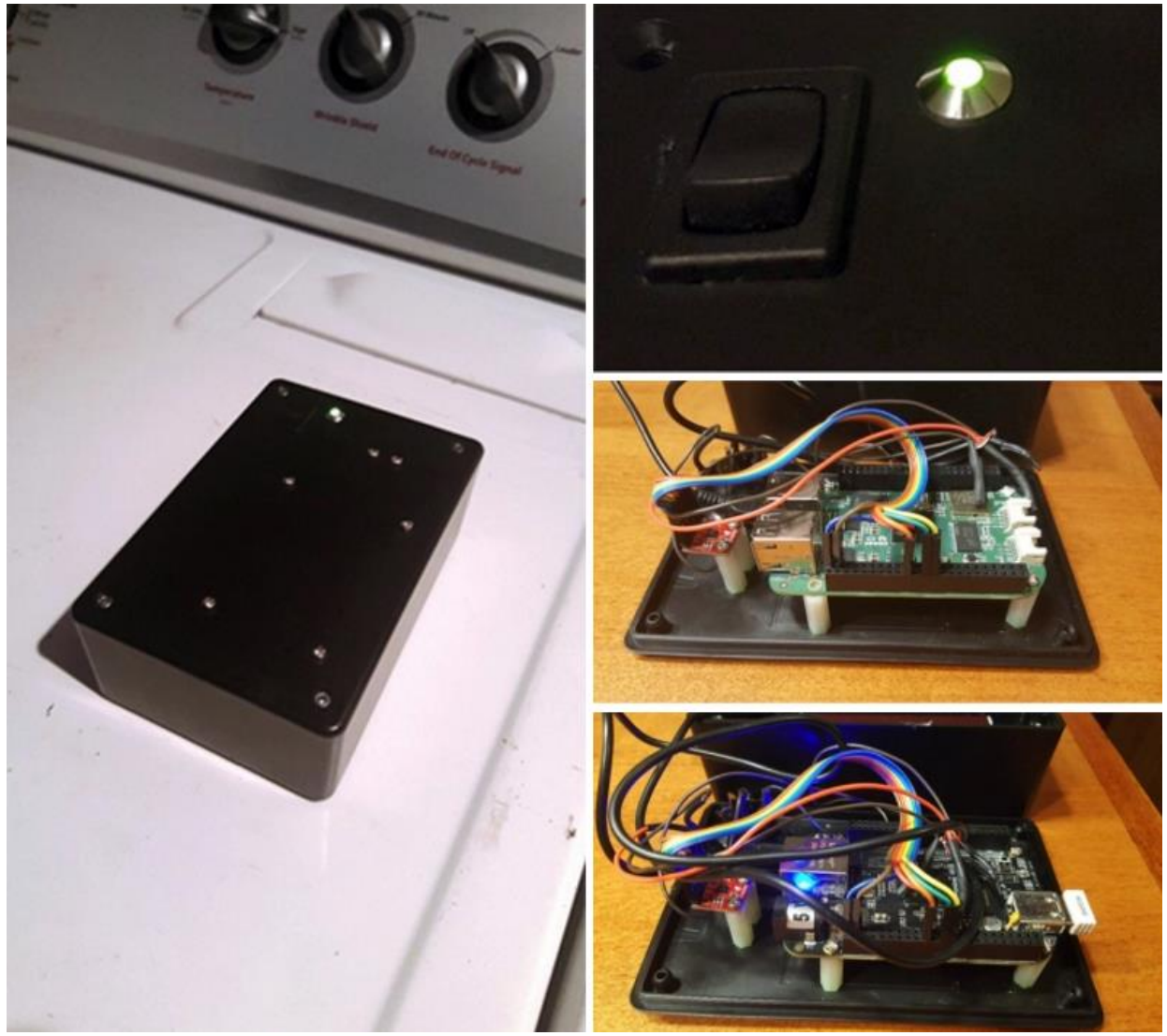
Assign your custom recipes to a machine station. Each station can only be assigned one recipe at a time.

