

CIBIO-COUNTER

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01. Software definition

CIBIO-COUNTER is a software based on Artificial Intelligence whose purpose is to count the number of people who are inside an establishment.

Functions:



Control of the number of user. It counts the number of people entering and leaving a facility quickly and effectively.



Data storage. It stores data registered in real time. We can access this data by an internal web through compatible and signed-in devices.



Learning. Based on AI, the software complements different neural networks in order to obtain an accurate result adaptable to distinct environments.



Notification. It informs in an immediate way both the responsible of the store and the crowd about the total number of people inside the establishment.

Features:



Cutting-edge technology



Differentiation between humans and animals



Integration with other access control systems



Up to 4 cameras from a same computer.



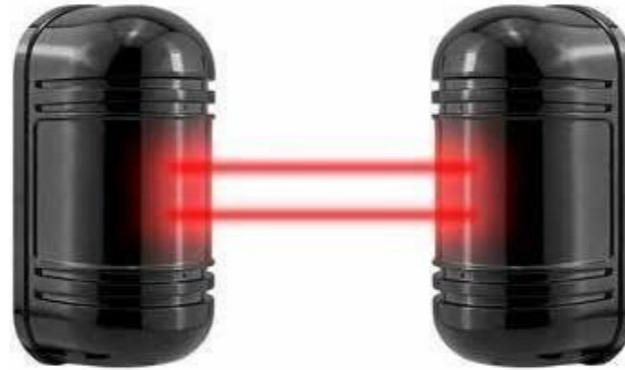
Added function of notice board (for instance; opening hours, future events...)

02. Facts

Different methods used to control capacity are presented.



Hand mechanical capacity counter. It requires, at least, a person being in control. Accuracy depends on human error. Initial financial investment is minimum, although it requires the presence and control of an employee.



Digital capacity counter by infrared barrier. Autonomous and economical counting system based on the passing streams between two photocells to distinguish an entrance from an exit. Since it works by means of beam of light interruption, it does not distinguish among objects, beings or quantities. It requires a low initial investment. It can work autonomously, but it results in a low count accuracy.



Automatic mechanical capacity counter. They are not 100% precise, since there can be people that skip control and, if there is no one controlling, it can frequently occur. It requires an initial medium investment and offers a high level control, even though it does not avoid the presence of a worker. The price has a great fluctuation depending on materials and functionalities, costing around 1000€ the most basic and simple ones of the market.

03. Software analytics

CIBIO-COUNTER is a software based on Artificial Intelligence (AI) to count the number of people that are inside of an establishment.

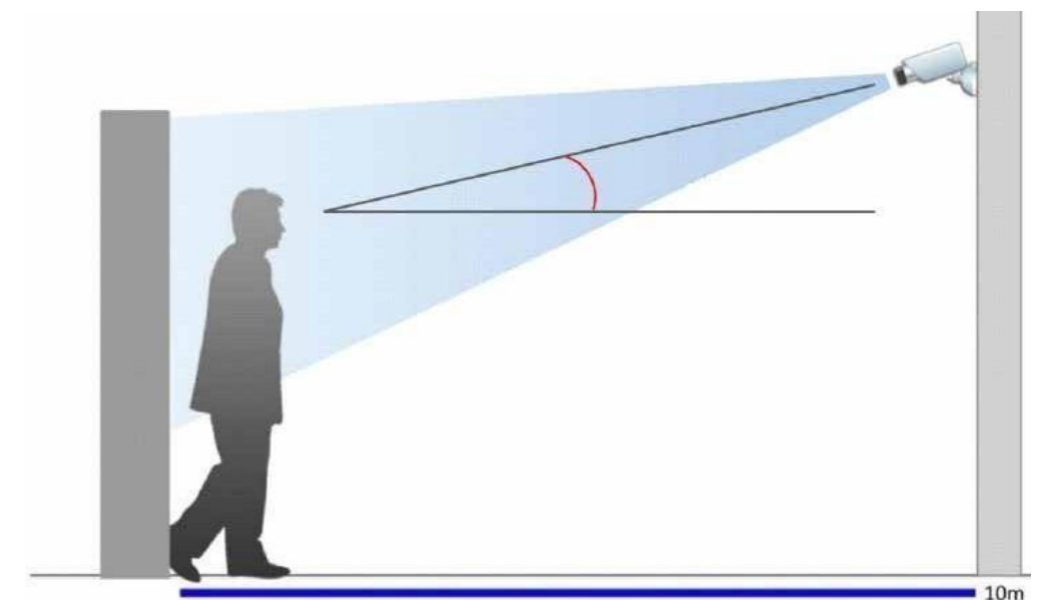
Functioning:

- Detection process. It compiles the subject's image that accesses the area.
- Pre-processing of the image. Biometric data extraction (to the differentiation between people and animals).
- Verification process. It collates the data obtained comparing it with the restrictions given.
 - People counting. When exceeding the virtual barrier established, it adds or subtracts depending on the entrance or exit of the individual.
 - Decision-making process. It allows the access to the user provided that the number of individuals obtained in the interior is below the determined threshold.

Operating conditions:

- Indoor, non-extreme illuminating conditions, uniform lighting.
- Outdoor, a night vision function camera is recommended.
- With background lighting, it is recommended a Wide Dynamic Range/ Background lighting compensation camera.
- Camera towards the target in an angle with a maximum of vertical deviation of 45 degrees (Fig. 1).
- Recommended camera height position in 4 meters –depending on the distance to target-.
- High image quality, at least 720p.

Fig.1



04. Interface customisation

CIBIO-COUNTER can be customised at the level of being able to incorporate messages and/or announcements.

Versions:

Basic. Gives access to the enclosure we want to enter, showing the capacity available and the total of people permitted inside the establishment. If the capacity allowed does not exceed its maximum, the screen will be displayed in green. Whereas, if the screen is shown in yellow (as a forewarning alarm) means that the capacity is right about to be surpassed. In contrast, if the screen is displayed in red indicates that it has reached the maximum number of individuals permitted or that the capacity has been exceeded.



With announcements/messages. An informational or advertising banner appears intermittently.

05. Minimum requirements

For the optimal functioning of **CIBIO-COUNTER**, the following components are necessary:

1 Camera (1080)	CPU: i5 8400 RAM: 8GBDDR4 GPU: GTX 1070
2 Cameras (1080)	CPU: i5 8400 RAM: 16GBDDR4 GPU: RTX 2060

3 Cameras (1080)	CPU: i7 8700 RAM: 16GB DDR4 GPU: RTX 2060 Super
4 Cameras (1080)	CPU: i7 8700 RAM: 16GBDDR4 GPU: RTX 2070





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