

DATA
Identity

Start-up created in 2011 in Switzerland, that is developing a robot that chemically weed the cereal crop fields	Name : Ecorobotix Address : Y-Parc, 6 rue Gallilée, 1400 Yverdon-les-Bains, SWITZERLAND Creation Date : 2011 Number of employees : 9 Legal entity : simplified joint stock company Profil of the company's founder(s) : Steve Tanner, son of a farmer and microtechnolog engineer and Aurelien Demaurex, holding a buisness school degree
---	--

History

2011 Creation of the company	2012	2013	2016 5 prototypes tested in beetroot and rape fields.	2017 Tests with institutes of research in France and Switzerland.	2018 Projection in a larger scale. Looking for europeans and french investors.	2019 Bringing to the market.	2020	2021
--	-------------	-------------	---	---	--	--	-------------	-------------

Fundraising

2013	2014	2015	2016 Fundraising of 3M of Swiss franc	2017	2018 Projection of a fundraising of 10M of Swiss franc	2019	2020	2021
-------------	-------------	-------------	---	-------------	--	-------------	-------------	-------------

Turnover

2013	2014	2015	2016	2017 None	2018	2019	2020	2021
-------------	-------------	-------------	-------------	---------------------	-------------	-------------	-------------	-------------

Employees profiles

2013	2014	2015	2016	2017	2018 9 employees, 1 agronome engineer, 1 mechanical engineer	2019	2020	2021
-------------	-------------	-------------	-------------	-------------	--	-------------	-------------	-------------

PRODUCTS
List of products

Chemically weeding robot (ALPO) for cereal crop fiels. projection : 25 000€	Price
--	--------------

Description

Straddling robot for cereal crop fields that detect weeds in the field thanks to a camera and that sprays pesticides on them. Extremely precise spraying that allows the farmer to use 20 times less pesticides than a classical spraying done by a tractor. The robot will carry two tanks of pesticides, will choose the best pesticide for each weed. The arm will deposit microdoses in the targeted weed.

A camera on top of the robot is used for steering and detection of the weeds. Is also helps the autonomous navigation in the field.

The software used to recognize the weeds (developed in an engineer school in Lausanne) is fed in live by the pictures taken by the camera and uses them immediately to improve this the recognition algorithm.

For the moment, the robot only work in beetroot and rape field but will work in corn, bean and spinach fields in 2018.

The robot has three moving modes :

- Can be guided by the farmer with a remote through the field,
- Automatically in the fields : follow the rows thanks to the camera and uses a RTK GPS in order to square its working area,
- Monitored by farmer through his mobile phone, knows where the robot is, the amount of work done, etc.


Technical sheet

Weight : 130 kg

Size : Width : 2,20m, Length : 1,70m, Height : 1,3m. Width of area covered : 2m, Space between crops : adjustable (between 35 and 70 cm)

Average moving speed : 0,4 m/h, **Surface area covered :** 3ha by day

Controlled by a smartphone and a remote

Power & Autonomy

- Electrical drive system
- Highly efficient solar cells and no rechargeable batteries
- Completely autonomous during the day (photovoltaic panels and batteries)

TECHNICAL SPECIFICATIONS

- 1 Photovoltaic panels
- 2 Camera and artificial vision for guidance and positioning
- 3 Navigation by GPS and sensors
- 4 Electrical drive
- 5 Rapid robotic arms with sprayers
- 6 Tanks for two different products


Key target group

Cereal crop farms cultivating in a conventional way.

Bibliography :

<http://www.ecorobotix.com/en/>

<https://www.terre-net.fr/partenaire/innovation-et-technologie/article/debuts-prometteurs-en-grandes-cultures-pour-ecorobotix-2894-133739.html>

<https://www.ouest-france.fr/economie/agriculture/ecorobotix-le-robot-desherbeur-solaire-de-triskalia-5380143>

FIRA event in december 2017.



FARM BOT

DATA

Identity

Company created by Rory Aronson in 2015 after two years of R&D made inside the Farmbot project (open source community). The company sales a gardener robot for unprofessional gardeners to install in their backyard.

