





Measuring systems - Automation - Monitoring



Table of contents

About us

Products & Services

Sensors and Decision Support Systems Network stations, modular with different for All measurement options Pre-equipped main stations Secondary stations Sensors for all climatic variables Sensors for microclimate inside the cano Soil sensors Irrigation automation Customized solutions for irrigation Automated insects monitoring and count Monitoring of the canopy

Software

Aurora Web: monitoring software Control, automation and Decision Suppo Disease forecasting models Data processing and forecasting models

R&D projects

Contacts

	4
	6
	6
unctions	8
	10
	12
	13
	14
ру	16
	18
	20
	21
ting	24
	26
	28
	28
ort	30
	32
S	33
	34
	38

About us

At CET Electronics, we have been developing electronic and computer systems for monitoring and remote control in various fields since 1976. Our line of sensors and software services for monitoring and decision support in agriculture is among the most advanced in the market. We also offer research, engineering, hardware and software development services for third parties.

Our mission

Produrre sistemi di qualità è la nostra principale fonte di entusiasmo. Perseguiamo questo obiettivo tramite una continua analisi volta a migliorare i nostri processi interni e con un costante investimento in ricerca e innovazione. Tutti i nostri prodotti sono frutto di un'approfondita attività interna di ricerca e sviluppo e vengono realizzati nei nostri laboratori.

Our team

Producing quality systems is our main source of enthusiasm. We pursue this goal through continuous analysis aimed at improving our internal processes and through constant investment in research and innovation. All of our products are the result of extensive in-house research and development and are manufactured in our laboratories.











Research

Development

Production

Service

Sensors and Decision Support Systems

What is it for

The use of sensors in the field makes it possible to monitor variables of agronomic interest, such as temperature, humidity, rainfall, leaf wetness and many others, through precise measurements acquired continuously over time, without the need for human intervention. This makes it possible to know at any time, remotely, the state of the field, identifying critical conditions for the development of diseases or other problems, also through automated data processing.

How dos it work

Our sensors can be assembled into a single weather station, or dislocated at various points on the plot connected to secondary stations. Data collected by the sensors are transmitted via the Internet or radio and are viewed by the user on a web portal, from a computer or a smartphone. The data are processed automatically through algorithms that provide decision support, as a result. The Web portal provides also an interface for automation, such as for the irrigation plant, or others in the case of protected crops.

Which advantages

With measured data and decision support, you can plan targeted and timely interventions in the field based on the real needs of the crop.

- Iln difficult vintages, you can save your production by limiting the losses due to adverse weather conditions.
- In simpler vintages, you can save resources such as water and plant protection products, reducing costs and impact on the environment.





Network stations, modular with different functions

Networked stations for

versatility, extensibility.

cet

spatially distributed

data: reliability,

Our stations have different functionalities, from climate monitoring to canopy and insect monitoring, and they are composable with different sensors according to your specific needs.

- "WSTATION" is a pre-equipped weather station measuring the main climatic variables: rainfall, T, RH, air pressure and leaf wetness/dripping. Available in three models that can be supplemented with additional sensors.
- "IRRI-BOX" is a smaller station to connect multiple microclimate sensors, to be used as secondary measurement point distributed in the field. It also allows irrigation control. Available in two models .
- "WCam" is a stereo camera for vegetation monitoring, which can also be used as a secondary station to connect multiple microclimate sensors.
- "WTrap" is an electronic trap for monitoring insect captures.

WStation

IRRI-BOX



Key features of any station

- •
- •
- Extra continuity (for special applications): external sealed . lead acid 12Vdc battery with external charger module.
- GPS satellite position and time. •
- Connectivity: cellular, medium range radio, RS485, 2WI
- Electronic section housed in IP65 enclosures resistant to . water and pesticide treatments.
- Modbus.
- Possibility of installation directly on a tree crop pole, or on • an external pole or tripod.
- Possibility of monitoring and automation through the • Aurora Web supervision system.

- Power supply via solar panel from 5 to 20W as needed, with optimized energy management via MPPT (Maximum Power Point Tracking), or external 10-24VDC.
- Lithium-ion battery with long life and durability.

Advanced communication protocols such as WNode, IP and

It is possible to create a wireless network among all the types of stations located in various plots, via Internet connection or, where possible, via radio connection.

All measurement options







Wind

Temperature, pressure and relative humidity

Rainfall



Soil moisture



Images and measurements of canopy



Solar radiation



Leaf wetness & dripping



Temperature and RH inside the canopy



Insects captures



Everything you need to know from the field, in real time.