- **Manage a fleet of machines**

Have an organization with multiple machines? With the Poursteady app you're able to manage recipes and deploy to all your machines.

BeagleBone Laundry Notification Texter

Once a washer or dryer cycle has started, users must wait up to an hour for them to finish their cycles. Too often, they forget to check in on the appliances so wet clothes sit clumped for hours, while dry clothes sit to wrinkle, leading to user frustration.



Microsoft Azure Certified for IoT provides quick-start confidence to BeagleBoard.org BeagleBone Black and SeeedStudio BeagleBone Green with pre-tested software and hardware

Working with the open community around BeagleBoard.org and their partners is an inspiration, said Barb Edson, General Manager for Data Platform and Internet of Things, Microsoft. “Everyone in the community of professionals, students and hobbyists innovating around programmable electronics benefits from this collaboration to accelerate IoT prototypes and extend their creations to the world.

BeagleBone Black project spotlight: The BeeDome

ForestDew Apiaries, located in Ottawa, Ontario, has been keeping, testing and trying 20 strains of bees from all over the world for 13 years. They pride themselves on producing innovative products and solutions in the bee industry, and their BeeDome is one of these solutions.

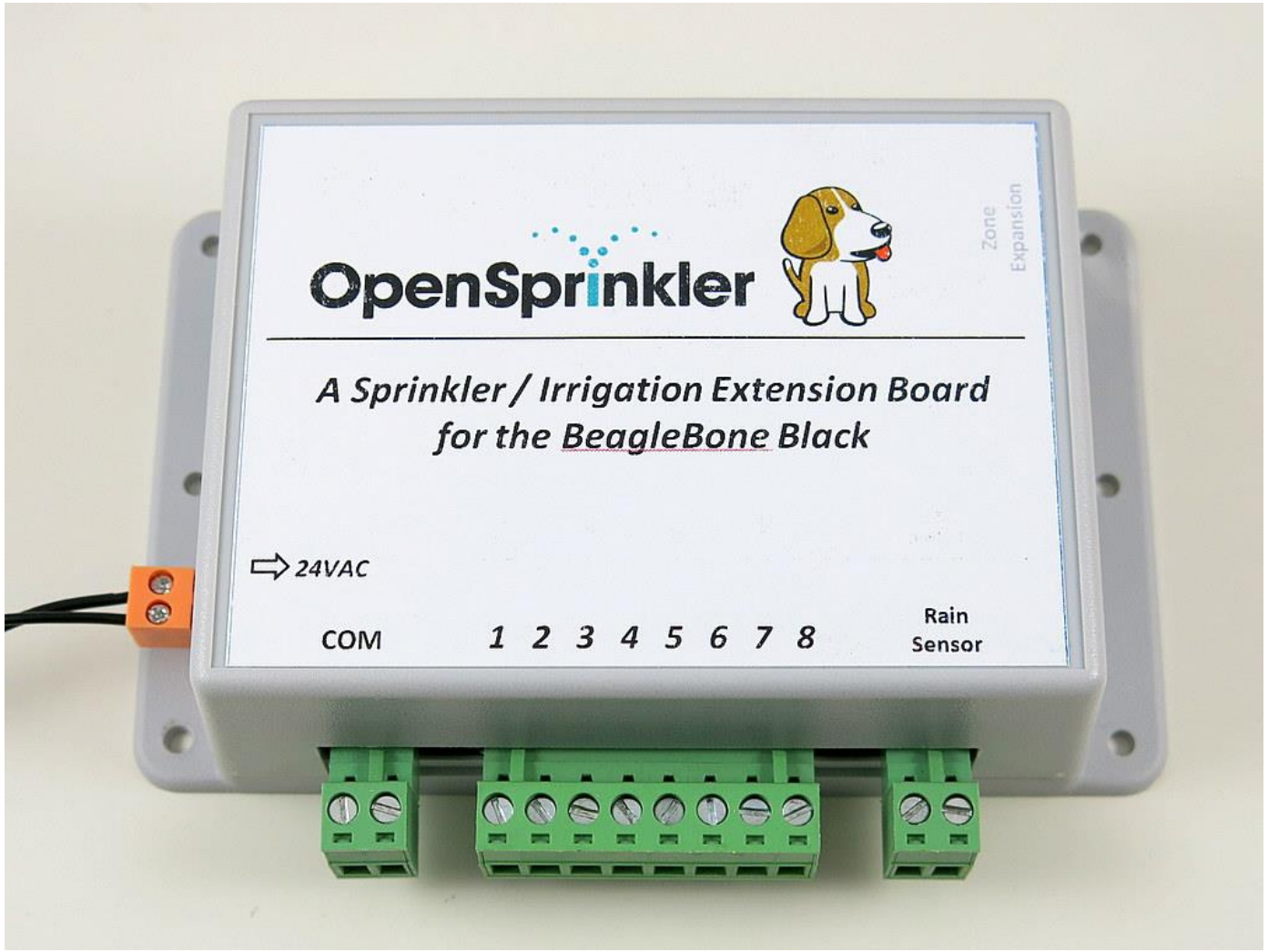
The BeeDome is a system to control the environment of indoor nucleus colonies (nucs) where small honeybees are kept indoors over the winter months. The BeeDome extends the bee breading season so ForestDew can offer strong, healthy nucs to beekeepers early in the spring at reasonable prices to replace bees lost over winter.