Name : Farmbot
Adress : California, UNITED STATES
Creation Date : 2013
Number of employees : 3
Legal entity : Benefit corporation
Profil of the company's founder(s) : Rory Aronson, mechanical engineer. He is at the initiative of numerous projects combining technologies, environment and society.

History

2013	2014	2015	2016	2017	2018	2019	2020	2021
Creation of the Farmbot project (humanity's open-source CNC farming machine). Open source community developing technologies that are now used in the current farmbot.		Creation on the Farmbot company that commercialise the farmbot.	Sale of more that 500 farmbot genesis version 1.2 and 1.3	International supply of the farmbot. In december, development of a new wider prototype : farmbot genesis XL (two time the width and the length).				

Fund raising

2013	2014	2015	2016	2017	2018	2019	2020	2021
			Fundraising of 813 000\$	Second fundraising in order to develop the production of farmbot genesis and farmbot genesis XL.				

Turnover

2013	2014	2015	2016	2017	2018	2019	2020	2021
3 000\$	41 000\$	No information	No information					

Employees profiles

2013	2014	2015	2016	2017	2018	2019	2020	2021
					1 founder 2 developers			

PRODUCTS

List of products

Farmbot genesis
Price (with tools) : 2 800€

Description

Robotic tool for citizens who want to grow vegetables in their gardens. Farmbot sets up automatically a small productive garden. The owner chooses the vegetable he/she wants to grow and where he/she wants them on the crop bed using a website interface and the farmbot will take care of the rest :

- Will do the seedling,
- Will water the vegetables (the farmbot has soil moisture sensor and the software knows
- Will weed by burying the weeds (can detect the weeds thanks to a camera set up on top of the CNC arm)
- And tell the owner when the vegetables are ready to be harvested.

Every task is done thank to a CNC machine installed on top of a crop bed. The CNC machine move on the area and use specific tools to do all the tasks.

All the informations about the software and hardware required to build a farmbot are open source on the website. It is possible to connect the batteries to solar panels and to use water collectors.



Technical Sheets

Design, hardware and software are available on the farmbot website (<https://farm.bot/>)
 The farmbot can work on a 3x1,4m area for the farmbot genesis and 3x6m for the farmbot genesis XL

Key target group

Public
 Here customers are unprofessional gardeners that want to have a autonomous vegetable garden.

Professionnals
 In the end a lot of people are interested by the farmbot : mechanical teachers (for schools, universities, engineering schools, etc.) for pedagogical purposes, associations professional farmers, researchers, etc.

Bibliography

<https://www.numerama.com/tech/181987-farmbot-une-revolution-open-source-pour-cultiver-bio-sans-effort.html>
<http://farmbot.org/>
http://www.huffingtonpost.fr/2016/07/18/robot-jardin-farmbot-automatiquement_n_11050310.html

<https://farm.bot/>

DATA

Identity

Start-up created in 2011 by two robotic engineers that develop new technologies for the agricultural world. Goal of this company : participate in the building of a sustainable agriculture by developing robotic solutions to reduce the pain of the farmers.

Name : Naïo Technologies
Address : 235 Montagne noire, 31 750 Escalquens, FRANCE
Creation date : 2011
Number of employees : 24 employees (website)
Legal entity : simplified joint stock company
Profils of the company's founder(s) : Gaëtan Sévèrac et Aymeric Barthes co-founders, both holding a robotic engineering degree from the IMERIR school in Perpignan.

History

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gaëtan and Aymeric met a farmer that talked to them about the issues that farmers are facing : physical and mental fatigue due to the manual work.	Creation of the company dedicated to the development of robots to support a sustainable agriculture	Development of the first prototypes of robots and electrical hoes. First in-fields tests and design of the tools.	Development of the first functional prototype of the robot Oz. Beginning of exhibits of the robots to the chambers of agriculture and first sales.	10 Oz robots in service. Beginning of prototyping of robot (Dino) for vegetable crops farms.	30 Oz robots in service. Start of the conception of the robot dedicated to the vineyards.	70 Oz robots in service. First sale of the robot for vegetable crops farms and beginning of tests on the robot for the vineyards.	100 Oz and 10 Dino in service. Turnover planned of 1,2 millions euros.				

