

Profile View

Details

Title: Wireless plug&play greenhouse automation solution

POD Reference: TOAT20210914001

Summary:

An Austrian SME has developed an easy to use, wireless solution to automate growing conditions of plants such as °C, aeration, light and CO2 concentration. The system consists of one controller and one power plug that are plugged in conventional power sockets and switch on/off connected hardware such as fans. Growing conditions are easily controlled via an intuitive app. Partners are sought for commercial, license and manufacturing agreements.

Description:

DESCRIPTION OF THE SOLUTION:

An Austrian SME developed a solution to automate the regulation of environmental parameters for optimization of the growth of plants grown under regulated conditions (greenhouse, growth tent,...). The technology enables companies and hobby gardeners to automatize their infrastructure via a cheap and easy to use plug&play solution without the need to involve specialized companies.

The solution consists of a controller with integrated CO2, humidity, and °C sensors (soil moisture under development). This controller is connected with relevant infrastructure (fan, heating, light, pumps, fertilizer system, ...) via an integrated radio wave protocol.

The connection between controller and infrastructure can be established via power plugs with an integrated radio wave protocol. The power plugs are plugged in conventional power sockets and the infrastructure (fans, ...) is then plugged into these plugs. The controller is then communicating with the plugs automatically. Via an app solution the plugs are defined (plug 1 = fan, ...) and desired environmental parameters are set. The controller automatically switches the infrastructure on and off based on measured values to ensure the pre-set environmental conditions. All measured data will be stored in a cloud and data can be retrieved, re-used and shared at any time.

As an alternative to the power plugs an I/O board is provided that can be connected with existing infrastructure to enable stepless control (light dimming,...) if needed. This is a sender and receiver unit which is attached to peripherals like fan, LED, sensors to dim them based on the desired climate/automation settings or just read sensor data -

everything wireless (via radio waves). This board can work with many different peripherals independent from the manufacturer and is connected to the controller by pressing only one button.

An integration of this I/O board could be of interest for manufacturers for other purposes than plant growth control since the board is attached to the power supply easily and without changes of the design:

- Products would get additional features (automation, CO2 flooding, night mode, etc.).
- Products would get additional monitoring of temperature, humidity and CO2.
- I/O board was developed by the Austrian company and is tested and ready for mass production.

STATE OF THE ART TECHNOLOGIES do have major disadvantages:

- 1) Solutions based on cables (missing flexibility) or WLAN (susceptible to interference)
- 2) Easy to use solutions are "island solutions" with no plug&play automatization of all functions
- 3) Holistic system providers do have very specialized solutions. This leads to high initial costs (3-5 times higher).

APPLICATION AREAS:

- 1) Companies in the field of plant growth
- 2) Research institutes which do need a reasonably priced alternative to expensive solutions
- 3) Private households

THE AUSTRIAN COMPANY IS NOW LOOKING FOR:

- 1) Producers of relevant infrastructure such as fans (100-160mm diameter), pumps, hydro sensors, soil moisture sensors, and LED lights. With these companies manufacturing agreements or license agreements are sought.
- 2) Companies active in the field of automatization of indoor agricultural facilities. With these companies commercial agreements with technical cooperation or license agreements are sought.

Advantages and Innovations:

1) Easy to use plug&play solution providing automation of all parameters needed without a need to involve specialized companies. No maintenance costs.

2) Inexpensive solution: Controller ~350 Euro, Power plugs ~70 Euro, I/O board ~ 100 Euro. State of the art solutions do cost approximately 3-5 times more.

3) Solution based on its own radio wave protocol that guarantes 30m interference free communication. No cables, no worries regarding Wi-Fi issues.

