

Section 4. Science & Society

The UHU Open Source Hardware Group

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The UHU Open Source Hardware Group (UHU-OSHW) is the initiative taken by a group of university professors to promote a culture of design and technology accessible to the entire community. The fundamental and permanent core of the team are experts in areas as diverse as robotics, electricity, computing, chemistry, mostly belonging to different departments of the CCTH. In addition, a few students or people interested in the initiative contribute to the team and perform specific tasks in specific projects.

The idea behind the culture of free access (also called open source) is that every time a scientist, technician or designer creates something new, they publish their creation freely and for free to everyone, so that this information can be used in new projects. As this information can be reused, a new project does not have to start from scratch, the technology improves more easily and quickly. In addition, the technology can be deeply tested by all the community, giving more robust and reliable results.

For open source software, the developer must provide the compiled code, but also the source code commented properly to facilitate its understanding. For open source hardware, in addition to drawings of parts, electrical connection diagrams, necessary technical files, etc. must include assembly instructions, comments on technological alternatives, modes of use, configuration and calibration, ... in summary, all the information that may be necessary for the correct manufacture, assembly and use of the device.

All such information is liberated under some kind of license. An open source license should be used

to ensure that the information is used with minimal conditions and to guarantee that authors' rights are not lost by sharing their work. They are several types of open source licenses having a variety of coverages, you can adopt what you want according to your needs and preferences.

The UHU-OSHW group embraces this philosophy to generate open knowledge regarding the manufacture of tools, apparatus or utilities needed in a chemical laboratory, both research and applied. Among its many creations, it has developed a light box to create printed circuit boards by phototransference, a pressure sensor, a rudimentary laminator, a syringe impulsion pump for liquids, an injection rotary valve, a potentiometric detector, a potentiostat, data processing programs, etc. In all these designs, in addition to generating and publishing all the necessary information, priority has been given to the economy of the project and accessibility to the components. Even when possible, recycled parts of obsolete technology have been used.

The main reason for designing such projects in this way is seeking to make them possible even in institutions without funds, or in developing countries, where access to quality technology is clearly very deficient because scientific investment is not a priority. However, it is clear that having scientific instruments with a certain level of quality results in an improvement in the quality of life by ensuring the health of the environment, people and goods.

[online] Available:

<https://uhu.es/OSHW>