

## **Carmen, the intelligent wheelchair which alerts users without overriding their ability**

LOCATION: Málaga

DURATION: 1'42"

**SUMMARY:** Researchers from the University of Malaga have been working on a wheelchair called Carmen, with the aim of helping users with mobility problems to get around, without overriding their ability. The idea is to be able to correct or cushion a movement if it detects a risky situation.

### **VTR:**

This intelligent wheelchair is called Carmen, and is equipped with a computer, laser sensor and devices to measure distance. All of these correct the wheelchair's movements as ordered by the user in the case of risk, but without changing the user's decision. Researchers from the University of Malaga have been working on this system.

**Cristina Urdiales**  
**Senior Lecturer University**  
**of Málaga**

*"An in-built computer, the necessary hardware to connect this computer to the engine part and to the sensor part that we add, and a laser. So, with this adaptation, we have made our own control system."*

**Manuel Fernández**  
**Researcher University of**  
**Málaga**

*"People who with a bit of help could use a wheelchair, but because of their condition are not completely able, is where we come in with our chair. It allows the users to use the chair in the most safe and independent way."*

The system always respects the decision of the user. For example, if this means bumping into a wall, it will let them, but the device will reduce its speed. The software of this wheelchair has been tested on around 80 patients in an Italian clinic.

**Manuel Fernández**  
**Researcher University of**  
**Málaga**

*"It doesn't just react to the current situation of the user, but it also plans ahead a bit to detect problems that could arise in a day to day situation."*

Manuel also collaborates on another project together with Joaquín Ballesteros, also a researcher at the University of Malaga, to apply the same robot-assisted philosophy to a walking frame.

**Joaquín Ballesteros**  
**Researcher University**  
**of Málaga**

*"In the end what we want is this, to have the platform to help people in rehabilitation, or in their daily lives if it's someone who requires the use of a walking frame."*

At the moment they are gathering information about the use of the walking frame, with figures such as the force that each person exerts when they use this device.