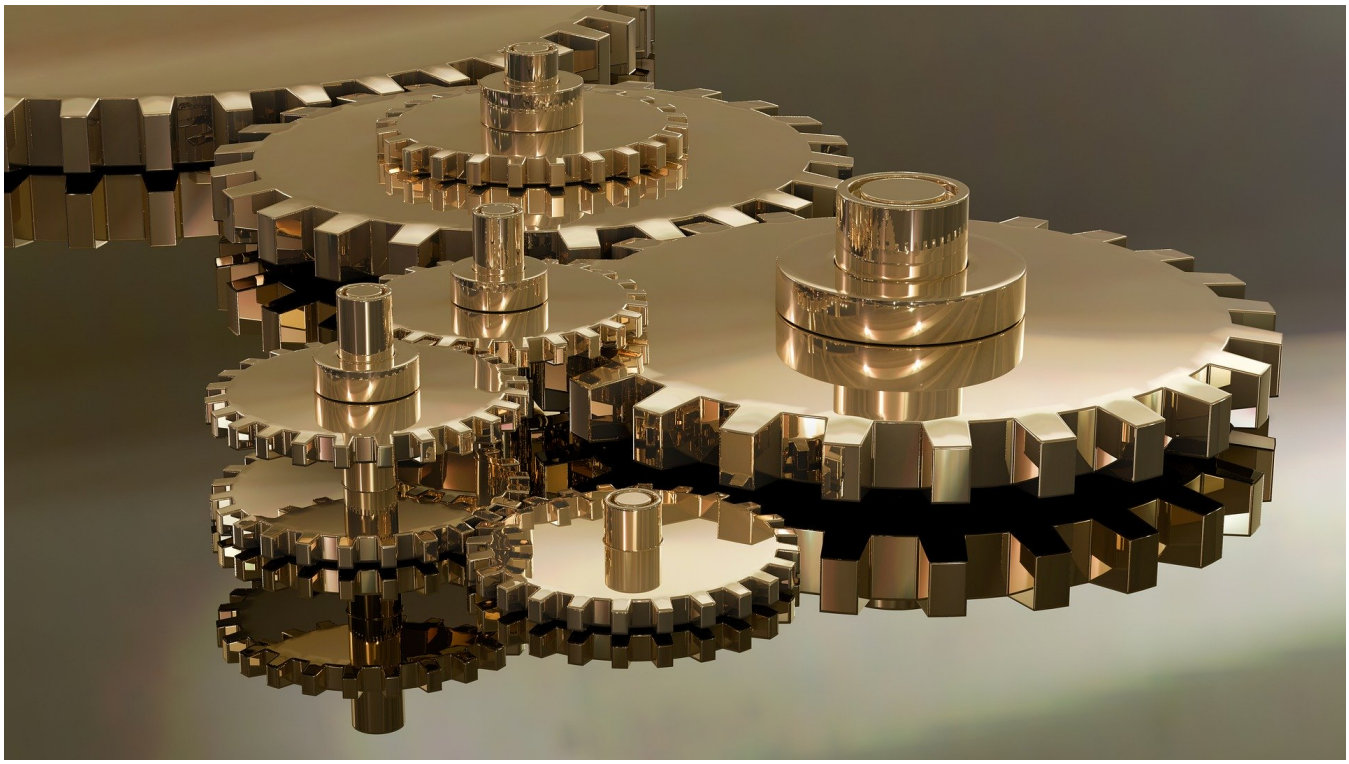
UNIVERSAL SUPPORT

Structure for instrumentation on buildings. Gravity-based universal support, suitable for any roof or terraced roof and capable of holding a wide range of equipment, including security cameras, anemometers, parabolic aerials, wind turbines and solar panels.



Contact information

Address: ETS de Edificación, Av. Juan de Herrera, 6, 28040, Madrid
Website: edificacion.upm.es
Email: amparo.verdu@upm.es

Technological Offers type

Technological solutions

Research and innovation areas

- Industry, Materials and Circular Economy

ODS

Where?

Maritime and Ports Engineering Research Group

Keywords: | support

Brief description of the solution and the added value it delivers

The structure in question consists of a universal-type support which can be installed on an ordinary or terraced roof to support a wide range of instruments, be they scientific (anemometers, weathervanes, bolometers, barometers, thermometers, hygrometers, etc.), technological (normal or parabolic aerials, low-power wind turbines, photovoltaic [solar] panels or solar capture devices, etc.) or instruments related to security, such as security cameras.

The installation of this structure on the roof or terraced roof does not require any building work or drilling, as it is installed or placed gently on the roof and is secured simply by gravity, by means of counterweights distributed throughout its length.

This innovation has been developed jointly by researchers at UPM and CIEMAT (Spain's Centre for Energy, Environment and Technology Research).

Description of the technological basis

The support is manufactured with stainless steel tubes, which makes it entirely resistant to the elements and inclement atmospheric conditions.

The support can adapt to any roof or terraced roof. This is thanks to the joints between the bars, which can be secured or stiffened by simply tightening the relevant screws, thereby adapting the structure to the form of the roof or terraced roof in question.

What makes it different from other supports is that it is fixed to the roof solely by gravity and it can be adapted to any roof shape, without the need for any building work.

'Universal support for holding any piece of apparatus, on any roof or even on the ground (street, field, etc.), in any part of the world; it can be assembled and dismantled without doing any kind of building work and without altering the roof or ground'

Business needs / application

Health

Reliable communication systems, such as aerials and other devices. Solar collectors for domestic hot water and solar panels. Security cameras on the roof terrace.

Agri-food

On roofs of farms, silos and warehouses, for energy support from renewable sources. Surveillance and security systems. Water pumping with a wind, solar, electric or other type of pump. Signposting and boundary marking system, signage, etc.

Telephone and internet

Positioning of aerials of all kinds: digital data transmission and network links, solar panels for recharging local batteries and keeping communications always-on. Deployable worldwide for transmission devices used by the army, by scientific teams, by journalists, etc.

Environment

Installation, anywhere in the world, of scientific apparatus for measuring air quality, weathervanes, anemometers, bolometers, thermometers.

Energy

On a roof or on the ground, positioning of wind turbines in the small wind range (kW), solar panels, solar collectors, mirrors for indoor lighting.

Competitive advantages

- It does not require any type of building or drilling work, or holes of any kind, nor does it require any part to be inserted, as the support is supported and secured on the roof or terraced roof by gravity directly. It does not damage the place where it is positioned. It can be dismantled and piled up. It is quicker to assemble, as it does not require any building work.
- It is not designed for any particular type of apparatus. It can support and hold any piece of apparatus or technical instrument.
- It is scalable and can be manufactured in any size.

- It is a low-cost structure: common materials and a simple manufacturing process.
- It can be completely dismantled.
- By design, the support is capable of withstanding very high winds, up to 170 km/h without being damaged. The size and counterweights of the support will be proportional to the size and form of the instrument to be positioned on the roof or terraced roof using that support.
- Various prototypes tested successfully.

Industrial protection

Patent granted in Spain: ES2388388.

Stage of development

- Concept
- Research
- **Lab prototype**
- Industrial prototype
- Production

Contact

Universal Support contact

Amparo Verdú

ETS Edificación – UPM

e: amparo.verdu@upm.es

UPM contact

Innovation and Entrepreneurship Programmes

Technological Innovation Support Centre (CAIT) – UPM

e: innovacion.tecnologica@upm.es