Open Hardware: Spaghetti Detective (TSD), OnStep and RISC-V in Barcelona Supercomputing Center (BSC)

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- **Spaghetti Detective: Open Source AI Software Detects Prints Gone Wrong**[3]

  Desktop 3D printer users are quite familiar with the mishaps of some print job going wrong and extruders spilling material all over their machine while they?re out at the store or soundly sleeping in bed. Being confronted with a printer full of plastic spaghetti when you next go to check on it is one of the most disheartening and frustrating experiences a user can face.

  Attempting to address this issue is the Spaghetti Detective (TSD), a piece of open source artificial intelligence software that automatically interrupts failed prints. The software runs continuously on a computer server and uses a computer or printer?s webcam to monitor the printing process. If it detects a print failure, it automatically pauses the print and alerts the user via text or email. You can then choose to cancel the print and prevent not only a plate of inedible spaghetti from forming, but also the possibility of equipment damage or fire hazard. The Spaghetti Detective can run on an old PC connected to the web or, if you prefer not to rely on the cloud, it?s possible to host the TSD server on a Jetson Nano card from NVIDIA.

- **Open Source Telescope Controller Puts Smart Features In Old Telescopes**[4]

In times like these, we all need to look beyond ourselves. This project might help: OnStep is an open-source telescope controller, a device that controls a telescope to point at something interesting in the sky. Want to take a look at M31? Use an app on a PC or smartphone, select the object and the OnStep will pan and tilt your telescope until the Andromeda Galaxy pops into view.

[...]

It is pretty hardware agnostic: the controller can be an Arduino, a Teensy 3 or even an ESP32. The PCB design can work with any of these controllers. The same is true of the motors that move the telescope, so you can build the device from parts that you might have lying around. Many of those who have built OnStep controllers have adapted older telescope mounts that are motorized but aren?t smart. Others have used older mounts and replaced the slow, inaccurate motors with more precise ones that make the telescope more accurate and smooth. The gallery of telescope builds on the OnStep wiki is a great place to start and see examples like this 30-year old Celestron telescope that was brought into the 21st century with a OnStep conversion, or this conversion of a 1960s telescope that adds a smart mount.

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[BSC-Led DRAC Project to Manufacture New Chip, Open Source Accelerators in Barcelona](#)[5]

If Lagarto, the first open source processor developed in Spain and Mexico, was introduced in December, now DRAC is presented. It is a project to develop a new processor and several open source accelerators. DRAC (Designing RISC-V-based Accelerators for next generation Computers) is a new step in research led by the Barcelona Supercomputing Center (BSC) to manufacture open source chips from Europe. The project has the collaboration of the Polytechnic University of Catalonia (UPC), the University of Barcelona (UB), the Autonomous University of Barcelona (UAB) and the Rovira i Virgili University (URV).

The objective of DRAC is to manufacture a processor and several accelerators to be used in security tasks (encryption or protection from attacks against hardware, for example), personalized medicine (especially genomic analysis) and autonomous navigation (cars and other vehicles).

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