Pre-equipped main stations

		WSTATION				
Sensors	Description	MINI	STANDARD	CAM		
C7857M	Pluviometer	 Image: A second s	1	1		
DIGIP14P	Temperature, Relative Humidity, Pressure of the air	1	1	1		
LWS-PLUS-007	Leaf wetness, dripping, foliar temperature	1	1	1		
C6410	Anemometer	+	+	+		
LWS-PLUSM	Leaf wetness, dripping, foliar temp. + T, RH in canopy	-	+	+		
SCXF	Temperature and Relative Humidity (in canopy)	-	+	+		
SAM-CUBE, SAM-WIRE	Soil moisture	-	+3	+3		
IRS18	Solar radiation	-	+	+		
WCAM2	Stereo camera (canopy pictures and measurements)	-	-	1		

Secondary stations

Sensori	Descrizione	IRRI-BOX 1	IRRI-BOX 3	WCAM2-BOX
WCAM2	Stereo camera (canopy pictures and measurements)	-	-	 Image: A start of the start of
DIGIP14P	Relative Humidity, Temperature (shielded)		+	+
LWS-PLUSM	Leaf wetness, dripping, foliar temp. + T, RH in canopy		+	+
SCXF	Temperature, Relative Humidity in canopy	+3 at choice	+	+
SAM-CUBE, SAM-WIRE	Soil moisture		+3	+3
IRS18	Solar radiation		+	+
Water pressure	Checking whether the irrigation system is working		+	-
Flow meter	Measuring the supplied water		+2	-
Electrovalve control	Turning irrigation on/off		+3	_



Sensors for all climatic variables



AeroCone Pluviometer C7857M

Rain gauge with 0.2 mm resolution, with tilt sensor. The innovative aerodynamic design with AeroCone funnel, is designed for maximum accuracy in high wind conditions. The shape allows wind to flow around the cone, reducing turbulence and friction at the entrance of the rain gauge, responsible of partially deflecting the incoming rain.

Data available on Aurora Web

Rainfall amount (mm/day, cumulative persistent rainfall in mm) rain rate (mm/h)



DIGIP14P

IRS18

2D Anemometer C6410

Anemometer for detecting wind speed and direction. Equipped with three cups mounted around a rotating vertical axis: rotation is proportional to wind speed, the number of rotations made in a given time interval is counted to calculate the average speed. The vane orientates in the direction of the wind and is equipped with new brass tip for maximum accuracy.

Data available on Aurora Web

- instantaneous wind speed (km/h)
- average speed (km/h)
- peak speed (km/h)
- wind direction (wind rose)



Temperature, Relative Humidity and pressure probe

Digital probe of air temperature, relative humidity and atmospheric pressure, suitable for many applications. In weather stations, the probe is inserted inside a sun shield that is hooked under the rain gauge to provide a standardized measurement condition, avoiding the influence of direct solar radiation.

Data available on Aurora Web

 air temperature (-40°C to 120°C) • air Relative Humidity (% RH) atmospheric pressure (mbar)

Solar radiation sensor

Solar radiation sensor characterized by high sensitivity and fast response rate. Sensitive to the visible and near-infrared spectrum, it covers the spectral region of interest for plant photosynthetic activity. The sensor can be used to estimate photosynthesis or can be connected to an artificial lighting automation system when protected crops requires it (e.g., in greenhouses).

Data available on Aurora Web radiation power per unit area (W/m)

Sensors for microclimate inside the canopy



Leaf wetness and dripping sensor LWS-PLUSM

Patented

Innovative sensor of capacitive type for measuring wetness on a simulated leaf surface. It measures also leaf temperature and, through an innovative patented method, it is the only sensor capable of detecting the "dripping" of water from the leaf. It is also integrated with an air temperature and relative humidity sensor, providing the most complete solution for the microclimate inside the canopy. The new hardware with internal electrodes allows for increased durability and measurement sensitivity. Leaf wetness is crucial for monitoring the development of certain fungal diseases such as grapevine downy mildew.

Data available on Aurora Web

- leaf wetness (% of area covered by water)
- dripping (peak % associated with the event)
- leaf temperature (°C)
- air temperature (°C) (inside canopy)
- air relative humidity (% RH) (inside canopy)

Air temperature and relative humidity pro-SCXF14

Temperature and Relative Humidity probe for monitoring the climate inside the canopy. It has the same measurement characteristics as the DIGIP14 sensor, but a more durable mechanics, suitable for direct exposure to phytosanitary treatments, with an easily replaceable filter. The probe is partially shielded by an aluminum cylinder and allows monitoring of the most representative climate conditions inside the canopy for the development of possible infections.

