KdG
University of Applied Sciences and Arts

RADIO FREQUENCY COUNTING

PROCESS

Radio frequency counting uses sensors installed 1.5 metres above the ground. The sensors are quite inconspicuous and can easily be attached to existing structures without causing any damage. Low-energy radio waves are sufficiently weak to be completely harmless to people.

Signal attenuation

The sensors continuously send radio frequency signals to each other and are thus in constant contact with each other. As soon as people enter the zone of the sensors, the signals between the sensors weaken. This weakening or attenuation is expressed in decibels (dB) and used as the basis for counting the number of visitors.

Crowd density per zone

At least three sensors are placed at a maximum distance of 700 metres from each other in each zone in which crowd density is to be measured. A central gateway is installed, which controls the entire network. At the start of the event, the sensors are calibrated to determine the zero point. The radio frequency values are then recorded in relation to particular numbers of attendees. Thus, during the event, the number of attendees per signal attenuation will be known.

ADVANTAGES

+ **Real-time:** this method counts in near real-time and can measure crowd density via a live dashboard, which provides added strategic value for crowd control, queue management and optimal staffing.
+ **Visitor flows:** radio frequency counting gives an insight into how people move around the site, which can be important in ensuring safety during the event.
+ **Discreet:** sensors can be installed inconspicuously or out of sight.
+ **Open venues or access:** this method is also suitable for open, unfenced, event locations and for events with no clear entrance.
+ **GDPR:** this tagless crowd estimation technique guarantees the privacy of visitors.

DISADVANTAGES

- **Double counting:** this counting method does not provide any information on the unique number of visitors, as no distinction is made between known and new visitors. Double counting can therefore not be excluded.
- **Labour-intensive:** installing and demounting the system can be labour-intensive.
- **Expensive:** this process is less interesting to event organisers who do not want real-time insights into traffic and visitor numbers, due to its cost.

ACCURACY

Radio frequency counting has a 10% margin of error (results of TETRA study Crowd Counting conducted in 2021). This means that when this method produces a count of 1,000 people, the actual number of people will be between 900 and 1100.

COST (EXCL. VAT)

+- €8,000 including reporting and installation of the sensors.

POTENTIAL SUPPLIERS

www.crowdscan.be

MORE INFO

www.crowdcounter.be

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