INNOVATIVE UNATTENDED PRESENCE CONTROL SYSTEM FOR WORKERS

TECNOLOGÍA PATENTADA

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RESUMEN

Researchers have developed an innovative system for controlling the presence of workers in their workplaces based on the use of mobile devices. Thanks to this system, it is not necessary for workers to make time-stamps as this is done automatically. This reduces time loss and avoids possible marking errors. It also reduces the infrastructure needed to carry out the clocking in.



DESCRIPCIÓN TÉCNICA

Control time is a common control procedure in companies that have a relatively large volume of workers. To manage this marking there are different systems that allow the worker to record the time of entry and exit to their workplace.

These systems require the performance of some voluntary action by the worker. This can cause errors in the markings, forgetfulness, omissions and unnecessary losses of time in workers' activities.

So far, no solution has been developed that allows this process to be carried out in an unassisted and transparent way for users, making the marking automatically when joining the workplace.

The solution proposed consists of the use of technological means to carry out the time stamp in an unassisted and transparent way for the workers. For this, the users' own devices with wireless connection capabilities are used to identify and register the workers.

The system designed is capable of connecting to mobile devices and identifying each user when they enter or leave their workplace. The system sends information to a centralized unit that collects the information of all the workers and processes them, keeping the complete attendance control of the company.

The technology consists of a distributed system composed of the following elements:

- **Worker's Device**. These are the devices carried by the workers, mainly intelligent mobile phones, which allow the identification of the user at the time of entry and exit of their work station.
- **Set of sensor elements**. They are sensors that are placed in the control areas through which workers pass and their devices are detected.
- **Transceiver**. Elements that collects the data from the set of sensor elements and sends them to a remote server in the cloud for analysis and processing.
- **Cloud server**. The server is in charge of collecting the identification and presence sent by the transceiver and executes the

presence control applications. The business layers, the persistence layer, and the administration and control layer are located on this server, as well as all associated services.



Fig 1. General diagram of the system

The control zone is the zone in which the presence of the worker is monitored. This zone of control will be established by wireless communication technology, typically Wi-Fi communication.

The deployment of this technology can be carried out in two possible scenarios. In one of the scenarios, control zones are created at the accesses to the workplace. In this way, the entrances and exits of the workers can be known. The second scenario refers to the possibility of monitoring the activity of the workers, locating the position of each worker and therefore recording the dedication of the worker to each of the tasks.

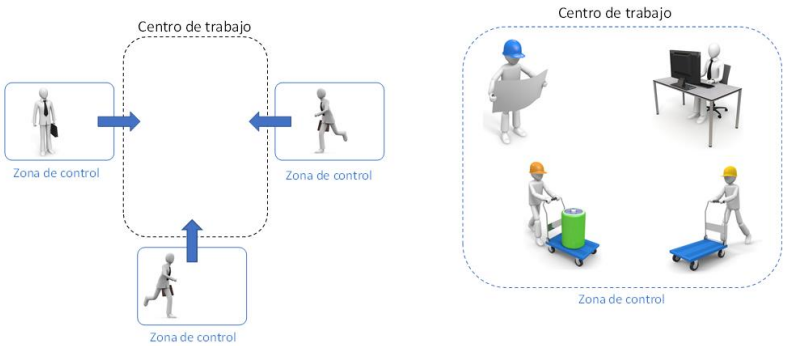

Fig 2. Stages of application

VENTAJAS Y ASPECTOS INNOVADORES

MAIN ADVANTAGES OF THE TECHNOLOGY

• Technology is very interesting for any type of company that has a considerable number of workers and wants to optimize the monitoring of their access to workplaces and the tasks performed.

• The system is automatic and transparent for users. Currently, the time stamping process is a manual process that requires worker action. This system prevents workers from carrying out this monotonous daily task that does not provide added value to the company.

• Reduction of errors and forgetfulness. The system avoids possible errors or forgetfulness that occur when workers enter data in the system.

• Monitoring of tasks and processes. The system allows knowing the activities carried out by the workers and the real dedication to it. This information is very useful to estimate the profitability of the processes and the associated costs.

• Reduced infrastructure. The necessary infrastructure is not too complex because it operates with low-cost sensors and the centralized system is managed from the cloud.

INNOVATIVE ASPECTS

Technology represents a notable advance when it comes to managing the company's human resources. In companies with a high number of workers, with the management of different shifts and with different work centers, time registration can be a complex process. If you also want to monitor the different processes in which each worker participates to optimize operations, this task becomes even more complicated.

There are no systems that allow the automated management of these processes, so the proposed technology represents a notable innovation, managing a large amount of information and avoiding the performance of tedious tasks and the maintenance of outdated infrastructures.

With a reduced investment, company managers can count on an effective tool that provides accurate information, essential for monitoring company activities and allowing decision-making.

ESTADO ACTUAL

The research group has developed a functional prototype of the system. The system can use different data collection technologies and can be adapted to different contexts and types of business activities depending on the needs of the company.

APLICACIONES DE LA OFERTA

This technology is interesting for any type of company. It will be of special interest to those who present a greater complexity, such as having a large number of workers, who perform different tasks, require their movement between different processes or Jobs, or that the work activity is planned through parts and complex work shifts.

For example, the technology may be of interest to industrial or service companies, public administration centers, hospitals, transportation companies, etc.

COLABORACIÓN BUSCADA

We are looking for companies interested in acquiring this technology for commercial exploitation through:

- Patent license agreements.
- R&D project agreement (technical cooperation) to undertake technology-related projects.

DERECHOS DE PROPIEDAD INTELECTUAL

This technology is protected by **patent**:

- Title of patent: “SISTEMA Y MÉTODO DE CONTROL DE PRESENCIA DESASISTIDO”
- Application number: P201930906
- Application date: 14/10/2019

SECTORES DE APLICACIÓN (2)

Computer Science, Language and Communication
Engineering, Robotics and Automation