Data available on Aurora Web

air temperature inside canopy (-40°C to 120°C) relative humidity inside canopy (% RH)





Soil sensors



Soil moisture and temperature sensor SAM

Tested by the University of Pisa

A reliable soil sensor suitable for all types of substrates, it measures the dielectric characteristics of the medium in which the stainless steel electrodes are inserted to derive volumetric moisture and conductivity measurements of the material. The proprietary measurement system FFVA - Fixed Frequency Vector Analisys, exploits a high-frequency generator and a neural network calculation algorithm, to achieve high accuracy on each type of substrate. Unlike common resistive or low-frequency sensors, the measurement is not affected by the salinity level of the soil. The probe is used to monitor water availability in the soil and can be connected to an irrigation automation system. It may be useful to install multiple probes at different depths.

Data available on Aurora Web

- volumetric moisture content (% water in unit volume
- conductivity of water (S/m)
- conductivity of soil (S/m)
- soil temperature (°C)









Wide soil moisture sensor SAM-WIRE Patented

over 2 m length



SAM-WIRE is an innovative sensor that uses proprietary and patented technology to make a volumetric moisture measurement through a long measuring electrode. The resulting measurement is averaged over the path scouted by the electrode (2 mt), a distance similar to that explored by the roots of a plant.

The main advantage is to obtain stable, reliable and representative measurements, especially in stony inhomogeneous soils and in cases where drip or localized irrigation is present. In the latter case, in fact, the measurements of more traditional sensors can be strongly influenced by the distance from the dripper and the characteristics of the soil in the immediate vicinity.

Data available on Aurora Web

Volumetric moisture content (% water in unit volume), averaged

Irrigation automation

Stations for irrigation control IRRI-PFC e IRRI-BOX 1/3

IRRI-PFC and IRRI-BOX are two models of stations for irrigation control and automation that differ in the quantity of controlled irrigation sectors, while both have the following features:

• 12-24 VDC power supply or via solar panel and built-in batteru.

• Data communication via a SIM card installed on board or via the network of connected devices.

• IRRI-PFC/IRRI-BOX modules can be used individually or combined in a network with each other for automation of more complex scenarios, including communication with weather stations.

• Soil moisture sensors and other climate probes can be connected to IRRI-PFC/IRRI-BOX modules to support irrigation decisions and strategies:

• support up to 3 soil moistur probes (SAM type) in case of solar panel power supply, or an unlimited number of SAM probes in case of external power supply;

• support all the climate probes of a weather station (e.g.temperature, leaf wetness, relative humidity)

• Wide possibility of customizing irrigation programs through different modes (e.g., cyclic, by days per week, with precise dates, with split irrigation cycle, etc.)

• Simple and intuitive configuration of irrigation programs via the Aurora WEB portal, accessible from any device with an internet connection.

Differentiated management of different irrigation sectors is achieved by means of a networked arrangement of control modules, tailored to your plant layout. Connecting with SAM soil moisture sensors (and other climate probes) allows you to manage irrigation intelligently, based on the actual needs of the crop: optimizing the water resource means increasing environmental sustainability and reducing operating costs.



Customized solutions for irrigation



IRRI-PFC

one master valve.

20

Advanced station

Manages up to 10 differentiated irrigation zones (10 bistable valves 9-12 VDC or 10 monostable valves 12-240 Vac or a combination of the two) or 9 zones plus

Supports up to 2 water meters.

Supports 1 water pressure sensor.

To be placed inside an electrical panel.

Data available on Aurora Web

 data from connected sensors • configuration of the irrigation programs



Minimal compact station IRRI-BOX 1

Manages a single irrigation zone (bistable 9-12V valve). Supports up to 1 water meter.

Supports 1 water pressure sensor and 1 liter counter. If not used for irrigation control, it can support 2 to 4 climate sensors depending on type. Power supply via solar panel, IP65 water-resistant enclosure, it can be placed in open field.

Data available on Aurora Web

- data from connected sensors
- configuration of the irrigation programs



Medium compact station IRRI-BOX 3

Manages up to 3 differentiated irrigation zones (3 bistable 9-12V valves) or 2 zones plus a master valve. Supports up to 2 water meters. Supports 1 water pressure sensor.