Stage of Development:

Already on the market

IPR status::

Patent(s) applied for but not yet granted

Patents granted

Comments Regarding IPR Status:

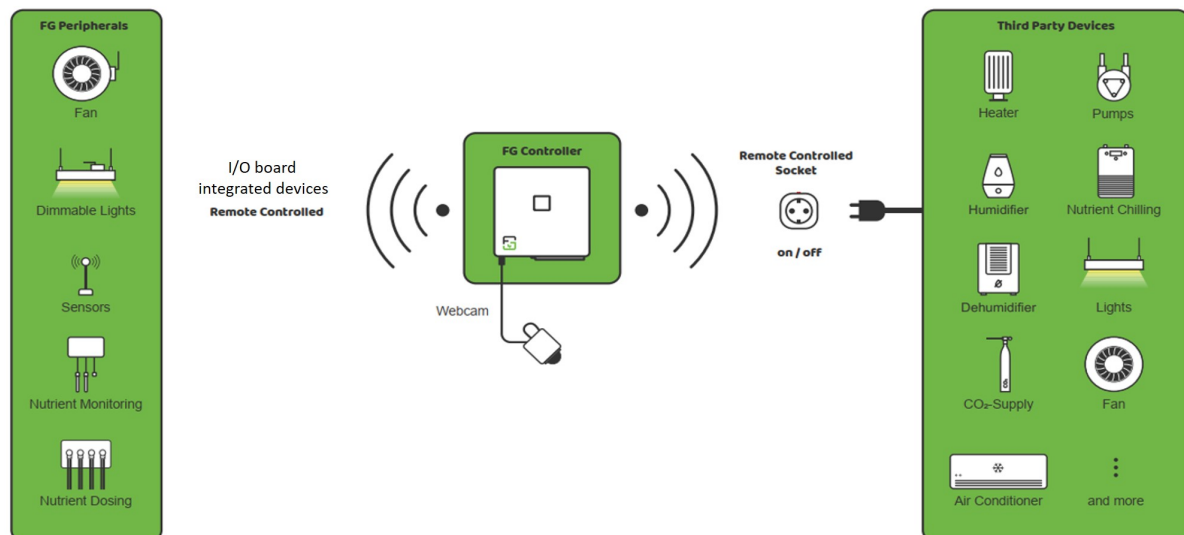
2 patents.

One is granted for the process of airtight growing in cooled and sealed chassis and one is still pending (cooling of LED lights)

Profile Origin:

National or Regional R&D programme

Attachments



Scheme



App



Power plugs



I/O Board



Controller

Keywords

Technology 07001001 Agriculture Machinery / Technology

Keywords: 07001004 Crop Production

07001005 Horticulture

07001007 Precision agriculture

10002010 Remote sensing technology

Market Keywords: 05009004 Plant health

08002002 Industrial measurement and sensing equipment

08002003 Process control equipment and systems

09005 Agriculture, Forestry, Fishing, Animal Husbandry & Related Products

Partner Sought

Type and Role of Partner Sought:

The Austrian company is now looking for partners:

1) Producers of relevant infrastructure such as EC fans (100-160mm diameter), pumps, hydro sensors, soil moisture sensors, and LED lights (with Meanwell hardware driver) that are willing to integrate the "I/O board" in their products. With these companies a manufacturing agreement or a license agreement is sought (white label integration) in case that companies are interested to integrate this technology into their mass production chain and/or in their existing distribution network.

2) Companies active in the field of automatization of indoor agricultural facilities. In specific companies that are automating parts of indoor facilities and are not providing complete systems. These companies can add the solution to their portfolio (technical cooperation agreement) or license the technology (white label integration).

Type and Size of Partner Sought:

>500

>500 MNE

251-500

R&D Institution

SME <10

SME 11-50

SME 51-250

University

Type of Partnership

Commercial agreement with technical assistance

Considered:

License agreement

Manufacturing agreement

Technical cooperation agreement

Client

Type and Size of Client:

Industry SME <= 10

Already Engaged in Trans-National Cooperation:

No

Languages Spoken:

English

Client Country:

German

Austria

Dissemination

Relevant Sector
Groups: Agrofood