This is especially important in northern climates were winter creeps in early. After more than five years of research and prototyping, ForestDew Aparies is now live trialing the BeeDome. ForestDew Apiaries puts its nucs into the BeeDome in later November for the winter, where they are kept in environmental conditions that ensure minimal food store consumption. ForestDew Apiaries credits the BeeDome for helping it deliver reasonable priced, quality bees to its customers.

Volumio

Volumio is a free and open-source Linux Audiophile music player for embedded computers that, when paired with the Sitara-processor-powered BeagleBone Black, can transform an entire building into a connected audio center. Inspired by his passion for music, Guarise worked tirelessly on Volumio with the help of users worldwide.

Volumio is equipped to play all music FLAC, MP3, WAV, AAC, ALAC and Musepack files are all compatible, in addition to streaming Internet radio. It can be controlled via WebUi from a smartphone, tablet or computer. BeagleBone Black supports the program well because of its large expandability and affordable price.



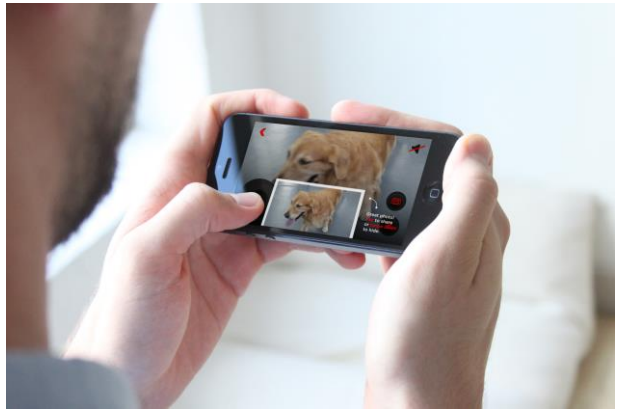
Open Sprinkler Beagle (OSBo)

The board helps you easily develop BeagleBone Black into a low-cost, web-connected smart sprinkler controller. It comes with a full-featured sprinkler scheduling program, uses online weather data to help regulate water time, and enables users to remotely change setting and programs while away from home.

Petcube

Petcube is a gadget that lets you watch, talk and play laser games with your pet through a mobile application, anytime, anywhere. Alex produced the design of a movable webcam combined with a laser so he could see his best friend while he controlled the laser (Rocky's favorite toy!) to entertain him.

