**PROJECT MANAGER**

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**TEAM**

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**INTRODUCTION**

In order to fall within the facilities provided for by the "Industry 4.0" plan and to provide customers with new control systems both locally in the beauty center or solarium, both remotely, via cloud interface, the company works to implement a new control interface

**DEFINITION OF OBJECTIVES**

The goal is to integrate a wifi / remote connection into our devices that allows us:

- to control the parameters that come from the machine

- read the device data (how much it was on, how many cycles, if it was used in the last days ...)

- To check if it can work or if we want to block it for safety reasons

We already have a complete set in our devices of electronics that manages the whole machine.

What we don't have is something that can take all the data to the cloud where we can control it.

**PATH DEFINITION**

The idea is to connect a Nodemcu card or an ESP32-based card to the serial port of our device, which will be connected via a wifi router to a cloud where we can view the data, and give restricted users access to a group of machines.

**TIMING**

Approximately ½ months from the start of the project to commercialization (September 2021).

**PROTOCOL**

The serial protocol underlying the communication will be based on ASCII and will consist of a series of strings

The parameters to be reported and the information to be exchanged are:

SERIAL IDENTIFICATION NUMBER of the machine

SESSION

START Session, for X minutes

END Regular session (if completed)

END session from stop (if the customer presses stop)

NO end of session (if the session is interrupted for any other reason, and / or power failure, to report irregularities)

PARAMETERS AND ANOMALIES

TEMPERATURE, expressed in degrees

SENSOR POSITION FILTERS OK / KO

CHECK LAMP MAINTENANCE (if the hours have been reached, send FLAG to change lamps necessary)

ANNUAL MAINTENANCE CHECK (can only be integrated with the calendar - to be studied in detail)

any other:

machine capacitor check)

PFC SENSOR (ANEMOMETER SENSOR (fan efficiency check)

VOLTAGE SENSOR inINPUT

SENSORPHASES EXISTENCE (RST N Ground)

The ESP32 board will check the checksum and respond in turn.

During the polling the UV COMMANDER Smart Solarium will do (every 2000 ms ???) it will in turn be able to reply to the UV COMMANDER card.

OPERATING PROPOSAL ASCII CODES above

CHECKSUM: XOR on all characters

**UV COMMANDER (Smart Solarium) -----> ESP32 based board**

UV COMMANDER SEND OUT EVERY 2000 MS a basic ascii “ALIVE”, followed by below info:

(EX.---> “ALIVE, HELLO - Serial. A1221 / 001” ---< “ALIVE OK, OK - SERIAL”

---> “ALIVE, START 600” ---< “ALIVE OK, START 600”)

EVENT

| **Description of event** | **ASCIIin output from power board** | **ANSWER** |
| --- | --- | --- |
| polling 2000 ms | " ALIVE " | " ALIVE OK " |
| Presentation of the machine at start-up | “HELLO - Serial. A1221 / 001 " | " OK - SERIAL " |
| START SESSION with minutes (expressed in seconds) | " START 600 "(10 minutes) | * transmit to server +1 count start - 600 seconds |
| END regular session | " STOP 600 " | * transmit to server +1 count STOP - 600 seconds |
| END OF SESSION from stop button | " STOP 550 " | * transmit to server +1 count STOP STOP - 550 seconds |
| ENDSESSION not regular | "STOPKO " | ------- no stop transmitted |
| Temperature | "TEMP 25" | * transmit to server |
| Sensor Filters | "FILTER OK" / "FILTER KO" | * transmit to server |
| Lamp maintenance | "LAMP HOUR MAINT OK" / "LAMP HOUR MAINT KO" | * transmit to server |
| Annual maintenance | "YEAR MAINT OK" / "YEAR MAINT KO " | * transmit to server |
| Power factor correction | " AMP XX "(XX ampere number) | * transmit to server |
| Anemometer sensor, fans | " VENT XXX "(XXX speed of fan) | * transmit to server |
| Input voltage | " VOLT IN XXXV "(eg." VOLT IN 220V ") | * Transmit to server |
| Presence Phases | " RST OK "/" RST KO " | * transmit to server |

ESP32 based board -----> UV COMMANDER (Smart Solarium) ------> ES P32 based board

ESP32 transmits in response to polling "ALIVE"

EVERY 2000 ms the commander BOARD (SMART) send out POLLING on the serial.

POLLING: “ALIVE”

(EX.---> “ALIVE” ---< “ALIVE OK, BLOCK” ---> “BLOCK OK”)

The ESP32 board answer

| **Description of event / INPUT FROM THE REMOTE OPERATOR IN THE CLOUD** | **ASCII ESP32** | **Response UV Commander** |
| --- | --- | --- |
| Total Block | "BLOCK" | "BLOCK OK" |
| Message display on screen | Message "READ THIS MESSAGE" | "Message" |
| Change payment system | "PAYMENT CARD"  "PAYMENT STD"  "PAYMENT TOKEN"  "PAYMENT EXT" | "PAYMENT CHANGE TO CARD"  "PAYMENT CHANGE TO STD"  "PAYMENT CHANGE TO TOKEN"  "PAYMENT CHANGE TO EXT" |
| No Internet connection | "NO INTERNET" | "NO INTERNET" |
|  |  |  |