Power supply via solar panel, IP65 water-resistant enclosure, it can be placed in open field.

Data available on Aurora Web

- data from connected sensors
- configuration of the irrigation programs



Irrigation control: flexible, scalable, and intelligent

Automated insects monitoring and counting



Monitoring of insect captures **WTRAP**

WTrap is an insect pheromone trap equipped with a highresolution camera (8 Mpx) that allows remote monitoring of captures. The camera frames the capture plate by taking daily photos, which are visible in the Aurora web portal. A flash system and an automatic cleaning from reflections allows very high image quality for visual recognition of most insects.

In large or widely spaced plots, it is an essential tool for intensifying insects checks without the need for a trained technician going to the field.

WTrap can be placed anywhere as an independent monitoring station: it communicates via SIM and is powered by Lithium batteries and solar panel.

Data available on Aurora Web

images of captures stored by date





Insect recognition software **TRAP VISION**

It is the image analysis service combined with the WTrap device for automatic recognition and counting of captured insects. Based on Artificial Intelligence techniques, the software is capable of recognizing the main insects of interest to the vineyard and orchard (vine moths, carpocapsa, eulia, cydia molesta). The software does not need to specify the pheromone, it is able to memorize previous catches without counting the same insect multiple times, and it is robust with respect to small movements of the plate or of the insects themselves. An index of plate dirtiness automatically indicates when there is a need to replace the plate. Plate change is automatically recognized, resetting the insects counting. Catch counts, both new and cumulative, are displayed in graphs that allow insecticide treatments to be planned.



Remote insect monitoring: efficient tool to optimize pesticide treatments



Data available on Aurora Web

• No. of daily and cumulative catches • automatic plate dirtyness index processed pictures with labeled recognized insects

Monitoring of the canopy



Canopy monitoring camera WCAM 2

Patented

WCAM-2 is an innovative computer vision system to monitor the vegetative development of tree crops in open field. The stereo camera is installed in front of the vegetation, acquiring daily photos of the plants, with a 3-dimensional view. The hardware is specifically designed to resist adverse atmospheric conditions and PPPs treatments: a special, patented optics protection mechanism ensures that "clean" images of the highest quality are acquired at all times.

WCAM-2 can be installed as a stand-alone device, powered by a solar panel, or it can be combined with the full set of climate probes in the WStation-CAM. Daily acquired photos, transmitted via Internet (SIM or wifi), are processed by a AI based software of image analysis, recognizing the vegetation and measuring it in terms of volume, leaf area and average leaf inclination. An integrated thermal IR camera provides the average temperature of the plant canopy wall. The data obtained are most useful for agronomic management, allowing:

- · Quantify the development of new vegetation, potentially uncovered by previous PPPs treatments and more susceptible to infections. The information is linked to infection risk by forecasting models, suggesting when there is actual need for a new treatment.
- Quantify the optimal dosages of PPPs according to the plant's vegetative development, minimizing product wastage.
- Estimate the plant water status through leaf inclination and leaf temperature (through irrivision model)

Data available on Aurora Web

canopy volume (m³/m of row, m³/Ha) • total leaf area (m²/m of row, m²/Ha) canopy height and depth (m) • average leaf inclination (° from horizon) average canopy temperature (°C)

Images from WCAM



Automatic canopy detection



3D view of the canopy (depth map)





Aurora Web: monitoring software

What it is

Aurora Web is the modular software that allows visualization and interaction with data from the field, whether real-time or historical. The web portal is accessible from any browser on PC or smartphont. From Aurora Web it is possible to simultaneously monitor multiple meteorological stations located in the field, as well as other monitoring points like WTrap, WCAM or IRRI-BOX microstations. Aurora WEB offers a complete overview of all the information coming from the field, organized in an intuitive display, with the possibility of further customized comparative reading of the data. Automations and Decision Support are included as an option.

What it allows to do

Some functions

Due to the modularity of the software, it is possible to program automation sections where output devices are available (e.g., solenoid valves, opening dampers, etc.). While for monitoring the Aurora WEB service is available via the Internet, in the case of automation (e.g., irrigation) it is possible to

make ad-hoc installations on private systems: cloud, servers, industrial PCs or embedded systems. The WEB portal is suitable for viewing from desktop PCs, tablets or smartphones for maximum convenience and usability.

Farm management tools, such as the warehouse and the farm notebook, are available within Aurora WEB. It is possible to schedule major agronomic activities in simple steps and assign them to possible operators. Activities are displayed as labels in the time-line along with weather trends.

