# New patent can multiply mobile devices' uploading speed by tenfold

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A patent held by Universidad Carlos III de Madrid (UC3M) describes a jacket able to increase by tenfold the speed at which mobile devices can upload content. It enables a jacket, in which numerous antennas are camouflaged, to connect to any mobile terminal in order to increase its data transfer speed, reduce its energy consumption and improve its reliability.

The patent is titled "Method and system to increase the capacity of the uplink between a terminal and a base station," and aims to increase the flow of the link's digital data upload in mobile communication systems, thanks to the intelligent integration of numerous antennas in a piece of clothing that the user does not even notice. The prototype has just one interface for its connection to the terminal.

This development is one of the main lines of research in telecommunications, the development of 5G, the fifth generation of mobile communications. This objective entails a great challenge: in five years time, to multiply by 1,000 the capacity of the current mobile communications wireless networks, according to one of the researchers who has developed this patent, Ana García Armada, of the Communications research group at UC3M.

With the technological revolution that 5G will bring, high speed data uploading will have to be available to the network's users, points out García Armada, and that is precisely the focal point of this innovation. Right now, the patent, which consists of a group of antennas developed using textile technology, will allow for "a tenfold increase in the uploading speed of a normal mobile terminal such as a tablet, telephone or camera," explains another of the inventors of this device, Eva Rajo, of the Applied Electromagnetism Research group at UC3M.

This patent, which is the product of a joint project carried out by these two research groups from the university's Department of Signal Theory and Communications, can be applied to leisure activities or to security crisis situations. This is how another author of this patent, Professor Matilde Sánchez, explains it. She reminds us that right now, people tend to upload a lot of content to social networks. However, the applications that this technology could be used for go far beyond leisure activities; for example, "on the subject of security and emergencies, we could provide greater coverage and speed in scenarios in which this service is

typically not available."

## Patent awarded

This idea was recently recognized at the international level from among hundreds of proposals seen at the latest edition of the "Bell Labs Prize", a worldwide competition that looks for revolutionary ideas in the area of communications. The MIMO HUB won the $25,000 prize awarded for third place in the contest, which supports "ideas that change the way we communicate and live".

At the Parque Científico de la UC3M (UC3M Science Park), a university unit which has been involved in the entire process of protecting the results obtained by this research, and which is now helping with marketing the product, they highlight the fact that this invention can be applied not only in the crisis management and leisure and entertainment sectors, but also in the biomedical sector.

Provided by Carlos III University of Madrid