Fund raising

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
			First fundraising of 60 000 euros for the production of the first series of the Oz robot.	Fundraising of 750 000 euros for the industrialisation and bringing to market Oz.	Fundraising of 3M€ for technical and commercial development.		4th fundraising of 2 000 000 euros for the technical and international commercial development of the 3 robots.				

Turnover

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
					659 900€	584 000€	1,2M€ (Expectation)				

Employees profiles

Before 2017	2017	2018	2019	2020	2021
	2 co-founders, both robotic engineers, 1 administratif manager, 4 agronome engineers : deal with experimentation, client relationship and marketing 5 salespersons 9 persons in charge of the robotic development 2 persons in charge of production and industrialisation				

PRODUCTS

List of products

Robot Oz for market gardening Price : 25 000 euros without the tools	Robot Dino for vegetable farms Price : Around 70 000 euros without tools	Robot Ted for vineyard
---	---	------------------------

Description

<p>Weeding robot that does mechanical weeding and that goes between the rows of cultures. The robot can carry different weeding tools. Can do in-row weeding thanks to : weeding brush and spring harrow, in-row and inter-row with a comb harrow and can weed between the rows with a plowshare.</p> <p>The robot can operate in three modes :</p> <ul style="list-style-type: none"> - Manual mode : the robot is directly guided by the user with the help of a wireless remote control. - Tract and follow mode : Oz can follow you around and transport loads. The robot is also able to tow a small farm trailer to help you during harvesting or assist you during heavy or strenuous work. - Autonomous mode : In autonomous mode, Oz follows the crop rows of the plot and guides itself. Oz can weed all your crop rows without human supervision. <p>To guide the robot automatically in autonomous mode :</p> <ul style="list-style-type: none"> - Crops need to have leaves or be placed on mounds of at least 10 cm height, - In between rows a strip between 55cm to 120cm wide is required, - At both ends of the plot, Oz requires a strip of clean earth of mowed lawn that's about 250 cm wide to be able to turn around and start on the next row autonomously. 	<p>Weeding robot that straddles vegetable beds to mechanically weed large-scale vegetable farms. It is designed to weed industrial crops autonomously and without human supervision thanks to its guiding mechanism and its weeding and hoeing tools. It has to be driven to the area of culture with the remote control. After the farmer entered the cartography of the field in its software, Dino moves autonomously thanks to RTK GPS. Tools adapt themselves to the vegetables thanks to a camera located in the front of the robot that can adapt the positioning of the tools to the real location of the plants.</p> 	<p>Straddling robot that weed under the vines. For the moment, the robot only weed mechanically but in the future, the robot will also mow between the rows of vine, do bud removing (es in order to promote the maturation of the branches carrying the grape) and apply chemicals.</p> <p>The robot is developed in a collaborative project with IFV (French Institute of vine and wine) and LAAS-CNRS (robotics research laboratory in Toulouse). After entering the cartography of the field, Red moves autonomously thanks to RTK GPS, a camera and a laser that helps it adapt its path through the vineyard.</p> 
--	---	---

