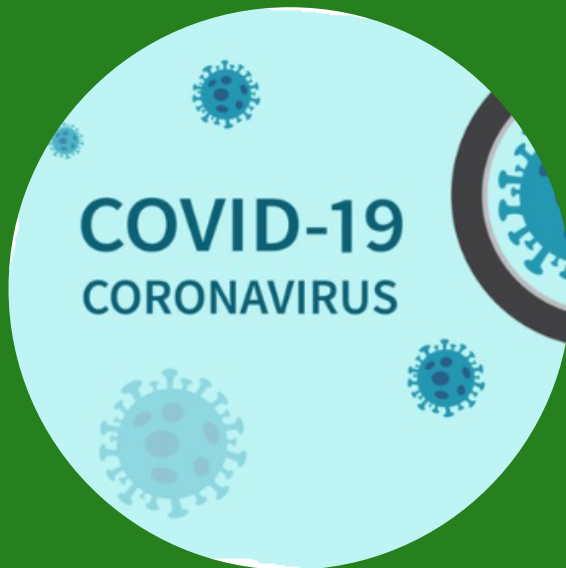




CASE STUDY

INDUSTRIAL SHIELDS



SAFE ESTABLISHMENT #CORONAVIRUS

Given the exceptional situation we are facing due to the COVID-19 crisis and the measures approved by the government in relation to small businesses, which have to respect the limitations imposed about social distancing and hygiene, we have thought of an effective and low-cost solution that drastically reduces the risk of contagion from our business and also complies with current regulations. In this way, customers will have a certain security to go to the store feeling comfortable when buying or requesting a service.

SUMMARY

The idea consists in having a control over the people that enter in our shop, which will allow us to:

- know the facility capacity at any time,
- as well as taking each customer's temperature to ensure that they are not infected.

Another function of our system is to sanitize the room using ozone. This process can be carried out during lunch break and at night to ensure a clean and disinfected store.

It is important to say that ozone is one of the compounds with the highest oxidizing capacity, far superior to chlorine, which means that it has a higher biocidal efficiency, so we can ensure 100 % disinfection.

To achieve this objective, we have thought of creating an automated system, controlled by an Industrial Shields PLC in combination with a Touchberry Panel PC. In this way we can install sensors that monitor the system and an ozone machine. Through the Touchberry we can receive system alarms as well as visualize and/or modify the different parameters.



CASE STUDY

IMPLEMENTATION

As we mentioned before, the device in charge of controlling the system will be the PLC which needs a 24V power supply to switch on. These two items are priced at 235 euros.

Once we have the automaton on, we can connect the other gadgets:

- **Panel PC TouchBerry**, via Ethernet. This device has a market price of 488 euros.
- **Ozone machine**. To make the connection using a digital output, we will need a solid state relay since the machine is powered by 220V and the digital output provides 24V at most. (Approx 300 euros).
- **Photocell (infrared) sensor**. It will indicate the passage of people through the door of the store in order to control the capacity. (approx. 50 euros).
- **Ozone sensor**. To guarantee the disinfection of the establishment, there must be a certain concentration of ozone in the air. Through this sensor we will know how long the ozone machine has to operate. (Approx. 60 euros).
- **Temperature sensor (laser)**. We will use it to take the temperature of each customer. (Approx 30 euros)

The sequence of our system will start with the configuration. Through the PC Panel, we will introduce the maximum capacity of the store and the hours when we want the disinfection process to take place. With these parameters in mind, a people counter will be started. When the limit has been reached, a warning message will be shown on the screen advising that new people cannot enter until someone leaves. When there is a person detection, the temperature sensor will be read; if it exceeds the limit, an alarm message will be displayed on the screen. The disinfection process will consist of automatically turning on the ozone machine according to the schedule and letting it run until the ozone concentration is adequate.

As you can see, the total budget of the project is really low and ranges between 1500 - 2000 euros including the programming of the system.

