Robotic technology in the service of fashion

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Two companies receiving support from the Business Incubator in Universidad Carlos III in Madrid's Science Park are innovating the field of fashion by using technology based in robotics. Samsamia is launching a mobile application -- Dresscovery -- that identifies a bag just by taking a photo of it, while beMee is creating a system, called Proximus, that locates people visiting a shopping mall in order to better serve them. Credit: Universidad Carlos III

Research in robotics and automation being carried out in the Robotics Lab at UC3M is generating advances that go from the control of processes to mechatronics, passing through sensorial processing techniques, artificial intelligence and automated learning as well. All of this is part of the knowledge needed to manufacture some of the most advanced robots, as well as being the origin of possible technological advances with implications for our daily lives. In fact, some of the

researchers who have developed their projects in this laboratory have decided to transfer their scientific knowledge to the marketplace, designing innovative products and creating nascent technology-based companies.

Identifying clothes with a mobile phone

Dresscovery is a new mobile application that allows a bag to be recognized by simply taking a photograph of it. It was created by Samsamia Technologies, a startup set up by Miguel González-Fierro, a professor and doctoral student in robotics at UC3M, and Miguel Ángel Maldonado, a former UC3M student. This innovation is based on vision and artificial intelligence algorithms, a set of techniques used in robots. The way it works is quite simple: "You take a photo of a handbag with a Smartphone, you frame it and when you hit "search" the system finds the bag that is most similar to it that is currently for sale," explains Miguel González Fierro.

This application, which has just been launched for iOs systems and which is also available on Android, has a database of more than 15,000 handbags from around 300 different brands. "Depending on its acceptance and feedback from the users, we plan to add new functions and also garments, such as shoes, trousers, coats, etc.," states Miguel González-Fierro, who notes that the great novelty of this system is that it goes one step beyond searches done on Internet. Currently, search engines are based on words; but the challenge this decade is to locate information using images. "Technologically speaking, we are using a recognition algorithm that we have created to pull a set of characteristics from the image (color, shape and texture) and then compare them with a huge database," he explains.

Positioning inside stores and shopping malls

The treatment of massive data (technically known as BigData) that this app uses is one of the factors shared with Proximus, a system that is able to locate people who are inside buildings by using their cellular phones in real time. Created by beMee Technology, it uses techniques from the field of robotics to analyze the location and behavior of users inside shops and large spaces. The objective is to improve productivity in large companies, as well as to establish personalized communication between the company/store and the user/customer. "Thanks to its own algorithm for interior location and its BigData motor, Proximus allows metrics to be determined in order to improve on current marketing campaigns," comments one of its creators, Jorge García Bueno.

With one of its small wireless beacons installed in the interior of a shopping mall, the system can then analyze the behavior of customers in order to better meet their needs and pinpoint their interests. "The idea is to attempt to improve people's experience when they are shopping in large complexes, as well as to optimize advertising systems, so that it will be easier to direct personalized offers, recommend styles, colors, brands… as a function of the users tastes," explains Jorge García Bueno. In addition, by introducing new Bluetooth 4.0 technology in the positioning process, the precision of the system and the statistics it can generate on the users' behavior can be considerably improved. It has a wide variety of applications: from locating doctors in hospitals to switching a phone to silent mode when the user is entering a movie theater, and including possible uses in security and defense applications.

Both beMee and Samsamia began their projects in the Business Incubator in the Science Park as a result of their participation in UC3M's Concurso de Ideas (Ideas Competition), a contest for the creation of technology-based innovative companies; the seventh edition of this competition is already underway. Through this competition, these firms received support in developing their business plans and had access to the consulting services that the Science Park provides as part of its goal of

converting entrepreneurial initiatives based on UC3M innovation and technology into viable companies that add value to the economic development of the area.

More information: proximus.io/

Provided by Carlos III University of Madrid