Technical Sheets

<p>Size & Weight Size without tools: Width 40cm, Height 60cm, Length 100cm (130cm tool carrier included). Ground clearance: 7cm. Weight batteries included: 110kg without tools / 150kg with tools and weights.</p> <p>Power & Autonomy 4 electric engines of 110W each. 4 mounted driving wheels. Maximum load on top of the robot: 90kg if Oz is not working the soil simultaneously. Maximum tow weight : 300kg if Oz is not working the soil simultaneously. Remote control : 7h autonomy, 10m reach without obstacles. 2x1V lead batteries (2 x 12V, 80A/h) of Lithium batteries (2 x 12V - 40 to 100 A/h depending on the autonomy) Work autonomy: 3 hours (on lead batteries) and 4 to 10 hours (on Lithium batteries). Charging: manual charging by connecting the charger to the charging plug / Possibility to quickly change batteries in between sessions to have Oz rapidly continue its work (<5 minutes). Battery life : 400 charging cycles (lead batteries) / 2000 charging cycles (Lithium batteries) Lithium batteries are optional to increase autonomy.</p> <p>Use & Storage IP 64 Protection : resistant to dust and water projections (no high pressure cleaning). Maximum authorized slope : 10%. Maximum moving speed : 1,3km/h (100m in less than 5min.). In 4 hours, Oz can weed 48 rows of 100m each. Communication with user via text message (coverage required).</p>	<p>Moving speed : 3-4 km/h Size : length 2,5m, height : 1,3m, with adjustable in order to weed different type of row of vegetable : from 1,4 to 1,8m between the wheels (maximum width of 2,7m) Weight : (without tools) : 600 kg Work autonomy : 4 to 8 hours</p>	<p>Moving speed : 4 km/h Size : height : 1,3m, width : 2m Weight : (without tools) : 800 kg 4 mounted driving wheels</p>
---	--	---

Key target group

Market gardening and vegetable farming farmers. Due to the price, farmers have to have a big farm (more than 10 ha) and investment opportunities.	Vegetable farms (that grow carrots, salads, beetroots, in fields)with important cultivated areas and important own funds and investments opportunities.	Vinegrowers.
--	--	--------------

Bibliography

<https://www.naio-technologies.com/>
<https://www.societe.com/societe/naio-technologies-538138033.html>
<https://www.lesechos.fr/pme-regions/innovateurs/0301024848303-naio-technologies-leve-2-millions-pour-industrialiser-ses-robots-agricoles-2139383.php>



DATA

Identity

<p>The meeting of Pierre Soudan and Romain Wittrisch during a entrepreneurship master resulted in the creation of this company. Company that create (from the design to the construction and the commercialisation) tools for market gardening farms and unprofessional gardening. Those tools are particularly adapted for organic farming.</p>	<p>Name : Terrateck Adress : 472 rue d'Armentières 62 660 Beuvry, FRANCE Creation Date :2013 Number of employees : 3,5 FTE Legal entity : simplified joint stock company Profil of the company's founder(s) : Pierre Soudan, son of a farmer with a mechanical engineering degree and Roman Wittrisch, son of a farmer with a business school degree</p>
--	---

History

2010 - 2013	2013	2013- 2017	2018	2019	2020	2021
Participations in numerous contests for young innovators, start-ups, innovative projects.	Creation of the company	Creation and selling of more than 30 differents tools for market gardening and gardening. 2 patents filling.				

Fund raising

XXX	2017	2018	2019	2020	2021
Fundraising of 250 000€ after the participations of contests for young innovators (no date available).					

Turnover

2013	2014	2015	2016	2017	2018	2019	2020	2021
	380 000€	742 000€						

Employees profiles

2013	2014	2015	2016	2017	2018	2019	2020	2021
		3,5 full-time equivalent. 1 person with commercial background, 1 person with technical and engineering background.						

PRODUCTS

Type of products

No production of robots here.
Creation of tools for organic market gardening.

List of products/Technical sheets

	SEEDLING	SOIL PREPARATION	WEEDING	HARVEST
Tools adapted for different tasks :	- Seeder, - Planter	- Hoe, - Furrow opener, - Hand ridger	- Stirrup hoe, - Hand hoe, - Tine harrow, - Wheel tiller	

Key target group

Farmers cultivating in an organic way, small farms without mechanical tools and tractors.