Aurora WEB also offers decision-support tools such as forecasting models for major vineyard and orchard adversities, which work on the basis of climate data collected by the station. Satellite maps are also available. Aurora WEB offers the ability to set up alert systems based on user-settable thresholds, relating for example to certain rainfall values, insect catches, or infection forecasts.



28

Control, automation and decision support

Activity and warehouse management

Aurora WEB makes it easy to create phytosanitary treatment recipes, storing them in an activity list. To simplify the farm management, a warehouse option is integrated with loading and unloading functions (automatic with the creation of treatments activities), allowing to keep under control the availability of plant protection products at all times.

 Azierida dimostrativa 	0	Data	4.7	Tim .	 Destinatione	¥	940- T
Generale		10 mag 2022, 15:29:00		Spray	Casa Clem 1990 Merce 2012 Marzenino 2015		- Fatta
> ARGINI > ARGINI_HYD		27 kpc 2022, 16:25:59-		Splay	Casa Olien 1998 Merlet 2012 Maintenine 2015 Affitto Pinot grigie 2021 Chardemay 2016		🗸 Fatta
> MANZONI		21 apr 2022, 16:31 12		Spray	Affitto Plinot grigio 2021 Churdonnay 2016		B Da fare
Grafico generale		21 apr 2022, 16:23:26		Spray	Casa Glene 1998 Merice 2012 Marzamino 2015		🖉 Fatta
Rischio		21 apr 2022, 15:30:47		Spray	Casa Glera 1990 Merici 2012 Marzemino 2015		- Fatta
🛃 Марра							
> Quaderno di campagna							

Spring frost forecasts





Climate monitoring and alarms

Aurora WEB has a simple graphical interface for immediate recognition of key variables of interest, such as cumulative rainfall, temperature, humidity, and leaf wetness. Comparative and more extensive graphs can be custom created and exported in excel format. In addition, the system allows to set alarms (email sending) for frost risk and for customizable thresholds of rainfall (actual or predicted), wind and soil moisture.

mperatura dell'aria	Unredità dell'arte	Baghatura fogliare	Bagnatura fogliare in chionea	Piogola odiarria	Tioggie persistente accumidate
9.4°C	88.8%	29.8%	45.2%	22.8 mm	53.4 mm
aga perintente accordato		Frances glass =	9		
10-	h	1000	WCAM, MB - Stato della scheria		Replace
ю	A	(-sait	WCAM_AURORA-SLAVE - Stato della e	cheda	Repolars
	2	1 stime	WCAM_Bridge-GC - Stats della ached		Reptare
	rt		WCAM_SAMT - Stato della scheda		Regulars
1 m	2 -1	h and	WCAN, SAM Wer - Stato cella scheda		Repolare
-			WCAM, SAM1 - Tamperatura del dispo	ovta	1710
	V/		WCAM_SAM Wire - Temperature del d	opilito	159.0
	X/	1985.6	🔲 Baghatura Togliare in chioma		452%
			Bagnetura Togliare media in ritroma		27.1%
Burth th Du 25 125	1412 12 542 12 Sen 21	125 Map 20 125 Tats	Tamp. fogtare in chicma		86.0
04	6d 9d 6d	.00			

Images from WTrap and WCam

Aurora WEB is integrated with a frost forecasting service, a proprietary model that is based on the comparison of two different temperature measurements and allows the prediction of radiation frosts about four hours in advance. The risk can be integrated with that of weather forecasts and provides both graphical visualization and email alerts.



Aurora WEB è integrato con un servizio previsionale delle gelate, un modello proprietario che si basa sulla comparazione di due diverse misure di temperature e permette di prevedere con l'anticipo di alcune ore le gelate da irraggiamento. Il rischio può essere integrato con quello delle previsioni meteo e prevede sia la visualizzazione grafica che l'invio di allarmi via email.

Disease forecasting models

PVsensing model for grapevine downy mildew

PVsensing is our proprietary model for forecasting grapevine downy mildew infections. The model is the only one on the market that can take as input microclimatic data from the soil surface (temperature and humidity) and from inside the canopy (wetness, temperature, relative humidity, drip) and that considers canopy vegetation from direct measurements from the WCAM-2 device. All of these supplementary data are optional and, combined with the usual cliamatic ones, allow for greater accuracy in infection prediction, tailored on your own field. The model takes into account also the protection by phytosanitary treatments inserted in the field notebook, estimating the infection risk also as a function of the redisual PPPs coverage, related to rainfall and vegetation growth.



