



SYSTEM FOR RELIABLE DETECTION OF OCCUPANCY OF PARKING SPACES

Patent
ES2684607

Code

TRANSP_UAH_18

Application areas

- Industrial Manufacture, Material and Transport technologies
- Information and Communication Technologies



Type of Collaboration

- Technical cooperation
- Commercial agreement with technical assistance
- License agreement

Main Researchers

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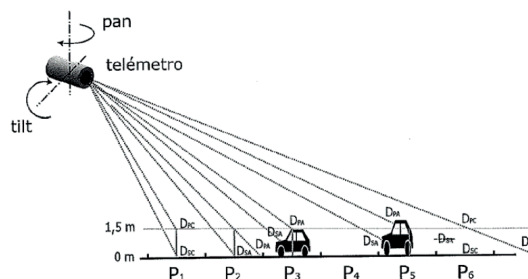
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ABSTRACT

This system proposes a device that obtains the occupation status of each of the parking spaces within the area supervised by a sensor node that is composed of a video camera, a laser telemeter on a pantilt platform and a processing algorithm. Its main features are the following:

- Camera and telemeter on a pan-tilt movement platform, as a single set of remote sensing for the detection of the occupation status of the parking spaces.
- Calibration in the installation to guide the system conveniently to the different squares of the supervised parking area.
- Algorithm of data fusion and its application to the detection of occupation of parking spaces: identification of empty spaces; vehicle entry / exit detection; fusion of video and distance data to indicate the occupation status of a place.

Once the parking occupation has been detected entirely, the system can guide the driver through his mobile phone, through an application to be developed.

ADVANTAGES AND INNOVATIONS

The novelty of the patent is mainly in the combination of the information obtained from both systems: image of the square, recognition of the space (floor) that corresponds to each parking space, detection of movement of a car in an area in the sequence of images that can mean that it occupies or leaves free a parking space close to a particular area, and the measurement of distances to the parking spaces of interest of the affected area, so that there are results of occupation of parking spaces more reliable, allowing its use in surface parking systems.

The new system includes a new distance measurement device, merging the video and distance measurements to provide an appreciable improvement in the detection of occupied spaces.

This new invention provides occupancy detection values of correct spaces even in low lighting conditions, brightness, occlusions, shadows, flashing lights, night operation, etc.

In addition, compared to other methods, this system gives specific information of where there is a parking space and it could also guide the user to it.

The system does not need a fixed visual demarcation of the squares in the ground, being able to vary its structure, position and dimensions of the parking spaces.

The system has a very low installation cost per space.

It does not require civil works, which is a great advantage with respect to systems that use specific luminaires and therefore require an installation in most cases very expensive.