Bibliography :

<http://www.terrateck.com/en/>
<http://www.lavoixdunord.fr/archive/recup/region/bethune-pierre-romain-et-terrateck-soutiens-techniques-ia0b0n2432845>
<https://www.bethunebruay.fr/actualites/terrateck-quand-agriculture-bio-et-m%C3%A9tallurgie-font-bon-m%C3%A9nage>



SABI AGRI

DATA

Identity

Company created a year ago by Alexandre Prevault, farmer and mechanical engineer that sell an electrical tractor for market gardening farms	Name : Sabi Agri Address : Biopole Clermont-Limagne, 2 rue Michel Renaud, 63 360 Saint Beauzire, FRANCE Creation Date : 2017 Number of employees : 0 except of the funder Legal entity : simplified joint stock company Profil of the company's founder(s) : Alexandre Prevault, son of a farmer, farmer himself and mechanical engineer
---	---

History

2017	2018	2019	2020	2021
2 years of research and development before the creation of the company. It is possible to pre-order the tractor in 2017 in order to receive it in 2018. No information on the industrialisations methods.				

Fund raising

2017	2018	2019	2020	2021

Turnover

2017	2018	2019	2020	2021

Employees profiles

2017	2018	2019	2020	2021
No employees, only the funder. He gets help from his friends from his engineering school.				

PRODUCTS

List of products

Electric tractor ALPO for market gardening farmers
Price (with tools) : 30 000 euros

Description

Can be used exactly like a classical tractor : all the tools for seedling, soil preparation, soil maintenance, harvest can be installed on the front or on the back of this tractor. The farmer drives this tractor with a joystick. Differences with a classical tractor : lighter (no soil compaction), no sound pollution, no gaz pollution.

Technical Sheets

Size and weight :
Wheel size : 50cm
Size : width adjustable to the farmer's crop bed (from 80 to 160 cm), height : >2m, length: less than 2,5m
Weight (batteries included) : 450 kg
Power & Autonomy
4 mounted driving wheels but possibility to have front freewheels
Maximum load weight : 400 kg on each electrical cylinder (one on the front, one on the back)
Moving speed : 5 km/h, maximum moving speed : 18 km/h
Agricultural self-cleaning tires
2 Lithium batteries with power of 25 horsepower (?)
Work autonomy: 8 hours with full charge within 2 hours

Use
Driven by the farmer sat on the top of the tractor with a joystick. Can also be driven with a remote. Can about-turn on the spot. Adjustable to every classical tools that can be towed.
The central area is hollowed-out so that the farmer can see the working area.
In the future
Electrical batteries will be charged with solar panels. The creator thinks that the tractor will work with only clean energies.
The tractor will move automatically thank to RTK GPS.
Tractor record the location of the plant it seeded and the use this information to continue working on the crop bed.



Targeted professionals

Farmers cultivating in an organic or in a conventional way, classical small market gardening farms with mechanical tools and tractors. Also arboriculturists and winegrowers.
In the future, will target cereal crop farms with a fleet of tractors, working simultaneously and following the farmer.

Bibliography

<https://www.sabi-agri.com/>
<https://www.societe.com/societe/sabi-agri-831190806.html>
<https://www.francebleu.fr/infos/agriculture-peche/un-tracteur-100-electrique-made-auvergne-1511810588>
SIVAL event in january 2018

Bilberry**DATA***Identity*

Name :
Adress :
Creation Date :
Number of employees :
Legal entity :
Profil of the company's founder(s) :

History

2011	2012	2013	2016	2017	2018	2019	2020	2021

Fund raising

2013	2014	2015	2016	2017	2018	2019	2020	2021

Turnover

2013	2014	2015	2016	2017	2018	2019	2020	2021

Employees profiles

2013	2014	2015	2016	2017	2018	2019	2020	2021

PRODUCTS*List of products*

--	--

Description

--	--

Technical Sheet

--	--

Key target group

--	--

Bibliography

--	--

Canvas

DATA

Identity

Name :
Adress :
Creation Date :
Number of employees :
Legal entity :
Profil of the company's founder(s) :

History

2011	2012	2013	2016	2017	2018	2019	2020	2021

Fund raising

2013	2014	2015	2016	2017	2018	2019	2020	2021

Turnover

2013	2014	2015	2016	2017	2018	2019	2020	2021

Employees profiles

2013	2014	2015	2016	2017	2018	2019	2020	2021

PRODUCTS

List of products

--	--

Description

--	--

Technical Sheet

--	--

Key target group

--	--

Bibliography

--	--