



## DEVICE FOR THE MOBILITY AND TRAFFIC MANAGEMENT OF VEHICLES AND PEOPLE

#### INVENTION DESCRIPTION

The mobility management requires knowledge of the situation in real time about the movements of all actors (vehicles and people) that perform some kind of movement in a particular target management area.

At present, it is possible to obtain some parameters of aggregated information that, in general, can describe the behavior of the traffic or the movement of people in a specific area. However, for companies and institutions in this sector, it would be especially interesting to know individual needs of each mobile entity and to identify patterns of mobility behavior. Currently these benefits can only be obtained with non-anonymous systems, which uniquely identify individuals, for example by number plate recognition through computer vision. These and other similar currently available systems have the particular problem (among others) of their high cost, precluding the implementation of sufficient sensor points as to obtain relevant information.

Researchers at the Universitat de València have developed a new low cost device that can anonymously identify vehicle or people movements by tracking devices with Bluetooth and/or WiFi connectivity (like smartphones, speakerphone, GPS, etc.). Synergistically, a software developed by the researchers, anonymously analyzes captured mobility data to extract information of interest about the route followed by vehicles and persons (behavioral patterns), to manage mobility in both urban and inter-urban environments.

Although re-identification is based on anonymous data, it is possible to locate the same individual or vehicle at any place or time, due to the unique identifying characteristics that Bluetooth and WiFi devices provide associated with vehicles and people. The procedure requires the application of a complex logic that can distinguish between the different types of actors and routes, based on the information collected from a wireless sensor network that consists of a variable set of measurement devices.

#### **BUSINESS APPLICATION SECTORS**

The invention is applicable to the field of mobility and traffic management being particularly addressed to:

- Authorities responsible for traffic management in urban and interurban areas
- Authorities responsible for urban mobility
- Toll Motorway concessionaries or traffic monitoring

#### TECHNICAL ADVANTAGES AND BENEFITS

The devices and software have the following advantages:

- Anonymous identification: by detecting and differentiating devices containing both bluetooth and/or WiFi sensors and associated with vehicles and people.
- Re-identification: thanks to the unique identifying features provided by Bluetooth and WiFi devices.
- Functionality: ability to extract information about behavioral patterns, origin-destination matrices and travel time between points within the monitored network, which is essential for the management of mobility.
- Versatility: applicable in any environment that requires traffic monitoring, in both urban and intercity areas
- Low cost: low cost modular components, enabling increased deployment of sensors and enhanced monitoring capabilities in terms of geographic area.
- Low power consumption: the devices are environmentally friendly and have very low power consumption, and they can be supplied with renewable energy.

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## DEVELOPMENT STATUS OF TECHNOLOGY

At the moment there are fully developed market-ready prototypes available. In addition, the University is working on incorporating more types of sensors that will expand the range of sensing elements and functionality, so that the system could be used in other business sectors.

The software for processing the captured information requires adaptation and integration with existing systems in each particular case.

## INTELLECTUAL PROPERTY RIGHTS

The technology is protected by intellectual property rights that apply to software. The hardware is a specific assembly of components which provide integration between sensors and processing elements together with protection elements, to work in adverse or unfavorable environmental conditions.

### **COLLABORATION SOUGHT**

- License agreement, manufacturing or marketing.
- R & D project to complete the development or apply to other sectors.
- Subcontracting agreement with another company.
- Possible spin-off (looking for partners)

#### RELATED IMAGES



Figure 1: Inner primary sensor device

## CONTACT

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Image 2: Outdoor Encapsulated sensor device with IP68