Forecasting models form third parties

Our main pre-equipped station can interface with other external models, like for example; RIMpro models for Powdery mildew, Black Rot, Apple scab. Data Processing and Forecasting Models



+	I.	+	+	I.	+	+
I	I	I	I.	I	I.	+
	I	I	I.	I	I	I
ı	>	I	I.	I	I.	>
I	>	I.	I.	I.	I	>
ı	I	T	I.	I	I	I
stereo camera (canopy pictures and measurements)	Anemometer	Leaf wetness, dripping, foliar temp. + T, RH in canopy	Temperature and Relative Humidity (in canopy)	Sail maisture	Relative Humidity at soil level	Solar radiation
WCAM2	C6410	LWS-LUS, DIGIP14T	SCXF	SAM-CUBE, SAM-WIRE	SSMM18	IRS18

R&D projects





Innovative sensors for the prevention of grapevine downy mildew infections.

www.pvsensing.it

The PVsensing project has field-tested innovative sensors of our own development for the construction and field calibration of a new forecasting model for grapevine downy mildew, one of the most important diseases in viticulture. The purpose is to predict cases when, with respect to the measured field conditions, there is an actual risk of infection and a PPPs spraying intervention is necessary.

The system is meant to be a guideline for the farmer in the management of plants defence, planning phytosanitary tratments rationally, according to the real needs of the crop. This allows for savings in plant protection products by avoiding waste in unnecessary treatments, sometimes carried out as a result of uncertain knowledge about the disease. The innovative measures introduced in the field, in addition to those of a standard weather station, are the following:

- Foliar growth, measured by the innovative WCAM2 device, which quantifies the new vegetation potentially uncovered by treatments and most exposed to the risk of infection, as well as dosing products based on vegetative development.
- 2. Soil surface moisture and temperature, measured by ad hoc sensors, which regulate the maturation and germination of oospores on the soil, resulting in the primary infections.
- The microclimate inside the canopy, including water drip, detected by the innovative LWS-PLUS sensor, affecting the spread of infection and the leaching of plant protection products.





กอีเรเบเรล



Optimizing the irrigation management by the use of Computer Vision

www.irrivision.it

IRRIVISION has tested on grapevine and kiwi fruit an innovative system for "precision" irrigation in tree crops, based on the use of multiple sensors and Computer Vision. A weather station with climatic and soil moisture sensors, complemented by our WCAM2 stereo camera, makes innovative measurements of plant water status, linked to the presence of visible symptoms/ characteristics on the canopy, such as leaf area, average leaf inclination, and average leaf temperature. Based on the data collected by the sensors and the physiological measurements made in the field in the project, specific water stress indices have been created, by which a software determines the water needs of the plants, providing advice about when and how much to irrigate or directly controlling the automation of the irrigation system.

This allows to manage the irrigation according to the following goals:

1) reducing water doses by precisely identifying the quantities and timing of irrigation;

2) improving the qualitative and/or quantitative aspects of production by optimally matching water doses to plant water requirements and market objectives.







TERRE







Autonomous robot connected to DSS for sustainable and efficient vineyard manage-

The project proposes a robotic vineyard management system that is characterized by the interaction between: an autonomous robot, sensors for data collection in the vineyard, and a decision support system (DSS). In this project, we have been the main developers of the robot's control electronics, implemented in two prototypes, which are operating autonomously in the vineyards, executing plant protection productstreatments upon indication from a DSS. A precision spraying system has also been developed by us, with on-board mixing of plant protection products and modulated dosing according to the amount of vegetation, automatically detected by a machine vision system on board the machine. The same technology is now being transferred to common trailed o mounted sprayers driven by a tractor. We also contributed to the develop the robot's autonomous driving software, based on GPS system and computer vision for path and obstacle detection in the surrounding









Pictures and texts: CET Electronics s.n.c. Graphic design: LPE Design (www.lpedesign.it)

Contacts



+39 0421 344100



info@cet-agritech.com cet@cet-electronics.com



CET Electronics s.n.c. Via Enrico Fermi 1, 31050 - Zenson di Piave (TV) - ITALY



www.cet-agritech.com www.cet-electronics.com



www.cet-agritech.com





at ET



Contatti



+39 0421 344100

info@cet-agritech.com cet@cet-electronics.com

CET Electronics s.n.c. Via Enrico Fermi 1, 31050 Zenson di Piave (TV) - ITALY



0

www.cet-agritech.com www.cet-electronics.com