Petcube uses the BeagleBone Black computer, based on a TI Sitara processor, with a custom cape to control all peripherals. Alex chose the BeagleBone Black computer for the Petcube because of its open schematics that allowed him to create a custom board with a unique shape and design. "Everything works pretty much easy and fast out of the box", said Alex.



OpenROV

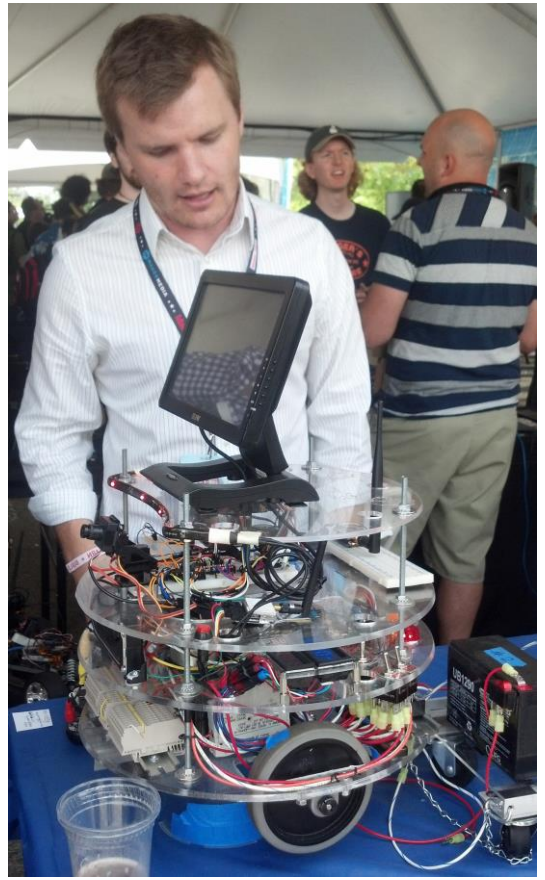
David Lang and Eric Stackpole created OpenROV an underwater robot that can be controlled with a laptop in a garage in Cupertino, Calif. with the goal of exploring an underwater cave.

The newest OpenROV robot OpenROV 2.5 was introduced in September 2013. It is now powered by the Sitara-processor-based BeagleBone Black (it was formerly powered by the original BeagleBone), enabling lower cost and higher performance robots.

BBot robot

The BBot is an open source, remote-controlled drink serving robot. This cooler camel puts a cooler on a mini trailer and delivers drinks to people at the pool. As Andy put it, Why not have a robot go get the drinks? It's 2013 people! And with the ability to haul 30-40 lbs, BBot keeps the drinks flowing. This robot does more than just deliver drinks. It can talk to you, see the world around it and even display drink prices and beer advertisements on the screen. One very unique feature is that when people try to steal drinks, the robot kicks on its absurdly loud alarm system.

The BeagleBone Black computer is the brain of the device. It parses the data and routes it to the various control systems on the robot. Andy stacked a ValentFX FPGA cape on top of BeagleBone Black to provide a robust means of low-level hardware interfacing.



LOGI BONE – FPGA DEVELOPMENT BOARD CAPE FOR THE BEAGLEBONE

The LOGI Bone is an FPGA development platform that has been optimized for use with the BeagleBone. The LOGI Bone/BeagleBone combination was designed with key design attributes in mind including ease of use, maximum expansion capability and low cost to performance ratio. The LOGI Bone creates a powerful and versatile digital canvas for users to create their imaginative digital designs.

1. The LOGI Team has developed software and drivers that make it easy for users to communicate between the FPGA and the Beaglebone. APIs and Wrappers have been written that allow easy access to the FPGA custom hardware peripherals using the wishbone bus standard. Applications can easily be written using C,C++ in conjunction or with python. APIs for these languages allow easy to use and high bandwidth communication with the FPGA.

2. The LOGI Team has created a number of applications for the LOGI Bone including a bitcoin miner, machine vision and autonomous vehicle and robotic controllers. All applications are open source and available on the LOGI repository.